Localization Roadmap for Indian Automotive Sector

2021

Contents

Executive Summary

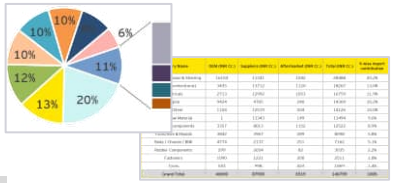
Localization Roadmap for Indian Automotive Sector
Approach Taken

Data Analysis for FY 19-20

Top Categories

- Identification of Top HS Codes based on import value across OEMs and suppliers
- Categorization of HS Codes based on the application in the Auto industry
- Identification of top 12 categories, sub categories and non automotive sector imports

Data Drill Down



- Country wise analysis for component import
- Automotive segment classification based on OEM, Supplier, Aftermarket
- Sub category level import analysis for each main category

Category Deep Dive

- Key Trends & their impact
- Identification of key reasons for import
- Interviews & online survey across OEMs & suppliers
- CFTs conducted across identified top categories of import components

Assessment of Localization potential

Enablers / Deterrents
- Technology and Capability
- Supply Chain
- Economies of Scale
- Govt Policy and Tariffs

Market Drivers
- Regulatory Shift
- Consumer Trends
- Technology Obsolescence

Key Outcomes

Localization Potential
- Component wise assessment
- Mitigation of key barriers

Localization Targets
- Phase 1: 0-2 years
- Phase 2: 2-5 years

Localization Roadmap
- Govt Led
- Industry Led

Calibration of import values as per BS-VI norms

Localization Roadmap for Indian Automotive Industry

Study Coverage (Duration: Dec 2020 – Mar 2021)

Analysis of HS Codes

- 234 6-digit HS codes analysed
- Top 80% of importers by import value analysed
- Analysis of adjacencies with respect to the HS Codes
- Importer categorization by segments
- Country of Origin wise category analysis
- Sub-category wise analysis
- **Built insights into top 12 categories (by import value)**

Country level benchmarking

Thailand, Taiwan, China, Korea, Japan, Indonesia, Germany, Vietnam, Mexico

Primaries and Interviews with industry leaders

Online Surveys across Automotive OEMs & suppliers

SIAM-ACMA CFT brainstorming sessions with *7 to 8 members* per CFT including discussions with other industry associations

TOTAL STUDY COVERAGE

OEMs	SUPPLIERS
~18 OEMs	~42 Suppliers

- Engine
- Drive Transmission & Steering
- Electronics
- Electricals
- Tyres & Rubber Raw material + ATMA
- Iron & Steel CFT + ISA
- Tools, Dies and Moulds CFT + TAGMA

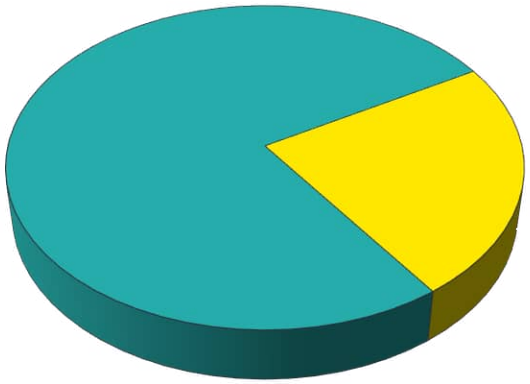
Key Categories & Definitions

IMPORTER TYPE SEGMENTATION		
Segment	**Definition**	**Illustrative**
PV (Mass)	PV players manufacturing above 80 ~ 100 K per annum	Maruti, Hyundai, Renault Nissan, Honda Cars, Toyota, Mahindra, Tata Motors, Ford, Skoda-VW, Kia
PV (Niche)	Luxury Car (PV) manufacturers	BMW, JLR, Mercedes
PV (Low Volume)	Others PV players which are less than PV (Mass)	MG, Fiat
PV/CV	Players who operate across both PV and CV categories	Tata Motors, Mahindra, Isuzu Motors
CV	CV Manufacturers	Ashok Leyland, VECV, Daimler India, SML Isuzu
2W/3W	2-wheeler / 3-wheeler manufacturers	Bajaj, TVS, Piaggio, Hero MotoCorp, HMSI, Suzuki Motorcycle, Atul Auto, Royal Enfield
Suppliers	Automotive component suppliers	Bosch, Motherson, Continental, Uno Minda, Lumax, Sundaram

CATEGORIZATION CRITERIA FOR KEY REASONS FOR IMPORT	
Criteria	**Key Categories**
Technology & Capability Constraint	• IP • Skill Level • Quality Constraints • Low R&D Orientation
Supply Chain	• Delivery Lead Times • Capacity Constraints • Absence of standards for aftermarket • Absence of Supplier ecosystem • OEM's preference to source from their parent facilities
Economies of Scale	• Domestic Market Volumes • Cost Competitiveness
Govt & Tariffs	• FTA • Policy Incentives • Ease of doing business • Duties

Insights into Automotive Imports : FY 2019-20* (1/3)

Automotive Industry Buying

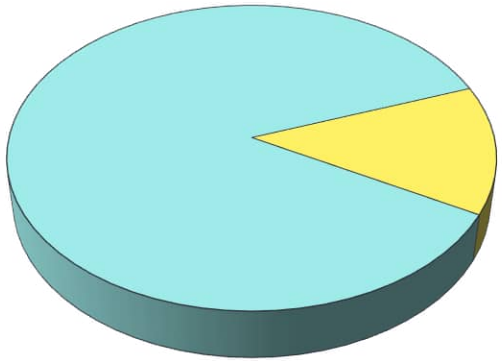


Import as % of Sales Turnover 23%

Automotive Import Summary (INR Lakh Cr)

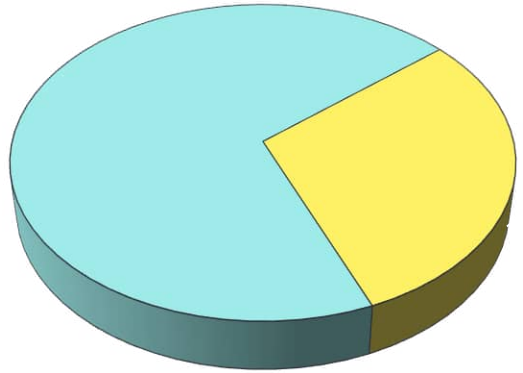
Category	Import	Sales Turnover
OEM	0.65	4.80
Supplier	1.10	3.68
Total	1.75	7.45**

OEM Buying



Import as % of Turnover 14%

Supplier Buying



Import as % of Turnover 30%

*Adjusted for BS-VI transition

** As per inputs from SIAM

234 6-digit HS codes were considered for analysis of top twelve categories

Insights into Automotive Imports : FY 2019-20* (2/3)

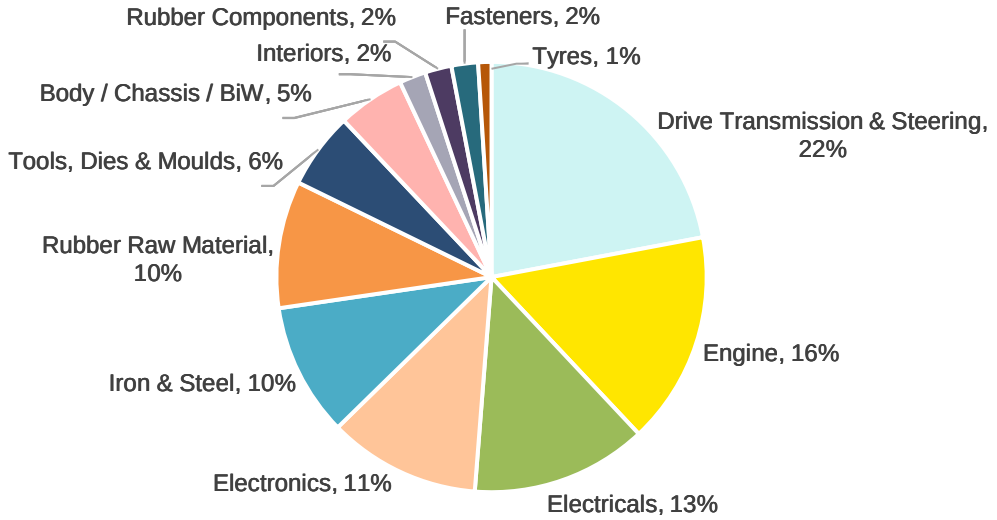
Automotive Import

Estimated total value of automotive import :
~ INR 1.83 lakh Crores

Top 12 Categories' Import Value :
~ INR 1.40 lakh Crores

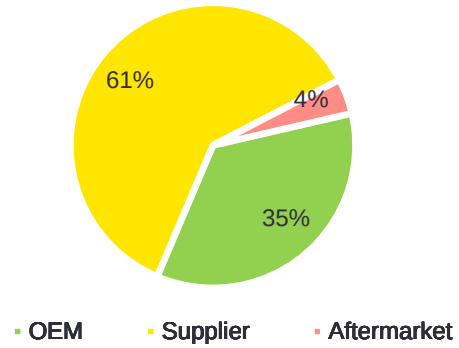
Top 12 Categories' Import Value, excluding Aftermarket :
~ INR 1.34 lakh Crores

Imports by Component Category**

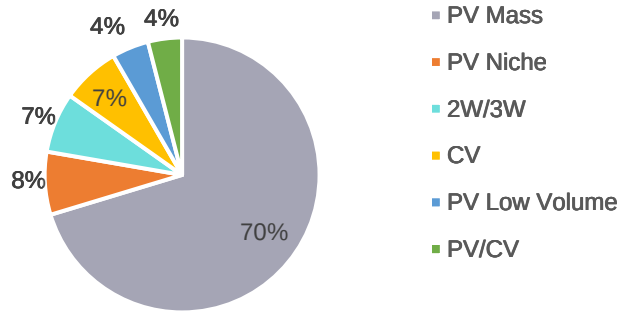


>50% imports from top 4 categories

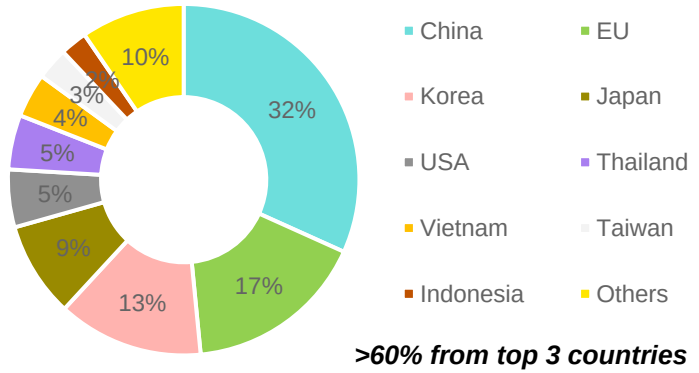
Imports by Automotive Players' Category#



Imports by Vehicle Segment



Imports by Country of Origin



>60% from top 3 countries

*Adjusted for BS-VI transition
**Including import for Aftermarket

234 6-digit HS codes were considered for analysis of top twelve categories

#Charts baselined as per top 12 category imports: INR 1.40 Lakh Cr
Chart baselined as per top 12 category imports for OEMs: INR 0.49 Lakh Cr

Insights into Automotive Imports : FY 2019-20* (3/3)

Snapshot of Import Analysis based on OEM & Supplier led imports

IMPORT CONTRIBUTION

Category Name	Import Value (INR Cr.)	% of Total Imports			Major Parts Imported (not exhaustive)	
		OEM	Suppliers	Total	OEM	Suppliers
Drive Transmission & Steering	29,861	13%	9%	22%	Automatic Transmission-Continuously Variable Transmission & Torque Converter, Steering System (Steering column & assembly, Rack & Pinion, EPAS – Electronic Power Assisted Steering), Axle Assy, Universal joint, Alloy Wheels	Fly wheel assembly & Gear box housing, Gears, Shafts, Bearing, Clutch Parts, Clutch Cylinder, Steering Wheel Assembly
Engine	21,092	9%	7%	16%	Engines Assy, Turbochargers, Exhaust Manifolds, Valves Cotter, Seals	Fuel Injection System components - Rail, Injectors, Exhaust System Components, Pulley
Electricals	17,540	2%	11%	13%	Wiring Harness, Lighting System, Alternator, Ignition Coil, Outside Rear View Mirror, Junction box	Connectors, Terminal, Cables, Motors, Magnets, Commutators, Carbon Brushes, Switches
Electronics	14,991	3%	8%	11%	Infotainment Systems, Speakers, Sensors, Electronic Control Unit, Camera's, RPS	Infotainment Systems, PCB Assemblies, Controllers, Semiconductor, Diodes and Electronics parts, Airbag Unit & Inflators
Iron & Steel	13,615	1%	9%	10%	Ultra High Tensile Steel (Coated & Cold Rolled), Hot Rolled Galvannealed (HR GA), Stainless Steel for Exhaust System, Fuel Tank Steel, Special Alloy Steels	
Rubber Raw Material	13,344	0%	10%	10%	-	Natural & Synthetic Rubber, Chemicals
Tools, Dies & Moulds	7,785	3%	3%	6%	Sheet Metal Dies for Skin Panel, Suspension Comp. Plastic: IP, Bumpers, Console, Dashboards Accessories & Components of Tools & Dies	
Body/Chassis/BiW	6,882	4%	2%	5%	BIW Parts & Sub Assemblies, Chassis, Sunroof assembly & components, Tubular & fabricated parts	
Interiors (non-electronic)	2,940	1%	2%	2%	Plastic Parts, Mirrors, Glass, Seating System Parts, Safety System Parts	Assembly covers, Retainer parts, Clamps, Protectors
Rubber Components	2,939	0%	2%	2%	Gaskets, Seals, Washes, Hoses, Bushes	
Fasteners	2,304	1%	1%	2%	Bolts, Nuts, High Tensile Fasteners, Washers & Rivets	
Tyres	1,546	0.4%	0.7%	1.1%	Sealant Tyres, Run Flat Tyres	
TOTAL	**1,34,839**	**36%**	**64%**	**100%**		

*Adjusted for BS-VI transition

Key Reasons for Import (1/2)

Categories	Key Reasons for Import			
	Technology & Capability	Supply Chain	Economies of Scale	Govt Policy & Tariffs
1. Drive Transmission & Steering	**Medium** *Platform parts, design and co-development done overseas with parent company*	**Low** *Limited / lack of suppliers for Automatic Transmission & high precision transmission components*	**Medium** *Limited scope due to varying transmission technologies across OEMs & limited use of Automatic Transmission, Continuously Variable Transmission, Torque Convertor*	**Low** *China is cost competitive*
2. Engine	**High** *Limited technical capability & long validation cycles*	**High** *Short supply of high grade steel & unavailability of precious metals*	**Medium** *Limited scope due to varying engine technologies across OEMs; low volumes*	**Medium** • *BS-VI norms for EATS* • *FTA for engines*
3. Electricals	**Medium** *Component quality constraints*	**Medium** *Raw material unavailability; unavailability due to demand across multiple industries*	**Medium** *Limited scope due to large number of variants, low volume, price & IP issue*	**Low** *China is cost competitive*
4. Electronics	**High** *Limited technical / design capability for Semiconductors & Fab manufacturing*	**High** *Raw material unavailability, quality concerns & patent issues*	**High** *Global Tier-1 suppliers' mother plants located outside India to scale at global volumes*	**Medium** *Relatively higher incentives in other countries to boost local ecosystem*
5. Iron & Steel	**High** *Steel grades such as high strength, alloy steel & special coated steel under development*	**High** *Delay in delivery & shortfall of delivered quantity against ordered quantity in case of ramped up demand*	**Medium** *Relatively high MOQ requirement for certain grades locally; lack of grade standardisation*	**Low**

Low, **Medium**, **High** indicate the severity of the reason for import

Key Reasons for Import (2/2)

Categories	Key Reasons for Import			
	Technology & Capability	Supply Chain	Economies of Scale	Govt Policy & Tariffs
6. Tyres, rubber components and rubber as Raw Material	**Medium** *Technology gap due to specific homologation requirements of select markets; speciality tyres like sealant tyres*	**Medium** *Global sourcing standards for luxury vehicles & low availability of natural rubber*	**High** *Limited scope due to low volumes & high rates for Technically Specified Natural Rubber*	**Medium**
7. Tools, Dies & Moulds	**High** • *For high tensile steel press tools, skin panel injection moulds for IPs* • *Higher turn around time & cost in India vis-à-vis other countries such as China, Korea*	**Medium** • *Unavailability of tool steel & high investment with long ROI period for manufacturing tools* • *Capacity constraints in case of demand ramp up*	**Low**	**Medium** • *Imports under EPCG at zero duty* • *FTAs with select countries* • *Inverted duty structure*
8. Body/ Chassis/ BiW	**Medium** *Limited technical capability on advanced processes*	**Medium** *Unavailability of advanced materials especially aluminium & aluminium components*	**Low**	
9. Interiors (non-electronic)	**High** *Capacity constraints, quality issues & lack of manufacturing competence (plastics, acrylics)*	**High** *Unavailability of compounding resins*	**Medium** *Limited scope due to varying designs & requirements*	**Low**
10. Fasteners	**Medium** • *Low value add and high testing and validation lead times* • *Safety critical fasteners*	**Medium** *High domestic raw material prices*	**High** *Pre-assembled engines/kits contain fasteners, leading to lower stand-alone volume requirement*	**Low**

Low, **Medium**, **High** indicate the severity of the reason for import

Key Components for Localization (1/2)

Categories	Key Components for Localization	
	Phase 1: 0-2 Years	**Phase 2: 2-5 Years**
1. Drive Transmission & Steering	Gears, Shafts & shaft assemblies, electronic power assisted steering parts (EPAS), Steering Column & assy., Rack & Pinion, Axle Assembly, Clutch assembly parts such as clutch buttons, clutch plates, pressure plates & slave cylinder	Steering wheel assembly along with infotainment switches & airbags, Transmission Belts & Hoses (especially AC & Brake Hoses), Automatic Transmission (AT) assembly (Torque Converter, Continuously Variable Transmission), Child Parts of Bearings, Alloy Wheels, Axle Components
2. Engine	Assembly of exhaust manifold (including canning and coating process), assembly of gasoline force aspirated engines, key fuel injection parts such as throttle body, distributor pipes (Inlet, outlet), fuel rail, tensioners, etc., Cylinder Block, Head & Liners for 2W, AC pulley	Injectors for gasoline engines, Exhaust After Treatment System (EATS), Turbochargers, Crankshafts & Camshafts, Exhaust Gas Recirculation (EGR) Assembly
3. Electricals	Antenna cables, Starter Motor & Alternator Assembly (cage, armature), Motors for Power Windows, Wipers, Blowers, Radiators, Motor Control Unit (MCU) Assembly / Sub-assemblies, levelling motors (micromotors)	Connectors for wiring harnesses, Terminals, High Temperature Cables, Micromotors & Actuators for Outside Rear View Mirror (ORVM), Headlamp, HVAC, Anti-lock Braking System (ABS)
4. Electronics	Low-tech sensors such as rear parking sensors, cabin temp. sensors, immobilizers etc., Ultrasonic sensors, components of Electronic Control Unit (ECU) such as casing/ cover, bracket, Infotainment parts like Speakers, Tweeters, Bluetooth microphones & antenna, assembly of Infotainment Systems, assembly of Airbag units, Outer Casings & Plastic Injection Moulded	PCBs, Inflators, high tech sensors like wheel speed, crankshaft, camshaft, oxygen, etc. Explore adjacency with consumer electronics, capital goods, etc
5. Iron & Steel	Coated stainless steel, high abrasive & high tensile steel such as Dual Phase (DP980), High Strength Steel (HSS900), HSS1000, etc., Ultra High Strength Steel (UHSS) – High Strength Low Alloy (HSLA), Complex Phase (CP), Martensitic Steel (MS), Transformation Induced Plasticity (TRIP), Twining Induced Plasticity (TWIP) steel in Hot Rolled, Cold Rolled & Coated, Base Hardened High strength coated steel in Skin panel quality	Special grade steel – high grade steel for EATS, cold rolled & hot rolled (basis gap identification), etc., Boron Steel of special alloy coatings like Aluminium Silicon (Al Si), Electro Galvanised (EG) steel of special alloy coatings such as Al Si, Zinc Nickel (Zn Ni) & one side coating technology, Sandwich type steel

Key Components for Localization (2/2)

Categories	Key Components for Localization	
	Phase 1: 0-2 Years	**Phase 2: 2-5 Years**
6. Tyres, rubber components and rubber as Raw Material	15”-18” PV Segments, 17”-21” 2W/3W Segments, Seals (especially inlet & exhaust)	19”-23” PV Segments, Technically Specified Natural Rubber, Synthetic Rubber, Rubber Gaskets, Washers
7. Tools, Dies & Moulds	Injection Moulds for bumpers, dashboard panels, door trims, floor consoles, garnish cowls, lighting tools, 2 material/color (2K) large size tools also be localized - air deflector, end plates etc. C Pillar, Rear Back Panel and Plenum Panel, Sheet Metal Press Tools for all mounting brackets and select Inner structural members, Fixtures for Machining – Boring, Drilling, Turning, Milling	Hot runner & skin panel manufacturing, high gloss large tools like B Pillar outer, tail gate light panel, Sheet metal press tools for parts like floor members and rear cross member, tools for Bonner Inner, tail gate inner and Sun Roof frame; Tools for hot forming like B Pillar, Tunnel, Dash board inner, front cross member etc. and high strength tools, fixtures for assembly & checking
8. Body/ Chassis/ BiW	Sunroof Assembly, Door Locks, Latches	BIW Parts & Sub Assemblies, Chassis, Tubular & fabricated parts
9. Interiors (non-electronic)	Interior Plastic components	Raw Material for Plastics
10. Fasteners	All Fasteners for new models, Non-Safety critical fasteners	Fasteners for all the running models of engine & transmissions, wheel nuts

Localization Targets (1/3)
Overall : By Segment

Category	Key Components with Localization Potential	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Top Categories	• *Drive Transmission & Steering* • *Engine* • *Electricals* • *Electronics* • *Iron & Steel* • *Rubber Raw Material* • *Tools, Dies & Moulds* • *Body / Chassis / BiW* • *Interiors (non-electronic)* • *Rubber Components* • *Fasteners* • *Tyres*	**PV (Mass)**	34,426	4-6%	19-24%	6,595 – 8,306
		PV (Low Volume)	2,116	0-1%	2-3%	46 – 62
		PV (Niche)	3,623	-	1-2%	39 – 58
		PV/CV	1,960	5-6%	11-14%	224 – 270
		CV	3,364	1-3%	7-9%	219 – 290
		2W/3W	3,467	2-5%	16-20%	544 – 682
		Suppliers	85,883	2-5%	17-21%	14,238 – 18,063
Total for the Top 12 Categories			**1,34,839**	**3-5%**	**16-21%**	**21,906– 27,731**
Grand Total Target for the Industry			**1,74,928**	**3-5%**	**14-19%**	**25,915 – 33,744***

The baseline Import Value includes Semiconductor parts as well, on which no reduction in imports has been considered. If we exclude semiconductor parts, the reduction % would be higher.

***The Localization Targets for the entire Automotive industry have been estimated by assuming a 10-15% import reduction for other components (besides the top categories listed above). Component deep dive has not been conducted for the other components, thus, the numbers are based on high level estimation.**

Localization Targets (2/3)
Overall : By Component Category

	Component Category	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Top Categories	Drive Transmission & Steering	29,861	3-5%	15-19%	4,394 – 5,742[#]
	Engine	21,092	1-3%	13-17%	2,822 – 3,653
	Electricals	17,540	4-6%	15-20%	2,637 – 3,438
	Electronics	14,991	2-6%	18-25%	2,756 – 3,677
	Iron & Steel	13,615	5-10%	25-30%	3,394 – 4,073
	Rubber	13,344	-	16-19%	2,083 – 2,543
	Tools, Dies & Moulds	7,785	6-9%	18-21%	1,378 – 1,647
	Body, Chassis & BIW	6,882	2-4%	11-13%	742 – 890
	Interiors (Non-Electronic)	2,940	3-7%	14-17%	406 – 507
	Rubber Components	2,939	-	6-8%	177 – 221
	Fasteners	2,304	-	21-25%	484 – 580
	Tyres	1,546	10-13%	41-49%	634 – 761
Total for Top 12 categories		**1,34,839**	**3-5%**	**16-21%**	**21,906– 27,731**
Grand Total Target for the Industry		**1,74,928**	**3-5%**	**14-19%**	**25,915 – 33,744***

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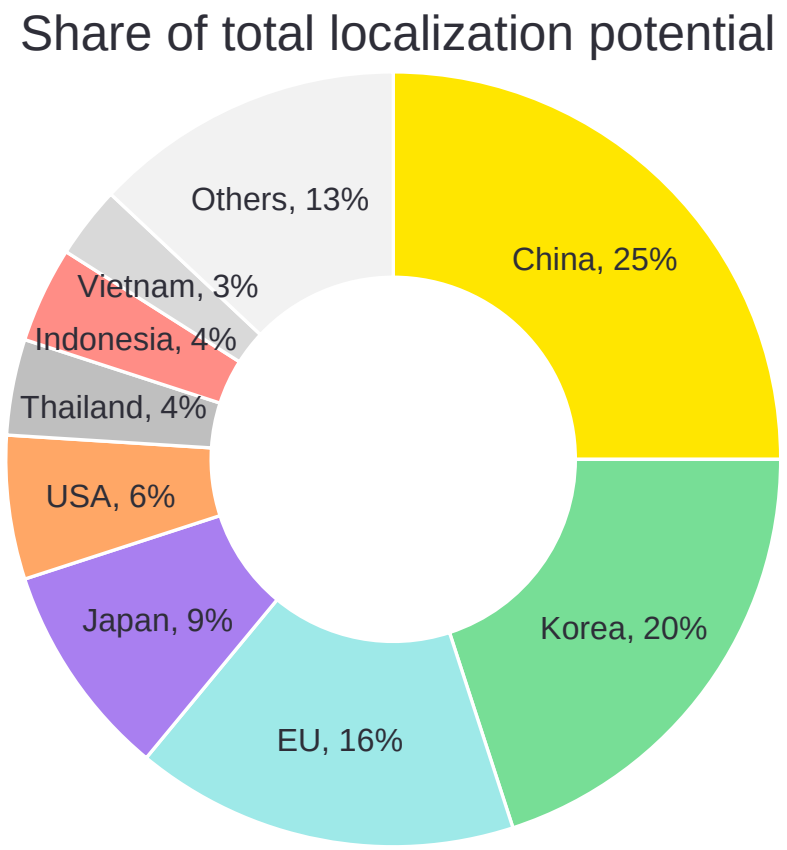
[#]Transmission Sub category: Localization efforts made in 0-5 years will result in additional localization impact of approx. INR 1,300 Cr. over a period of 5-7 years. Details mentioned in the annexure

Localization Targets (3/3)
Overall : By Country of Origin

Country of Origin	Import Value Reduction* (INR Cr.)
China	5,413 – 6,961
Korea	4,428 – 5,504
EU	3,466 – 4,377
Japan	1,986 – 2,543
USA	1,192 – 1,529
Thailand	940 – 1,205
Indonesia	849 – 1,051
Vietnam	683 - 866
Others	2,949 – 3,695
Total	**21,906– 27,731**
Grand Total	**25,915 – 33,744***



***Estimation is based on import value for FY20**

Support from Government for enhancing localization (1/3)

Categories	Government Support		
	Ecosystem development incentives	**Duties & Tariffs**	**Standardization/Consolidation**
1. Drive Transmission & Steering	**Phase 1: 0-2 years** • Localization impetus from the govt as part of the PLI scheme focussing on Automatic Transmission (AT) – Continuously Variable Transmission (CVT), Torque converter (TC) (CVT & TC have a combined market share of 11% currently) • Policy interventions for AT to expand current supplier base and to facilitate technology transfer from global OEMs/suppliers supplying parts to their subsidiaries in India (e.g. specifying local content requirements) • Policy interventions for Bearing components to facilitate technology transfer from global OEMs/suppliers supplying child parts to their subsidiaries in India (e.g. specifying local content requirements) • Incentives for global OEMs to establish their mother plants in India.	**Phase 1: 0-2 years** • Enable imports of bearing raw material at reasonable duties to enable faster localization of bearing components	**Phase 1: 0-2 years** • Government support in terms of rationalization of validation norms to reduce testing & validation costs for steering column & column assembly to support industry localization effort
2. Engine	**Phase 1: 0-2 years** • Incentives for global manufacturers to set up a manufacturing facility in India to support localization for exhaust after treatment system, fuel injection system • Policy interventions to facilitate technology transfer between global OEMs/suppliers to their subsidiaries in India (e.g. specifying local content requirements)		**Phase 1: 0-2 years** • Validation norms in terms of time for testing to be rationalized (incl. extension of validation) to support Industry efforts towards localization especially for repeated items
3. Electricals	**Phase 1: 0-2 years** • Interest subsidies for investment and concessions on infrastructure, utilities and land, Corporate Tax reduction, tax holidays, etc. • Govt aid for augmentation of testing & validation facilities • Incentives for global suppliers to setup plants in India especially for connectors & terminals as part of their expansion plans **Phase 2: 2-5 years** • PLI scheme to include incentives to boost future EV ecosystem (e.g. Components for EVs such as Charger, Battery, DC Motor, etc.)		

Not to introduce any abrupt policy changes against the existing imports, since localization of Auto Components/Raw Material have to be carried out in a phased manner as capabilities are built over a period of time

Support from Government for enhancing localization (2/3)

Categories	Government Support		
	Ecosystem development incentives	Duties & Tariffs	Standardization/Consolidation
4. Electronics	**Phase 1: 0-2 years** • PLI scheme to boost the electronics manufacturing in India for automotive and other adjacent industries' requirements • Support through PMP for high value components • Incentivise Indian manufacturers for alliances with global manufacturers, including FDI opportunity, to facilitate technology transfer to create capability especially for PCBs • Incentivise suppliers to invest for localization through interest subsidies, export incentives to boost total volumes, tax holidays, etc.	**Phase 1: 0-2 years** • Import duty exemptions and / or restructuring to streamline the availability of raw material in India	**Phase 2: 2-5 years** • Policy intervention for development of the electronics-semiconductor sector by consolidating demand across all major contributing sectors such as telecom, mobility, automotive, etc.
5. Iron & Steel	**Phase 1: 0-2 years** • Incentivise Indian Steel manufacturers for alliances with global Steel players, including FDI opportunity, especially for specialised steel grade requirements		**Phase 1: 0-2 years** • Govt to revisit the BIS certification timelines to enable faster approvals to support localization **Phase 2: 2-5 years** • Govt Aid / incentivisation for self-reliance in new & emerging advanced materials
6. Tyres, rubber components and rubber as Raw Material	**Phase 1: 0-2 years** • Incentives in the form of corporate tax reduction, interest subsidies, concessions on utility overheads for setting up rubber plantation & tyre manufacturing ecosystem • Need for Scrappage/Recycling Policy for Tyres **Phase 2: 2-5 years** • Incentives in the form of corporate tax reduction, interest subsidies on setting up synthetic rubber production plants	**Phase 1: 0-2 years** • Duty structure on rubber as a raw material to be relooked into to support key imports while keeping in mind the interests of the local rubber industry as well as demand of the Auto industry • Tariff Rate Quota (TRQ) based duty structure to be explored to the extent of gap between domestic production & consumption for Natural Rubber	

Not to introduce any abrupt policy changes against the existing imports, since localization of Auto Components/Raw Material have to be carried out in a phased manner as capabilities are built over a period of time

Support from Government for enhancing localization (3/3)

Categories	Government Support		
	Ecosystem development incentives	**Duties & Tariffs**	**Standardization/Consolidation**
7. Tools, Dies & Moulds	**Phase 1: 0-2 years** • Incentivise Indian manufacturers for collaboration with global tool makers to facilitate technology transfer & further investments for R&D in tool & die making • Strengthen the ecosystem for Tool makers by providing interest subsidies, ease of financing, concessions on infrastructure, utilities, etc. to local tool makers • Industry specific tooling SEZ/ clusters for specific high value tooling (e.g. Class A sheet metal panels etc.) **Phase 2: 2-5 years** • Govt incentive for self-reliance in new & emerging advanced materials	**Phase 2: 2-5 years** • Reduce duties on Raw Materials (tool steel, etc.) and tooling machinery to make Indian toolmakers globally cost competitive and eventually levy higher duties on import of finished tools	**Phase 1: 0-2 years** • Standards for casting quality to be set by the government based on international standards
8. Body/Chassis/ BiW	NA	NA	NA
9. Interiors (non-electronic)	**Phase 1: 0-2 years** • PLI - PMP integration required and a focus on net exports, rather than just reducing volume of imports • Alliances with global partners for localization & technology transfer support • Set up R&D centres & testing facilities to ensure technology upgradation & shorter turn around time for the components • As the concept of Light-weighting is increasing across vehicle segment, the usage of plastics is also increasing consequently. Plastic manufacturers (polypropylene, polyurethane and polyvinyl chloride) to be provided incentives to enhance the local production	**Phase 1: 0-2 years** • Recalibration of the duty structure for top category components that can be easily localized to create cost competitiveness	
10. Fasteners			**Phase 1: 0-2 years** • Min quality standard creation by government to localize safety critical fasteners, making them competitive for global markets

Not to introduce any abrupt policy changes against the existing imports, since localization of Auto Components/Raw Material have to be carried out in a phased manner as capabilities are built over a period of time

Support from Industry for enhancing localization (1/4)

Categories	Industry Support		
	OEMs	**Suppliers**	**Associations**
1. Drive Transmission & Steering	**Phase 1: 0-2 years** • Consolidation of current & forecasted requirements for AT (including export) to meet the MOQ (Minimum Order Quantity) for localized production. Discussion with concerned suppliers about the feasibility • Invest in supplier development for upgrading the technology, designs & capability to strengthen the manufacturing ecosystem for bearings • Focus on joint localization for Shaft & shaft assemblies, Gears, Gearbox housing, Flywheel assembly, Transmission Belts & Hoses (especially AC & Brake hoses) with suppliers • Basis the above, formation of amalgamation of suppliers strongly recommended to cater the demand of Automatic Transmission & explore feasibility of common Technology / Platform	**Phase 1: 0-2 years** • Tier-1 suppliers for bearings should enable themselves and Tier-2 suppliers to target global programs to develop scale & avoid repetition of Development & Validation costs • Bearing manufacturers should work on joint development of bearing raw materials with steel makers • Focus on building capability to localize clutch assembly parts • Build technology & capacity for gravity die casting & other machining processes for 2W Alloy wheels	**Phase 1: 0-2 years** • SIAM and ACMA to create an Industry Task Force to co-create a work plan for localizing Automatic Transmission (AT)
2. Engine	**Phase 1 : 0-2 years** • Prioritize localization of components impacted by BS6 (Bharat Stage 6) emission norms and CAFE (Corporate Average Fuel Efficiency) norms, such as injectors & sub parts of injectors, turbochargers due to expected surge in volume in the coming years • Incentives for localization of CNG kits • Invest towards developing manufacturing & volume capability for 5Cs (Crankshaft, Camshaft, Cylinder Head, Cylinder Block, Connecting Rod) safety critical engine components especially in line with global standards **Phase 2: 2-5 years** • Develop self-reliance on Advanced Materials & Rare earths (especially for Engine & EATS materials)		

MNC suppliers to consider India as a Platform to cater to their future expansion plans and export requirements

Support from Industry for enhancing localization (2/4)

Categories	Industry Support		
	OEMs	Suppliers	Associations
3. Electricals	**Phase 1 : 0-2 years** • Promote investments at supplier end with aggressive targets towards manufacturing cables, wires & harnesses and motors & motor components • Aggregation of demand for connectors & terminals to establish domestic capacity for localization • Standardization of wiring harness designs as well as the connectors to explore opportunity towards localization	**Phase 2: 2-5 years** • R&D augmentation to boost domestic production of motor magnets (Light rare earth minerals may also be processed further for certain applications) • Explore exports of finished wire harness from India instead of sourcing globally to aid localization through economies of scale	
4. Electronics	**Phase 1: 0-2 years** • Need to identify semi-conductor requirements for the future-both direct & indirect	**Phase 2: 2-5 years** • Forming a consortium of top PCB players to setup a mega PCB factory catering multiple sectors	**Phase 1: 0-2 years** • Creation of an Cross Industry Task Force to work towards a work plan for setting up semiconductor industry locally • Consolidation of semiconductor requirement across sectors and joint representation to be made to the GOI
5. Iron & Steel	**Phase 1 : 0-2 years** • OEMs need to work closely with steel makers to develop GWT (Grey-White Transition) ranges ensuring quality consistency and delivery commitment • With Vehicle scrappage introduced by Government of India, OEMs, Steel Manufacturers & Vehicle scrapyards need to collaborate and develop a value chain to reuse & remanufacture/recycle iron & steel components	**Phase 1 : 0-2 years** • R&D focus towards development of advanced steels – High grade Automotive Steels, special steels, Tool Steels, Advanced materials for cutting tools (Carbide, Cermets, etc.) • Few grades at very low volumes required domestically might even call for an additional investment – Suppliers can target export market requirements to consolidate volumes • Development of flat steel grades (esp. low thickness) and introduce technologies like vacuum degassing in forging steels to meet the Auto quality requirements	**Phase 1 : 0-2 years** • Collaboration between SIAM & ISA for import substitution with defined timelines and regular review through a joint task force • Consolidation of grade wise steel requirements across OEMs to make local manufacturing viable for steel mills; SIAM, ACMA & ISA to work collaboratively on this • OEMs need to translate their requirement of steel grades into equivalent IS standard and if a certain grade is not available, SIAM & ISA need to discuss and include the same in IS standards **Phase 2: 2-5 years** • SIAM & ACMA to collaborate with ISA to include Steel grades for tool manufacturing in the production roadmap

MNC suppliers to consider India as a Platform to cater to their future expansion plans and export requirements

Support from Industry for enhancing localization (3/4)

Categories	Industry Support		
	OEMs	Suppliers	Associations
6. Tyres, Rubber Components and Rubber Raw Material	**Phase 1 : 0-2 years** • OEM to identify concept / tyre solution technically feasible in India to match technologies like Sealant tyre, low resistance rolling tyres, etc. **Phase 2: 2-5 years** • Localization for tyres to be taken up as the volumes mature and the testing & homologation efforts of the OEMs start getting realized	**Phase 1 : 0-2 years** • Rubber plantation drive from tyre OEMs : Increase Production capacities of Natural Rubber • Synthetic rubber production plan basis forecasted volume requirements for tyres in the future • Technology & capability for special applications to be developed through global alliances, investment focus, training, etc. in collaboration with ATMA • Service support to be streamlined internationally for positioning India as a tyre export hub • Plan for replacement of natural rubber by synthetic rubber to be explored **Phase 2: 2-5 years** • Build a consortium to enable circular economy of tyres to produce new tyres from end-of-life tyres	**Phase 1 : 0-2 years** • SIAM and ATMA to collaborate to optimize tuning requirements to reduce development and validation lead time for tyres • ATMA along with Government support to work towards brand building for Indian tyre manufacturers for target markets
7. Tools, Dies and Moulds	**Phase 1: 0-2 years** • Technical support from OEMs to Tool makers during the tooling development process (especially designs of imported tools, technical specifications, design feasibility & process engineering) • OEMs to provide better visibility over long term to enable tooling suppliers to plan better & invest in capacities to meet the requirements • OEMs to empanel a group of Tooling suppliers for local sourcing across different commodity categories • Adoption of select tool rooms by OEMs for mentoring and coaching **Phase 2: 2-5 years** • Develop self-reliance on Advanced Tool Materials • Hot runner & skin panel manufacturing technology & capability to be established gradually	**Phase 1: 0-2 years** • R&D focus towards development of tools for HSS & Hot stamping, graining technology, etc. to achieve capability & product homogeneity • Build expertise in simulation & ensure availability of skilled /expert toolmakers during part trials, knowledge transfer etc. • Tier-1 suppliers (and OEMs, wherever applicable) can share their best practices and support tool rooms in areas of working with high tensile material, controlling material flow etc. **Phase 2: 2-5 years** • Laser graining facility for small, medium and large tools to be established	**Phase 1: 0-2 years** • SIAM, ACMA & TAGMA should collaborate through a joint task force to enable faster localization of Tooling • Develop a strong ecosystem for Indian Tool Manufacturers by investing into dedicated R&D facilities and Training Institutes specific to Tool/ Die/ Mould Design and Manufacturing & create capacity for future requirements-can also explore a consortium with global tool makers • TAGMA to discuss with MSMEs & facilitate in creating tooling manufacturing clusters

MNC suppliers to consider India as a Platform to cater to their future expansion plans and export requirements

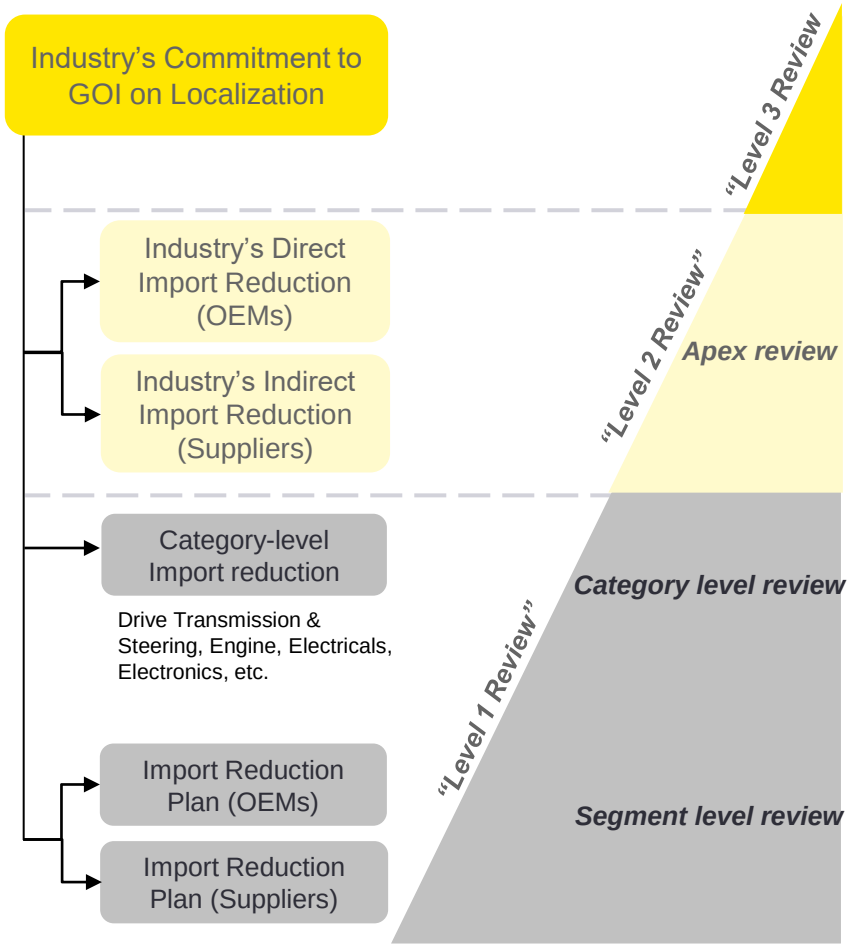
Support from Industry for enhancing localization (4/4)

Categories	Industry Support		
	OEMs	Suppliers	Associations
8. Body, Chassis, BiW	**Phase 1 : 0-2 years** • Stamping & Welding / Assy. of parts like Door Locks, Latches, etc. for premium / niche vehicle applications	**Phase 1 : 0-2 years** • Focus on building capability for low volume manufacturing in case of parts like Sunroof Assemblies & their components	
9. Interiors (Non-Electronic)	**Phase 1 : 0-2 years** • Demand aggregation & product standardization at the ends of the OEMs to enable MOQ to attain economies of scale for production • Focus on leveraging the existing competitive advantage of domestic markets (eg 2W market)	**Phase 2: 2-5 years** • Localization of raw materials such as compounding resins to meet the component production requirement	
10. Fasteners	**Phase 1 : 0-2 years** • All fasteners to be localized even in cases where the engines are imported, especially, with priority to non-safety critical parts • Demand aggregation at the ends of the OEMs to enable MOQ to attain economies of scale for production across categories **Phase 2: 2-5 years** • Localization for all the existing model fasteners, particularly engine and transmission related fasteners and wheel nuts		

MNC suppliers to consider India as a Platform to cater to their future expansion plans and export requirements

Mechanism for progress reporting (1/2)

Governance Structure to track progress against localization targets



Reviewer	Frequency	Review Agenda	Reporting Tracker
Policy makers	Bi-Annually	1. Update on the Localization Targets & the Industry's efforts 2. Discussion on aligning policy interventions to support the Industry's efforts towards localization	Localization Progress Summary Report
Executive Committee	Quarterly / Bi-Annually	1. Performance Review against the overall Localization Targets 2. Additional support required from other Industry Associations for select categories (ATMA, ISA, TAGMA, etc.) 3. Govt. Support & escalation (if any) required	Industry level Performance Dashboard
CFT members	Monthly / Bi-monthly	1. Performance review against the Localization targets for each category 2. Additional support / interventions required from other Industry Associations for select categories (ATMA, ISA, TAGMA, etc.) 3. Govt. Support & escalation (if any) required	Category level Summary Dashboards
Industry Associations with their OEM & Supplier members	Monthly / Bi-monthly	1. Performance Review against the Localization Targets and Plans of each OEM & Supplier member 2. Support required	Metrics Dashboards of OEMs & Suppliers

Mechanism for progress reporting (2/2)
Progress Metrics Framework and Reporting Trackers

Progress Metrics Development Framework

Parameters for progress metrics development:
- Vision and Case for Localization
- Baseline setting & Impact Assessment
- Monitoring and Governance Plan
- Target setting
- Support Plan (Govt / Industry Associations)
- Adoption and Implementation Plan
- Change Management

Key Performance Indicators

Outcome of Progress Metrics framework:
- Sustainability checklist and assessment
- Knowledge / Capability development
- Lessons learned

Objectives of Progress Metrics

- To link the project scope, benefits and future state Vision
- To identify key KPIs/ Success Metric for each business owner (OEM, Supplier, Support functions – Government, Industry Associations)
- To deploy a robust governance structure to continually monitor, manage, and make decisions
  - Assign the ownership & accountability to each business owner for achieving the target performance levels
  - Assign accountability for assessment / measurement of progress on a recurring basis
- To monitor the realization of target localization and net impact over the span of 5 years. (Baseline must be set to measure success and set expectations)

Progress Metrics	Description
Overall Import to Local buying ratio	Measures the automotive (OEM and suppliers) Import against local buying in % terms
OEM Import to local buying ratio	Measures the OEM Import against local buying in % terms
Supplier import to local buying ratio	Measures the suppliers Import against local buying in % terms
Overall Target Localization	Measures the net impact achieved for all top categories in value terms
Target Localization per category	Measures the net impact achieved for each category in value terms
Target Localization per segment	Measures the net impact for segment in each category in value terms

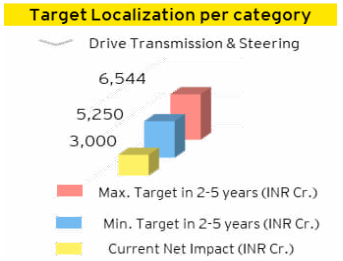
Reporting Trackers

Level 1 – Segment level Review

Metrics Tracker for OEMs & Suppliers

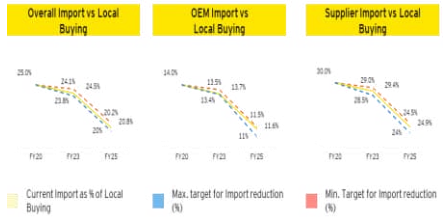
Level 1 – Category level Review

Category level Summary Dashboards (Illustrative)



Level 2 - Apex Review

Industry level Performance Dashboard (Illustrative)



Review highlights:
- Progress Metrics to be monitored & measured
- Directives based on the target performance and achievement to be issued to the respective business owners (OEMs & suppliers) to ensure compliance

Key Highlights : By Category

Localization Targets and Roadmap

Drive Transmission & Steering (1/5)
Localization Targets

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Drive Transmission & Steering	**PV (Mass)**	12,010	3-4%	11-16%	1,964 – 2,614
	PV (Low Volume)	730	-	-	-
	PV (Niche)	932	-	-	-
	PV/CV	820	12-14%	21-25%	173 – 203
	CV	1,194	1-3%	7-8%	79 – 95
	2W/3W	2,118	2-4%	13-18%	280 – 373
	Suppliers	12,057	3-6%	16-20%	1,899 – 2,457
Total		**29,861***	**3-5%**	**15-19%**	**4,394 – 5,742**

Category	Sub Category	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Drive Transmission & Steering	**Transmission**	7,481	-	4-8%	316 – 631[#]
	Transmission Components	3,152	5-10%	25-30%	788 – 946
	Bearings	3,000	-	4-8%	124 - 249
	Alloy Wheels	2,716	2-5%	15-20%	403 - 537
	Steering Systems & Components	1501	22-26%	36-43%	541 – 642
	Axle & Differential Components	1014	1-6%	18-22%	185 – 228
	Clutch & Clutch Components	915	5-9%	23-28%	213 – 256
	Others	10,082	3-5%	18-22%	1,824 – 2,253
Total		**29,861***	**3-5%**	**15-19%**	**4,394 – 5,742**

[#]Transmission Sub category: Localization efforts made in 0-5 years will result in additional localization impact of approx. INR 1,300 Cr. over a period of 5-7 years. Details mentioned in the annexure

*** Import value for Aftermarket has been excluded**

Drive Transmission & Steering (2/5)
Localization Roadmap

Components for localization

Gears, Shafts & shaft assemblies, electronic power assisted steering parts (EPAS), Steering Column & assy., Rack & Pinion, Axle Assembly, Clutch assembly parts such as clutch buttons, clutch plates, pressure plates & slave cylinder

Steering wheel assembly along with infotainment switches & airbags, Transmission Belts & Hoses (especially AC & Brake Hoses), AT assembly (TC, CVT), Child Parts of Bearings, Alloy Wheels, Axle Components

Localization Catalyst

Phase 1: 0-2 Years

Phase 2: 2-5 Years

- Consolidation of current & forecasted requirements for AT (including export) to meet the MOQ for localized production. Discussion with concerned suppliers about the feasibility
  - Formation of amalgamation of suppliers strongly recommended to cater the demand of Automatic Transmission & explore feasibility of common Technology / Platform
- Localization impetus from the govt as part of the PLI scheme focussing on Automatic Transmission (AT) – Continuously Variable Transmission (CVT), Torque converter (TC) (CVT & TC have a combined market share of 11% currently)
- Policy interventions for AT to expand current supplier base and to facilitate technology transfer from global OEMs/suppliers supplying to their subsidiaries in India (e.g. specifying local content requirements)
- Incentives for global OEMs to establish their mother plants in India
- SIAM and ACMA to create an Industry Task Force to co-create a work plan for localizing AT
- Tier-1 suppliers for bearings should enable themselves and Tier-2 suppliers to target global programs to develop scale & avoid repetition of Development & Validation costs
- Bearing manufacturers should work on joint development of bearing raw materials with steel makers
- Government support in terms of rationalization of validation norms to reduce testing & validation costs for steering column & column assembly to support industry localization effort
- Policy interventions for Bearing components to facilitate technology transfer from global OEMs/suppliers supplying child parts to their subsidiaries in India (e.g. specifying local content requirements)
- Invest in supplier development for upgrading the technology, designs & capability to strengthen the manufacturing ecosystem for bearings
- Build technology & capacity for gravity die casting & other machining processes for 2W Alloy wheels
- Focus on joint localization for Shaft & shaft assemblies, Gears, Gearbox housing, Flywheel assembly, Transmission Belts & Hoses (especially AC & Brake hoses) with suppliers
- Focus on building capability to localize clutch assembly parts
- Enable imports of bearing raw material at reasonable duties to enable faster localization of bearing components

FY19~20 Base — **5%** — **19%**

Government led initiatives

Industry led initiatives

Initiatives to be executed parallelly

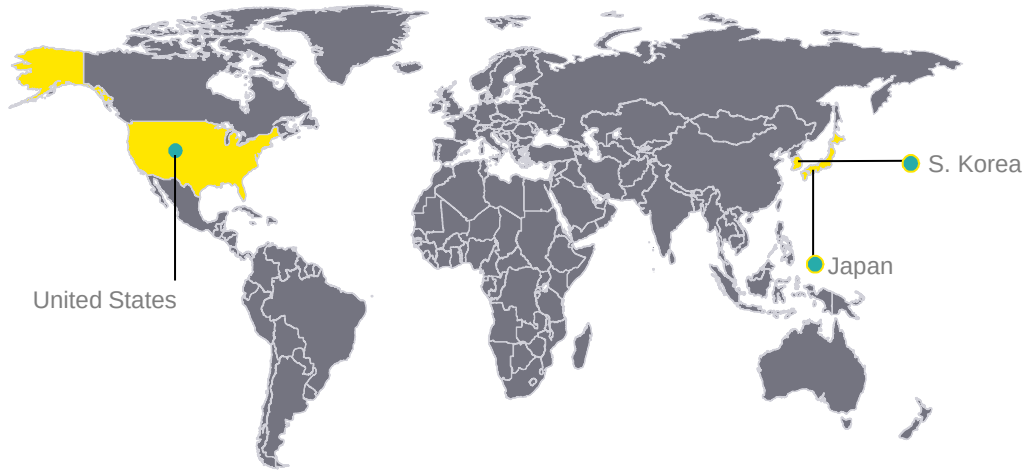
Initiatives to be executed sequentially

Expected Localization %

Drive Transmission & Steering (3/5)
Automatic Transmission : Global Perspective

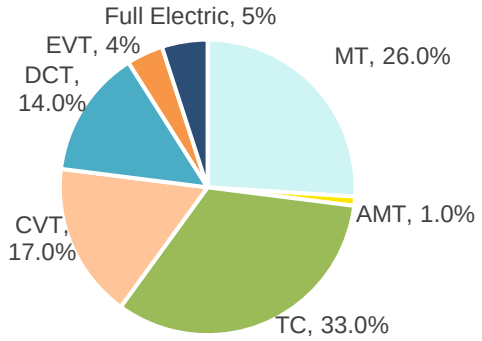
Global Automatic Transmission : Overview

Global Manufacturing footprint

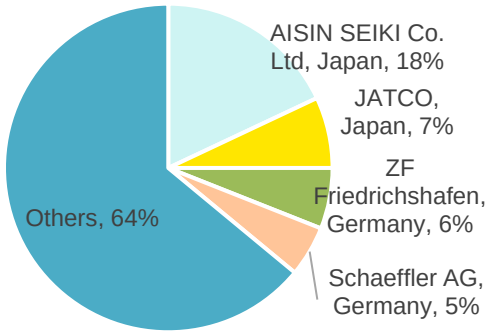


In advanced markets like Japan, US and South Korea the penetration of AT is over 80%

Global Transmission Market Share



Global Automatic Transmission Market : Suppliers



Key Market Trends

- Majority of the OEM and Supplier facilities for Automatic transmissions are located in geographies with AT penetration above 50-80%
- Major OEMs have setup mother plants in these key geographies to supply Automatic Transmissions for their global requirements
- AT supply is dominated majorly by Top 2~3 independent suppliers
- For any supplier to setup a local facility, economies of scale & ecosystem is required

Major Manufacturers of Automatic Transmissions Globally

Major Automatic Transmission Suppliers Globally :

- AISIN SEIKI Co. Ltd, Japan
- JATCO, Japan
- ZF Friedrichshafen AG, Germany
- Allison Transmission, USA
- Continental AG, Germany
- Magna International Inc, USA

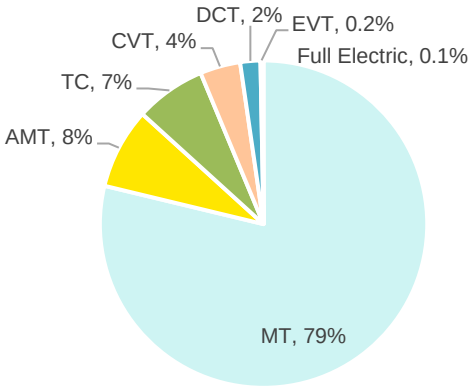
In addition, the following OEMs also manufacture automatic transmission inhouse for some/all of their models:

- Toyota, Japan
- Volkswagen, Germany
- Hyundai, Korea
- Honda, Japan
- General Motors, Korea
- Ford Motor, Mexico
- Suzuki, Japan
- Fiat, USA

**Source: IHS & Mordor Intelligence Report*

Drive Transmission & Steering (4/5)
Automatic Transmission : India Perspective

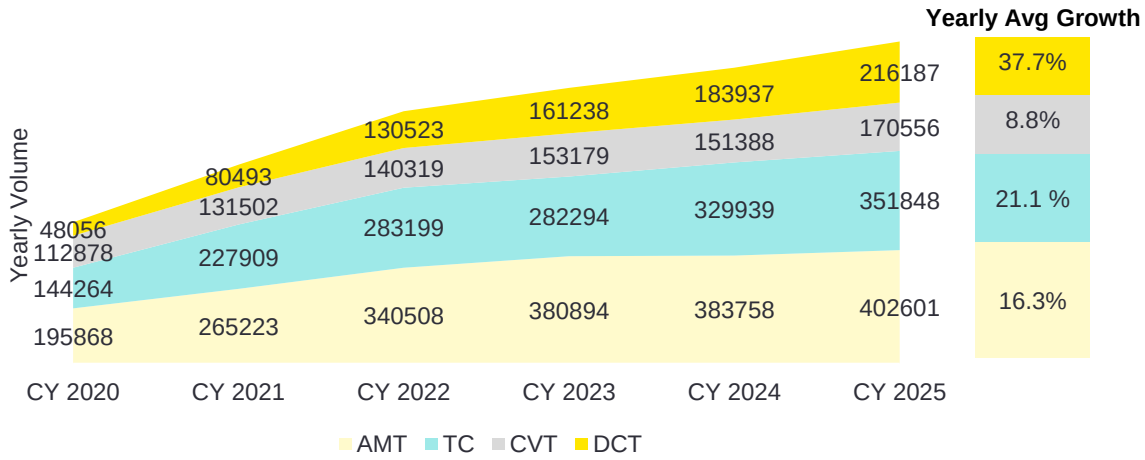
Transmission Type Market Share: FY 2020



- Manual Transmission (MT)
- Automated Manual Transmission (AMT)
- Torque Converter (TC)
- Continuously Variable Transmission (CVT)
- Dual Clutch Transmission (DCT)
- Electrical Variable Transmission (EVT)

Total AT Penetration (excluding AMT) in India is 13~14%

Automatic Transmission Volume in India : Projections



- Automatic transmission vehicle penetration is projected to increase from 18% to 25% in next 5 years
- TC & CVT having major growth rather than AMT after CY2022

**Source: IHS Report*

Key Drivers for rise in Automatic Cars in India

- *Increasing traffic congestion in metropolitan cities has led to increase in demand for AT due to ease of usage & convenience*
- *The preference for automatic cars among women buyers and senior citizens to drive demand for AT*
- *Adoption of automatic transmission technology by the electric vehicle manufacturers is expected to propel the market growth in the near future*

Way Forward

- AT adoption in India is on the rise, although it is only 13~14% which is significantly less than the other developed markets
- No suppliers for AT in India (excl. AMT); need to invite global AT suppliers to setup base in India for global requirements
- AT technology is not standard and differs from OEM to OEM
- Major OEMs sourcing ATs from Mother plants have low volumes in India thereby not giving enough scale to set up an inhouse assembly facility
- AMT Technology is largely localized in India
- Raw Material to Sales Ratio for Automatic Transmission is 70~75%; Industry & government together can target assembly in 1st phase (2~5 year), 25-30% of localization target can be achieved
- Need to create a compelling environment for global supplier to set up plant in India

Drive Transmission & Steering (5/5)

Automatic Transmission : Challenges and Support required for localization

Type of Challenge	Description	Government Support	Industry Support
Strategic	• Lack of incentives for global suppliers to invest in manufacturing in India • Shift in recent industry trend from gasoline to electric might be an impediment for global suppliers to establish their base in India	• Localization impetus from the govt as part of the PLI scheme focussing on AT – CVT, Torque converter • Policy interventions for AT to expand current supplier base and to facilitate technology transfer from global OEMs/suppliers supplying parent parts to their subsidiaries in India (e.g. specifying local content requirements)	• Consolidation of current & forecasted requirements for AT (including export) to meet the MOQ for localized production. Discussion with concerned suppliers about the feasibility. • Basis the above, feasibility of common Technology / Platform with select group of suppliers to be explored • SIAM and ACMA to create an Industry Task Force to co-create a work plan for localizing AT
Technology	• Developing a common AT technology across OEMs is a challenge as it is unique/proprietary for each OEM • OEMs are exploring transmission technologies (such as hybrid) beyond currently available AT technologies		
Volume/ Economies	• Economies of scale is a challenge due to varying AT technologies across OEMs		
Supplier Base	• Lack of strong supplier base in India • Difficult to justify greenfield investment by new suppliers as volumes are low		

Engine (1/2)
Localization Targets

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Engine	**PV (Mass)**	8,777	3-6%	20-25%	1,732 – 2,171
	PV (Low Volume)	395	-	1-1.5%	5 – 7
	PV (Niche)	357	-	-	-
	PV/CV	281	0-1%	11-15%	31 – 41
	CV	1,466	1-3%	6-9%	92 – 138
	2W/3W	536	5-10%	25-30%	134 – 161
	Suppliers	9,280	-2% to -1%	9-12%	820 – 1,121
Total		**21,092***	**1-3%**	**13-17%**	**2,822 – 3,653****

Category	Sub Category	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Engine	**Engine**	4,052	5-9%	23-28%	951 – 1,141
	Engine Components : Fuel Injection Systems & Components	5,950	-	10-13%	599 – 778
	Engine Components : 5Cs & Others	3,962	-2% to -1%	14-18%	567 – 704
	Engine Components : Exhaust Systems	5,255	1-2%	10-15%	526 - 788
	Others	1,873	-	10-13%	179 – 242
Total		**21,092***	**1-3%**	**13-17%**	**2,822 – 3,653**

*** Import value for Aftermarket has been excluded**

**** A portion of the overall target for Engines might come from the PV (Niche) segment to meet the overall PV (Niche) segment target of 1-2% localization of the overall automotive imports**

Engine (2/2)
Localization Roadmap

Components for localization

Assembly of exhaust manifold (including canning and coating process), assembly of gasoline force aspirated engines, key fuel injection parts such as throttle body, distributor pipes (Inlet, outlet), fuel rail, tensioners, etc., Cylinder Block, Head & Liners for 2W, AC pulley

Injectors for gasoline engines, EATS, Turbochargers, Crankshafts & Camshafts, EGR Assembly

Localization Catalyst

Phase 1: 0-2 Years

Prioritize localization of components impacted by BS6 and CAFÉ norms (such as injectors & sub parts of injectors, turbochargers) due to expected surge in volume in the coming years

Validation norms in terms of time for testing (ARAI testing etc.) to be rationalized (incl extension of validation) to support Industry efforts towards localization especially for repeated items

Incentives for localization of CNG kits

Incentives for global manufacturers to set up a manufacturing facility in India to support localization for exhaust after treatment system, fuel injection system

Suppliers to focus on developing capabilities to meet the global standards for critical parts like injection systems & components

Phase 2: 2-5 Years

Policy interventions to facilitate technology transfer between global OEMs/suppliers to their subsidiaries in India (e.g. specifying local content requirements)

Develop self-reliance on Advanced Materials & Rare earths (especially for Engine & EATS materials)

FY19~20 Base — **3%** — **17%**

Government led initiatives

Industry led initiatives

Initiatives to be executed parallelly

Initiatives to be executed sequentially

Expected Localization %

Electricals (1/2)
Localization Targets

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Electricals	**PV (Mass)**	1,776	4-7%	18-22%	316 – 384
	PV (Low Volume)	129	-	-	-
	PV (Niche)	485	-	-	-
	PV/CV	123	-	-	-
	CV	117	-	-	-
	2W/3W	230	-	-	-
	Suppliers	14,680	4-7%	16-21%	2,320 – 3,054
Total		**17,540***	**4-6%**	**15-20%**	**2,637 – 3,438**

Category	Sub Category	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Electricals	**Cables & Wiring Harnesses**	5,822	5-7%	20-25%	1,149 – 1,430
	Motors & Motor Components	3,827	5-10%	16-21%	602 – 786
	Lighting Components	3,155	2-4%	8-12%	243 – 365
	Battery & Components	987	-	9-13%	87 - 133
	Others	3,749	4-6%	15-19%	556 - 725
Total		**17,540***	**4-6%**	**15-20%**	**2,637 – 3,438**

*** Import value for Aftermarket has been excluded**

Electricals (2/2)
Localization Roadmap

Components for localization

Antenna cables, Starter Motor & Alternator Assembly (cage, armature), Motors for Power Windows, Wipers, Blowers, Radiators, MCU Assembly / Sub-assemblies, levelling motors (micromotors)

Connectors for wiring harnesses, Terminals, High Temperature Cables, Micromotors & Actuators for ORVM, Headlamp, HVAC, ABS

Localization Catalyst

Phase 1: 0-2 Years

- Interest subsidies for investment into ecosystem development in line with supplier requirements
- Govt aid for augmentation of testing & validation facilities
- Incentives for global suppliers to setup plants in India especially for connectors & terminals as part of their expansion plans
- Aggregation of demand for connectors & terminals to establish domestic capacity for localization
- Promote investments at supplier end with aggressive targets towards manufacturing cables, wiring & harnesses, motors & its sub-components
- Standardization of wiring harness designs as well the connectors to explore opportunity towards localization

Phase 2: 2-5 Years

- PLI scheme to include incentives to boost future EV ecosystem (e.g. Components for EVs such as Charger, Battery, DC Motor, etc.)
- R&D augmentation to boost domestic production of motor magnets (Light rare earth minerals may also be processed further for certain applications)
- Exporting finished wire harness from India instead of sourcing globally aid localization initiatives through economies of scale

FY19~20 Base — **6%** — **20%**

Government led initiatives
Industry led initiatives
Initiatives to be executed parallelly
Initiatives to be executed sequentially
Expected Localization %

Electronics (1/4)
Localization Targets

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Electronics	**PV (Mass)**	3,429	8-12%	26-33%	906 – 1,133
	PV (Low Volume)	270	3-5%	15-20%	41 – 55
	PV (Niche)	196	-	-	-
	PV/CV	103	1%	20-25%	20 – 26
	CV	-	-	-	-
	2W/3W	-	-	-	-
	Suppliers	10,994	1-5%	16-22%	1,780 – 2,445
Total		**14,991***	**2-6%**	**18-25%**	**2,756 – 3,677****

Category	Sub Category	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Electronics	**Sensors & ECU**	5,401	-5% to -1%	16-21%	880 – 1,150
	PCBs & Electronic Components	4,269	-	5-10%	213 - 426
	Infotainment & Vision Cameras	3,483	16-24%	39-49%	1,362 – 1,704
	Airbag Unit & Inflators	1,349	5-10%	16-21%	222 – 289
	Others	489	-	16-22%	79 - 109
Total		**14,991***	**2-6%**	**18-25%**	**2,756 – 3,677**

*** Import value for Aftermarket has been excluded**

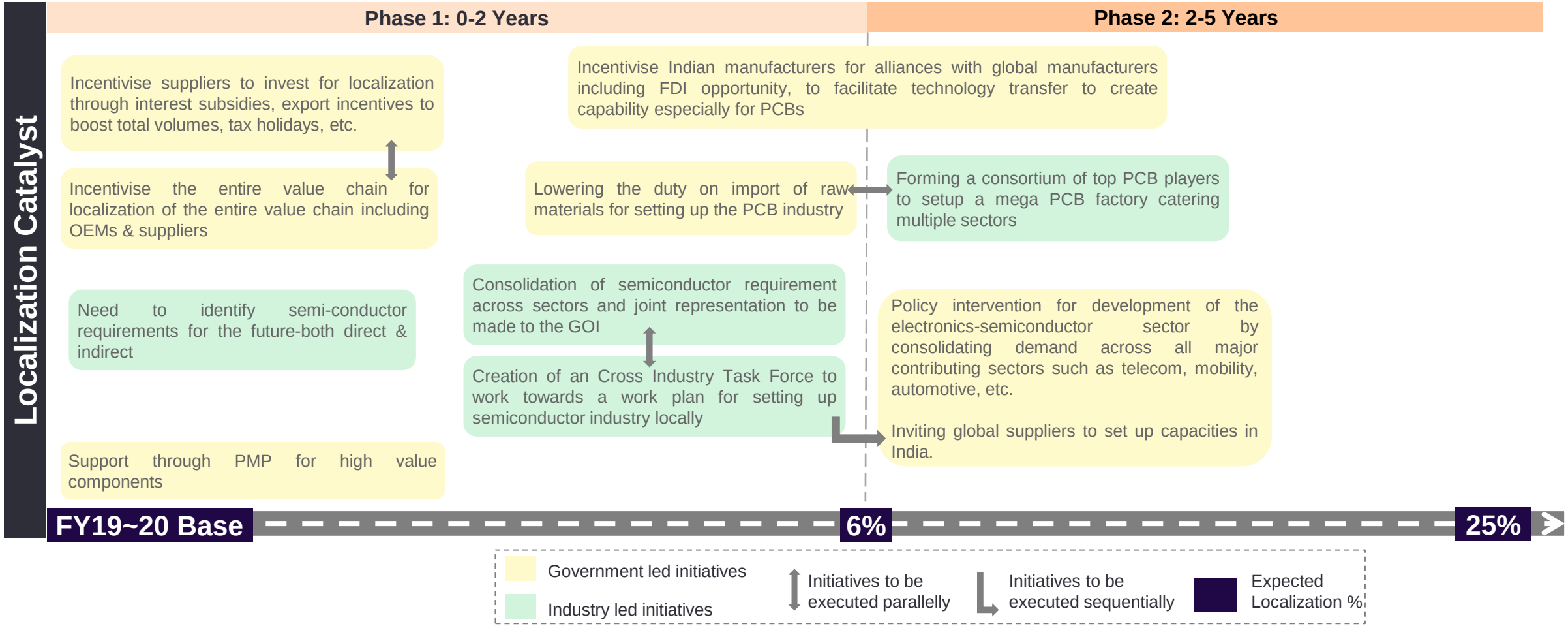
**** A portion of the overall target for Electronics might come from the PV (Niche) segment to meet the overall PV (Niche) segment target of 1-2% localization of the overall automotive imports**

Electronics (2/4)
Localization Roadmap

Components for localization

Low-tech sensors such as rear parking sensors, cabin temp. sensors, immobilizers etc., Ultrasonic sensors, components of ECU such as casing/ cover, bracket, Infotainment parts like Speakers, Tweeters, Bluetooth microphones & antenna, assembly of Infotainment Systems, assembly of Airbag units, Outer Casings & Plastic Injection Moulded

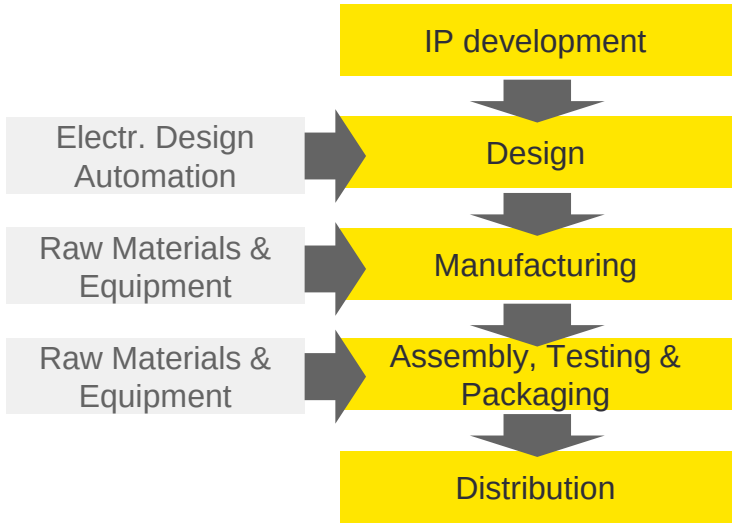
PCBs, Inflators, high tech sensors like wheel speed, crankshaft, camshaft, oxygen, etc. Explore adjacency with consumer electronics, capital goods, etc



Electronics (3/4)

Semi Conductor : Supply Chain overview & the success story of China

Typical Semiconductor supply chain



Source: SIA & Beyond Borders

CHINA – EVOLUTION OF SEMICONDUCTOR POLICIES & LOCALIZATION TARGETS

National Semiconductor Fund Phase I (2014)

Fund of CNY120 billion (US$19 billion) in Phase I

Global Leader Electronics Exports

80%+ Import dependency for semiconductors

Doubled Trade Deficits from 2005 to 2014

- Private equity investment
- Provide incentives & remove regulatory constraints
- Investments in more than 77 projects, 55 IC enterprises by 2018, capital expenditure more than doubled in 2014-17

National Semiconductor Fund Phase II (2019)

Investment Doubled By "Big Fund"

CNY 204.15 Approx. US$ 29 bn

- Shareholder funds - Multiple domestic IC groups, Yangtze River Economic Belt, major telecom operators etc.
- Incorporation of local funds

Additional favourable tax policy as a catalyst ahead

- IC Projects given tax exempts
- 5yr tax exemption + 10% tax rate (instead of 25%)

Easier financing options to boost growth & consolidation

- Encouragement to consolidate with full support from government funds
- Risk Compensation mechanisms by local governments for easy access to IP pledge financing

Thousand Talents Program

- Aims to attract Chinese diaspora in high technology areas, including AI and semiconductors
- Chinese Communist Party (CCP) uses overseas "talent-recruitment" stations to gain access to technology; more than 600 stations globally

Upcoming 14th Five Year Plan (2021-2025)

- Include 3rd gen semiconductor industry to rapidly evolve technologically
- Support policies for target industries like semiconductors to build resilience against changing trade US-China trade dynamics

The Road Ahead

16% Domestic Demand through localization **in 2018**

Target State

40% Domestic Demand through localization **in 2021**

70% Domestic Demand through localization **in 2025**

Electronics (4/4)

Initiatives to be taken by Government/Industry for localization

Industry actionable:

- Create an Industry Task force to create an action plan for development of Semiconductor industry
- Form a consortium of top PCB players to aggregate demand catering multiple sectors
- Aggregation of demand and technical design requirement across sectors
- Development of step by step localization plan including technology upgradations required

India needs to adopt a Public-Private Partnership (PPP) model to become a "**facilitator**" for semi conductors

Government support: To promote domestic manufacturing of electronic components and semiconductors to strengthen the electronics manufacturing ecosystem in the country similar to countries like the USA, Taiwan, South Korea, Japan and China

Form a cross industry/ Ministry task force → Float EOI to global manufacturers for different elements of the value chain → Develop Semi Conductor Fund with contribution from Central and interested State Govt., Industry Bodies as shareholders for investment → Concession in land purchase, set up subsidy, interest free loan, Corporate Tax exemption to be evaluate, etc → Favourable tariff policy for child parts & raw material

Iron & Steel (1/2)
Localization Targets

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Iron & Steel	**PV (Mass)**	873	5-10%	25-30%	218 – 262
	PV (Low Volume)	1	-	-	-
	PV (Niche)	1	-	-	-
	PV/CV	9	-	-	-
	CV	191	5-10%	25-30%	48 – 57
	2W/3W	29	-	-	-
	Suppliers	12,511	5~10%	25-30%	3,128 – 3,753
Total		**13,615***	**5-10%**	**25-30%**	**3,394 – 4,073**

Category	Sub Category	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Iron & Steel	**Flat Rolled**	10,069	5-10%	25-30%	2,517 – 3,021
	Others	3,546	3-7%	25-30%	877 – 1,052
Total		**13,615***	**5-10%**	**25-30%**	**3,394 – 4,073**

*** Import value for Aftermarket has been excluded**

Iron & Steel (2/2)
Localization Roadmap

Components for localization

Coated stainless steel, high abrasive & high tensile steel such as DP980, HSS900, HSS1000, etc., UHSS - HSLA, DP, CP, MS, TRIP, TWIP steel in HR, CR & Coated, BH High strength coated steel in Skin panel quality

Special grade steel – high grade steel for EATS, cold rolled & hot rolled (basis gap identification), etc., Boron Steel of special alloy coatings like Al Si, EG steel of special alloy coatings such as Al Si, Zn Ni & one side coating technology, Sandwich type steel

Localization Catalyst

Phase 1: 0-2 Years

- Collaboration between SIAM & ISA for import substitution with defined timelines and regular review through a joint task force
- Incentivise Indian manufacturers for alliances with global manufacturers including FDI opportunity, especially for specialised steel grade requirements
- Conversion & consolidation of BS6 standards for steel into 1-2 segments to achieve MOQ across OEM requirements for viability of manufacturing
- R&D focus towards development of advanced steels – High grade Automotive Steels, special steels, Tool Steels, Advanced materials for cutting tools (Carbide, Cermets, etc.)
- Consolidation of grade wise steel requirements across OEMs to make local manufacturing viable for steel mills
- With Vehicle scrappage introduced by Government of India, OEMs, Steel Manufacturers & Vehicle scrapyards need to collaborate and develop a value chain to reuse & remanufacture/recycle iron & steel components
- OEMs need to translate their requirement of steel grades to equivalent IS standard and if a certain grade is not available, SIAM & ISA need to discuss and include the same in IS standards on a periodic basis
- Govt to revisit the BIS certification timelines to enable faster approvals to support localization
- OEMs need to invest into steel makers to develop GWT ranges ensuring quality consistencies and delivery commitment
- Few grades at very low volumes required domestically might even call for an additional investment – Suppliers can target export market requirements to consolidate volumes
- Development of flat steel grades (esp. low thickness) and introduce technologies like vacuum degassing in forging steels to meet the Auto quality requirements

Phase 2: 2-5 Years

- Steel grade for tools manufacture to be included in the production roadmap
- Govt Aid/incentivisation for self-reliance in new & emerging advanced materials

FY19~20 Base — **10%** — **30%**

Government led initiatives
Industry led initiatives
Initiatives to be executed parallelly
Initiatives to be executed sequentially
Expected Localization %

Tyres, Rubber Components and Rubber as Raw Material (1/3)
Localization Targets

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Tyres	Tyres for PV (Mass)	291	-	45%-50%	131 – 146
	PV (Low Volume)	6	-	-	-
	PV (Niche)	86	-	-	-
	PV/CV	14	-	-	-
	CV	1		-	-
	2W/3W	150	-	55%-60%	83 – 90
	Supplier	998	15-20%	40%-50%	399 - 499
Rubber as Raw Material	Supplier	13,343	-	16-19%	2,083 – 2,543
Total		**14,890***	**1-1.5%**	**18-22%**	**2,718 – 3,304****

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Tyres	Tyres	1,546	10-13%	41-49%	634 - 761
Rubber as Raw Material	Natural Rubber	8,115	-	8-10%	649 - 812
	Synthetic Rubber	4,613	-	30-35%	1,357 – 1,600
	Others	616	-	13-21%	78 - 131
Total		**14,890***	**1-1.5%**	**18-22%**	**2,718 – 3,304**

*** Import value for Aftermarket has been excluded**

**** A portion of the overall target for Tyres might come from the PV (Niche) segment to meet the overall PV (Niche) segment target of 1-2% localization of the overall automotive imports**

Tyres, Rubber Components and Rubber as Raw Material (2/3)
Localization Targets

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Rubber Components	**PV (Mass)**	176	-	-	-
	PV (Low Volume)	13	-	-	-
	PV (Niche)	39	-	-	-
	PV/CV	12	-	-	-
	CV	51			-
	2W/3W	9	-	-	-
	Supplier	2,639	-	7-8%	177-211
Total		**2,939***	**-**	**6-8%**	**177-211**

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Rubber Components	**Gaskets, Washers & Seals**	853	-	17-21%	145 - 181
	Others	2086	-	1.5%	30
Total		**2,939***	**-**	**6-8%**	**177-211**

*** Import value for Aftermarket has been excluded**

Tyres, Rubber Components and Rubber as Raw Material (3/3)
Localization Roadmap

Components for localization

15”-18” PV Segments, 17”-21” 2W/3W Segments, Seals (especially inlet & exhaust)

19”-23” PV Segments, Technically Specified Natural Rubber, Synthetic Rubber, Rubber Gaskets, Washers

Localization Catalyst

Phase 1: 0-2 Years

- Duty structure on rubber as a raw material to be relooked into to support key imports while keeping in mind the interests of the local rubber industry as well as demand of the Auto industry
- Govt incentives in the form of Corporate Tax reduction, interest subsidies, concessions on utility overheads for setting up rubber plantation & tyre manufacturing ecosystem as per requirement from the OEMs / local Suppliers
- Rubber plantation drive from tyre OEMs : Increase Production capacities of Natural Rubber
- Plan for replacement of natural rubber by synthetic rubber to be explored
  - Synthetic rubber production plan basis forecasted volume requirements for tyres in the future
- Tariff Rate Quota (TRQ) based duty structure to be explored to the extent of gap between domestic production & consumption for Natural Rubber
- OEMs to identify concept / tyre solution technically feasible in India to match technologies like Sealant tyre, low resistance rolling tyres, etc.
- Technology & capability for special applications to be developed through global alliances, investment focus, training, etc. in collaboration with ATMA
- SIAM and ATMA to collaborate to optimize tuning requirements to reduce development and validation lead time for tyres
- ATMA along with Government support to work towards brand building for Indian tyre manufacturers for target markets
- Service support to be streamlined internationally for positioning India as a tyre export hub to achieve economies of scale

Phase 2: 2-5 Years

- Govt incentives in the form of Corporate Tax reduction, interest subsidies on setting up synthetic rubber production plants per requirement from the OEMs / Suppliers
  - Synthetic rubber production plan basis forecasted volume requirements for tyres in the future
- Localization for tyres to be taken up as the volumes mature and the testing & homologation efforts of the OEMs start getting realized
- Build a consortium to enable circular economy of tyres to produce new tyres from end-of-life tyres

FY19~20 Base — **1.5%** — **22%**

Government led initiatives

Industry led initiatives

Initiatives to be executed parallelly

Initiatives to be executed sequentially

Expected Localization %

Tools, Dies & Moulds (1/2)
Localization Targets

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Tools, Dies and Moulds	PV (Mass)	3,184	5-10%	21-25%	654 – 789
	PV (Low Volume)	62	-	-	-
	PV (Niche)	9	-	-	-
	PV/CV	175	-	-	-
	CV	136	-	-	-
	2W/3W	276	3-7%	17-21%	48 – 58
	Suppliers	3,943	6-9%	17-20%	676 - 800
Total		**7,785***	**6-9%**	**18-21%**	**1,378 – 1,647**

Category	Sub Category	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Tools, Dies and Moulds	Tools for Plastic & Rubber Components	2,380	9-14%	28-33%	672 – 784
	Press (Stamping) Tools & Dies	1,810	7-11%	18-22%	320 – 401
	Jigs & Fixtures	1,354	5-10%	25-29%	333 – 399
	Others	2,241	-	2-3%	53 - 63
Total		**7,785***	**6-9%**	**18-21%**	**1,378 – 1,647**

*** Import value for Aftermarket has been excluded**

Tools, Dies & Moulds (2/2)
Localization Roadmap

Components for localization

Injection Moulds for bumpers, dashboard panels, door trims, floor consoles, garnish cowls, lighting tools, 2 material/color (2K) large size tools also be localized - air deflector, end plates etc. C Pillar, Rear Back Panel and Plenum Panel, Sheet Metal Press Tools for all mounting brackets and select Inner structural members, Fixtures for Machining – Boring, Drilling, Turning, Milling

Hot runner & skin panel manufacturing, high gloss large tools like B Pillar outer, tail gate light panel, Sheet metal press tools for parts like floor members and rear cross member, tools for Bonner Inner, tail gate inner and Sun Roof frame; Tools for hot forming like B Pillar, Tunnel, Dash board inner, front cross member etc. and high strength tools, fixtures for assembly & checking tools

Localization Catalyst

Phase 1: 0-2 Years

Phase 2: 2-5 Years

- Incentivise Indian manufacturers for collaboration with global tool makers to facilitate technology transfer & further investments for R&D in tool & die making
- OEMs to empanel a group of Tooling suppliers for local sourcing across different commodity categories
- Standards for casting quality to be set by the government based on international standards
- Develop a strong ecosystem for Indian Tool Manufacturers by investing into dedicated R&D facilities and Training Institutes specific to Tool/ Die/ Mould Design and Manufacturing & create capacity for future requirements-can also explore a consortium with global tool makers
- Technical support from OEMs to Tool makers during the tooling development process (especially technical specifications, design feasibility & process engineering)
- R&D focus towards development of tools for HSS & Hot stamping, graining technology, etc. to achieve capability & product homogeneity
- OEMs to provide better visibility over long term to enable tooling suppliers to plan better & invest in capacities to meet the requirements
- Build expertise in simulation & ensure availability of skilled /expert toolmakers during part trials, knowledge transfer etc
- SIAM, ACMA & TAGMA should collaborate through a joint task force to enable faster localization of Tooling
- Strengthen the ecosystem for Tool makers by providing interest subsidies, ease of financing, concessions on infrastructure, utilities, etc. to local tool makers
- TAGMA to discuss with MSMEs & facilitate in creating tooling manufacturing clusters
- Industry specific tooling SEZ/ clusters for specific high value tooling (e.g. Class A sheet metal panels etc.)
- Reduce duties on Raw Materials (tool steel, etc.) and tooling machinery to make Indian toolmakers globally cost competitive & eventually levy higher duties on import of finished tools
- Govt Aid/ incentivisation for self-reliance in new & emerging advanced materials
- Develop self-reliance on Advanced Materials & Rare earths
- Laser graining facility for small, medium and large tools to be established
- Hot runner & skin panel manufacturing technology & capability to be established gradually

FY19~20 Base — **9%** — **21%**

Government led initiatives

Industry led initiatives

Initiatives to be executed parallelly

Initiatives to be executed sequentially

Expected Localization %

Body, Chassis, BiW (1/2)
Localization Targets

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Body / Chassis / BiW	**PV (Mass)**	2,615	3-7%	17-21%	454 – 545
	PV (Low Volume)	450	-	-	-
	PV (Niche)	1,266	-	-	-
	PV/CV	254	-	-	-
	CV	106	-	-	-
	2W/3W	82	-	-	-
	Suppliers	2,109	3-5%	14-16%	288 – 345
Total		**6,882***	**2-4%**	**11-13%**	**742 – 890**

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Body / Chassis / BiW	**BIW & Sub-Assemblies**	4,439	3-6%	14-17%	626 – 751
	Others	2,443	1-2%	5–6%	116 - 139
Total		**6,882***	**2-4%**	**11-13%**	**742 – 890**

*** Import value for Aftermarket has been excluded**

Body, Chassis, BiW (2/2)
Localization Roadmap

Components for localization

Sunroof Assembly, Door Locks, Latches	Other BiW Parts & Sub Assemblies, Chassis, Tubular & fabricated parts

Localization Catalyst

Phase 1: 0-2 Years	Phase 2: 2-5 Years
Focus on building capability for low volume manufacturing in case of parts like Sunroof Assemblies & their components	
Focus on building capability & scaling up of Stamping & Welding / Assy. of parts like Door Locks, Latches, etc. for premium / niche vehicle applications	
	Invest in building capability & self reliance in Aluminium stamping

FY19~20 Base — **4%** — **13%**

- Government led initiatives
- Industry led initiatives
- Initiatives to be executed parallelly
- Initiatives to be executed sequentially
- Expected Localization %

Interiors (Non-Electronic) (1/2)
Localization Targets

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Interiors (non-electronic)	PV (Mass)	383	-	-	-
	PV (Low Volume)	25	-	-	-
	PV (Niche)	229	-	-	-
	PV/CV	150	-	-	-
	CV	33	-	-	-
	2W/3W	6	-	-	-
	Suppliers	2,114	5-10%	19-24%	406 – 507
Total		**2,940***	**3-7%**	**14-17%**	**406 – 507**

Category	Sub Category	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Interiors (non-electronic)	Plastic Parts	1,961	4-9%	18-22%	347 – 434
	Others	979	1-3%	6-7%	59 - 73
Total		**2,940***	**3-7%**	**14-17%**	**406 – 507**

*** Import value for Aftermarket has been excluded**

Interiors (Non-Electronic) (2/2)
Localization Roadmap

Components for localization

Interior Plastic components	Raw Material for Plastics

Localization Catalyst

Phase 1: 0-2 Years

- PLI - PMP integration required and a focus on net exports, rather than just reducing volume of imports.
- Recalibration of the duty structure for top category components that can be easily localized to create cost competitiveness
- As the concept of Light-weighting is increasing across vehicle segment, the usage of plastics is also increasing consequently. Plastic manufacturers (polypropylene, polyurethane and PVC) to be provided incentives to enhance the local production
- Alliances with global partners for localization and technology transfer support
- Demand aggregation & product standardization at the ends of the OEMs to enable MOQ to attain economies of scale for production
- Focus on leveraging the existing competitive advantage of domestic markets (eg 2W market)
- Set up R&D centres & testing facilities to ensure technology upgradation & shorter turn around time for the components

Phase 2: 2-5 Years

- Localization of raw materials such as compounding resins to meet the component production requirement

FY19~20 Base — **7%** — **17%**

Government led initiatives

Industry led initiatives

Initiatives to be executed parallelly

Initiatives to be executed sequentially

Expected Localization %

Fasteners (1/2)
Localization Targets

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Fasteners	**PV (Mass)**	911	-	24-29%	220 – 264
	PV (Low Volume)	36	-	-	-
	PV (Niche)	23	-	-	-
	PV/CV	19	-	-	-
	CV	69	-	-	-
	2W/3W	31	-	-	-
	Suppliers	1,215	-	22-26%	263 - 316
Total		**2,304***	**-**	**21-25%**	**484 – 580**

Category	Sub Category	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Fasteners	**Bolts**	1,538	-	23-28%	353 – 424
	Nuts	541	-	24-29%	129 – 155
	Others	225	-	-	-
Total		**2,304***	**-**	**21-25%**	**484 – 580**

*** Import value for Aftermarket has been excluded**

Fasteners (2/2)
Localization Roadmap

Components for localization

All Fasteners for new models, Non-Safety critical fasteners	Fasteners for all the running models of engine & transmissions, wheel nuts

Localization Catalyst

Phase 1: 0-2 Years	Phase 2: 2-5 Years
Min quality standard creation by government to localize safety critical fasteners, making them competitive for global markets as well	Localization for all the existing model fasteners, particularly engine and transmission related fasteners and wheel nuts
All fasteners to be localized even in cases where the engines are imported, especially, with priority to non-safety critical parts	
Demand aggregation at the ends of the OEMs to enable MOQ to attain economies of scale for production across categories	

FY19~20 Base — **7%** — **17%** >

Government led initiatives

Industry led initiatives

Initiatives to be executed parallelly

Initiatives to be executed sequentially

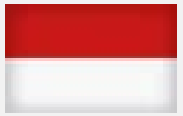
Expected Localization %

Key Highlights : Country Benchmarking

Steps for Localization

Detailed Assessment

Country Benchmarking : Steps for Localization (1/2)

Country	Government/Regulatory Stimuli	Attractiveness for Auto Manufacturing	Future of Automotive
 **China**	▸ Govt Special bonds of ***US$394 billion*** ▸ Reduction in tariffs from ***25% to 15%*** of their wholesale value ▸ Reduction in VAT in mfg. to ***9% or 13%***	▸ Made in China 2025: manufacturing sector including automotive ▸ Push for technology-intensive, powerhouse driven domestic content of core materials ▸ Upto ***30%*** investment in new industries by govt.	▸ Dual credit regulatory system to promote NEV mfg. ▸ ***Min. 30% EV purchase*** for all central & local govt fleets ▸ ***1 million*** New Energy Vehicles (NEV) by 2020 with ***min. 70%*** contribution from domestic players
 **Thailand**	▸ BOI promotes SEZs and Clusters ▸ Up to ***13 years*** Corporate Tax exemption ▸ Land ownership rights to foreigners ▸ Eastern Economic Corridor for manufacturing infrastructure	▸ Automotive R&D : ***8 years*** corporate income tax (CIT) exemption ▸ Rubber tyres for vehicles: ***5 years*** CIT exemption ▸ Engine Assembly: ***3 years*** CIT exemption ▸ Import duty exemption	▸ **1.2 million EVs** and ***690 charging stations*** by 2036 ▸ ***10 EV components*** eligible for ***8-year*** CIT holidays ▸ ***90%*** **reduction** in import duties for ***2 years*** for battery raw materials ▸ ***3-year*** corporate tax holiday for PHEV projects worth at least ***5 billion baht***
 **Indonesia**	▸ Tax Holiday: Up to ***100%*** CIT exemption ▸ Simplified licensing: One-stop Service-centre	▸ ***IDR10b*** guaranteed working capital loan to corporates in automotive industry ▸ Tax holiday & allowance for Steel, Plastic, Synthetic, Rubber, Crude oil and metal ▸ Sales tax discount ***up to 5%*** on domestically produced vehicles ▸ Compulsory ***85%*** Indonesian parts for LCGC. ***Up to 300%*** Deductible tax incentives for R&D	▸ EV production to begin by 2022; export ***200,000*** electric cars by 2025; install ***180 charging stations*** nationwide ▸ ***40%*** Indonesian parts for 2W EVs & ***35%*** for 4W EVs compulsory ▸ Export of nickel ore banned for local production of EV batteries

Source: Secondary Research

Country Benchmarking : Steps for Localization (2/2)

Country	Government/Regulatory Stimuli	Attractiveness for Auto Manufacturing	Future of Automotive
 **Germany**	► Upto ***40%*** Cash incentive for production facility setup ► National Public Loans: ***up to 100%*** of eligible costs Federal State Public Loans: ***up to €10m*** to SMEs ► Public guarantees ***up to 80%*** of loan amount ► ***Up to 100%*** subsidy on training ► Grant of ***up to 70%*** of the employee's salary for up to 8 years	► ***~€5 billion*** annual grants for R&D projects ► ***€77 billion+*** EU grants covering 100% R&D project expenditures plus a ***25%*** flat rate for indirect project cost ► Up to ***€500,000*** R&D Tax Credit	► ***~€250m*** annual government support for EV R&D. ***€2.2b*** subsidies for EVs; ***€2b*** R&D aid to EV suppliers ► ***€2.5b*** to be spent on battery cell production ► ***10 million*** EVs and ***1 million*** charging stations by 2030 ► ***€1.2b*** funds to bus and truck operators to switch to electric buses & trucks in 2021
 **Taiwan**	► Support from Government led institutions like ARTC, ITRI and TARC ► Lowest corporate tax of ***17%*** in the region ► Tax exemption on all transactions between off-shore suppliers & overseas market	► World leader in multiple auto component segments in the region	► EV National Promotion Program and Clean Zone Policy promote EV ► Smart Electric Vehicle Industry Development Strategy and Action Plan ► Multiple OEMs – Honda, Toyota, magna etc have projects operationalizing in 2021
 **Vietnam**	► For high-tech industry, ***up to 4-years*** tax exemption, ***5%*** tax rate for next 9 years, ***10%*** tax for next 2 years, and ***20%*** after that + additional tax holidays based on negotiations ► ***Up to 4 years*** of tax exemption and up to 9 years of reduced CIT - economically disadvantaged locations ► ***Up to 10%*** tax deduction against R&D Fund ► ***320+*** industrial and export promoting zones	►Reduction/waiver of consumption tax on domestically made car components ►Lower corporate tax for auto industry and its supporting industries ►Waiver of land rentals and usage fees, financial aid for technology transfer and access to low-interest loans	► No tariff on EVs imported from ASEAN, South-Korea and China; imports from Japan taxed @ ***4%***, from other countries @ ***70%*** ► Special consumption tax rates ***15-70%*** on EVs shipped to Vietnam; ***18-20%*** import tax on CKD EVs ► Government supports hybrid and PHEV buses via grants

Source: Secondary Research

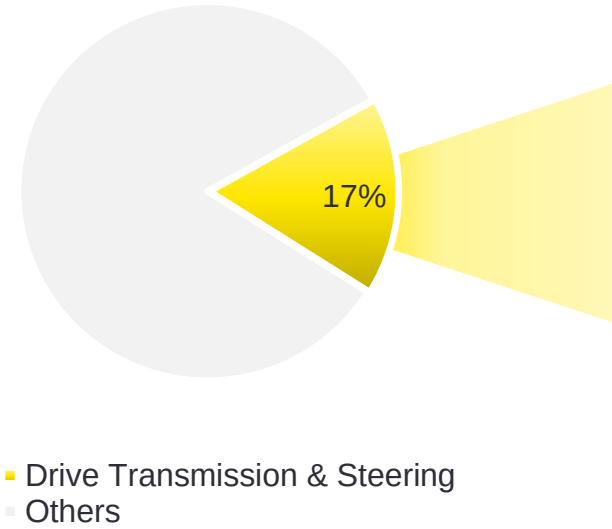
Drive Transmission & Steering

Drive Transmission & Steering : Category Snapshot FY19-20

Key Takeaways

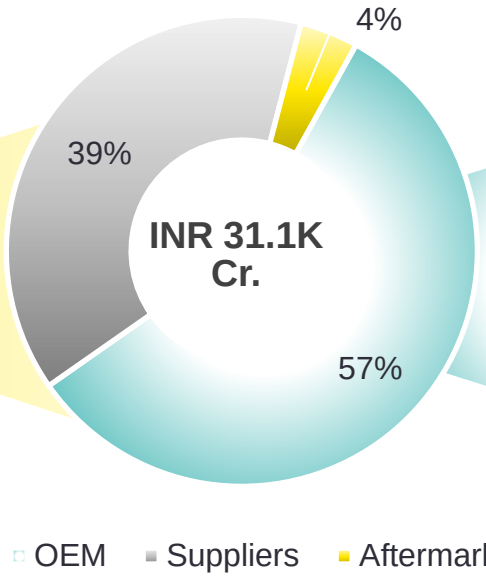
INR 1.83 Lakh Cr.

Total Automotive Imports (FY20)



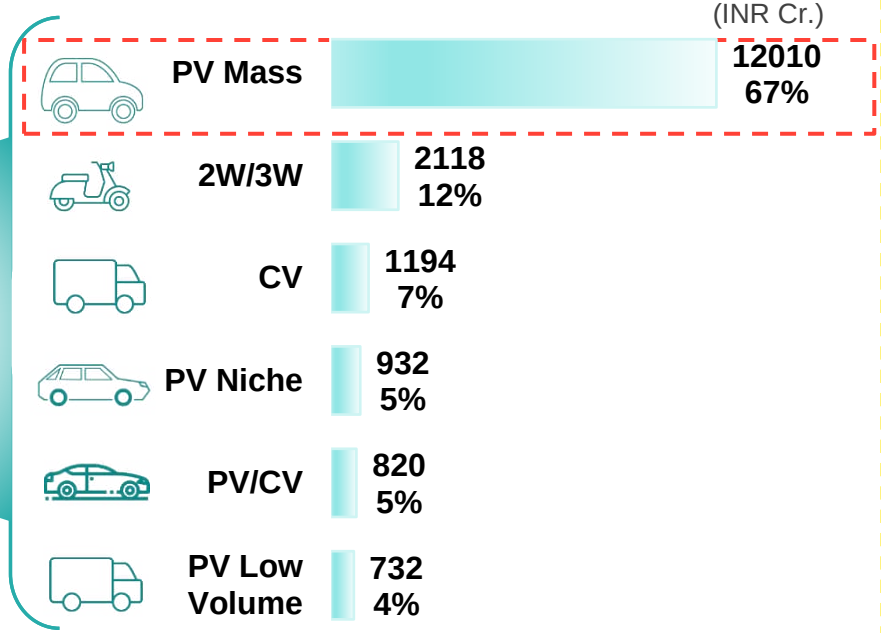
INR 31.1K Cr

Total Automotive Imports (FY20)



Imports by Vehicle Category

(INR Cr.)



OEM's (57%) contribute to substantial imports of Drive Transmission & Steering Parts

Among the OEMs, PV Mass alone contribute to 67% of the total imports

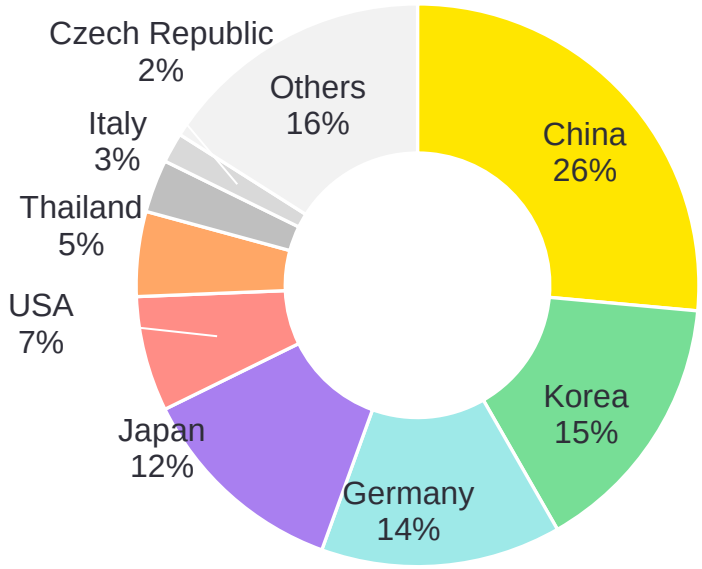
The share of Drive Transmission & Steering has been rising primarily on account of Automatic Transmission surge in India

27 6-digit HS codes were considered for analysis of Drive Transmission & Steering category

Drive Transmission & Steering : Category Snapshot FY19-20

Key Takeaways

Import by Country of Origin



Components of Import

(INR Cr.)

Transmission Components	10,716 **	34%	
Transmission	8,254	27%	
Bearings	5,200 ##	17%	
Alloy Wheels	2,970	10%	
Steering Components	1,561	3%	
Axle & Differential Components	1,085	3%	
Clutch & Components	1,007	1%	
Others	312	5%	

Import by Country of Origin : Top 3 Countries

China	Germ.	Korea
22%	19%	18%
Korea	Japan	USA
32%	23%	13%
China	Germ.	Japan
38%	16%	13%
China	Thai.	Japan
82%	6%	4%
China	Germ.	Thai.
22%	16%	15%
Korea	Germ.	China
24%	21%	14%
China	USA	Germ.
19%	17%	15%
China	Korea	Germ.
40%	17%	13%

China and Korea contribute a significant share (41%) of the Drive Transmission & Steering imports into India

Transmission and Transmission components account for 61% of the total Drive Transmission & Steering imports

Others include valves, actuators, oil seals & other parts

Total value for the HS Codes categorised as Bearing amounts to INR 5,200Cr. However, considering the share of sales of bearing manufacturers to the auto industry the corresponding automotive bearing imports are estimated to be ~INR 3,000 Cr. for further analysis

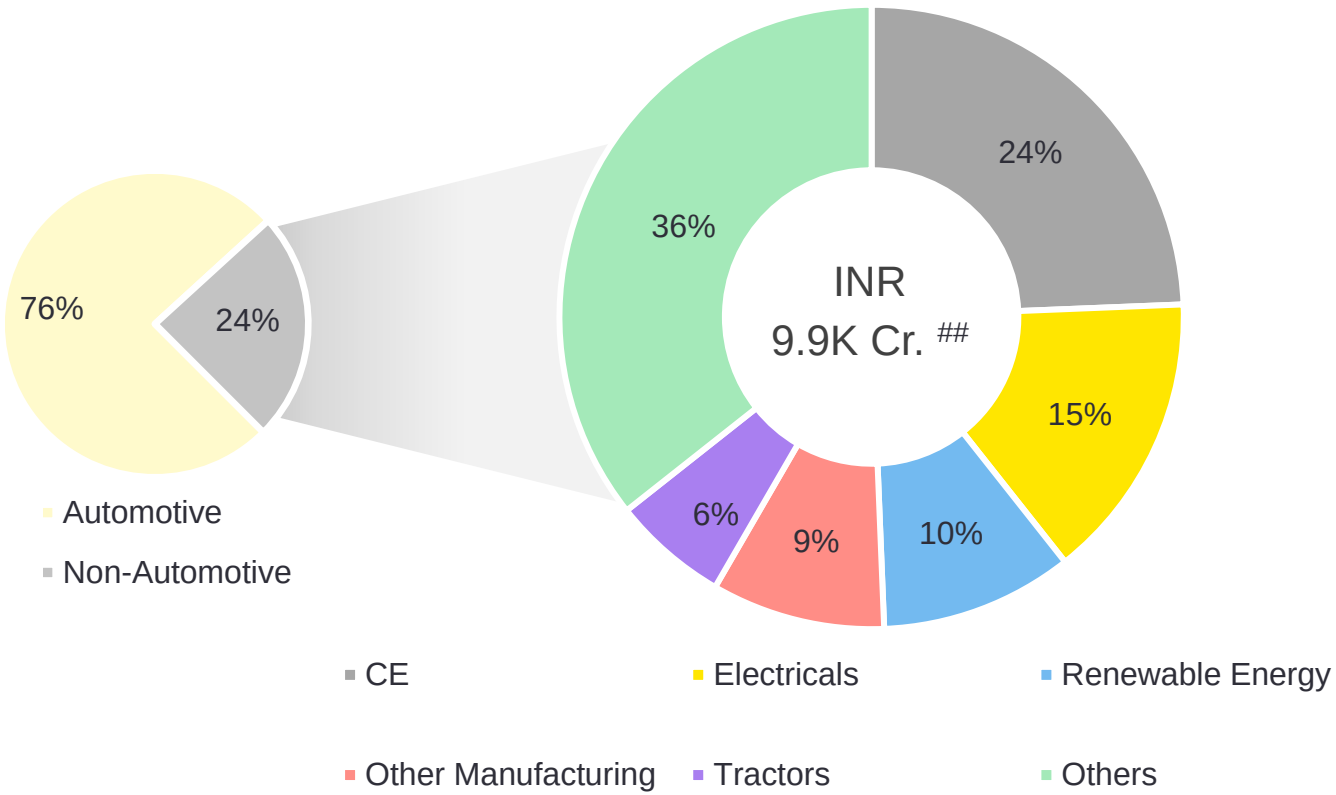
** Total value for the HS Codes categorised as Transmission Components amounts to INR 10,716 Cr. However, there are multiple commodities being imported under the HS Code : 870899. Therefore, the content of Transmission Components out of this has been extrapolated and this amounts to INR 3152 Cr.

Drive Transmission & Steering : Category Snapshot FY19-20

Key Takeaways : Non-Automotive (Adjacent) sectors

INR 41K Cr.

Total value of Drive Transmission & Steering Components imports in FY20



Under the Bearings category, Non-Automotive bearings amounting to ~ INR 2250 Cr. has been excluded from the Automotive Category. That included, the total Non-Automotive Imports will be 12.1 K Cr.

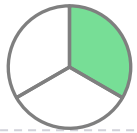
Key Insights

- Top 5 sectors contribute ~65% to the total import value of non-automotive segment in FY20
- CE holds the first spot in terms of contribution to import value at 24%

Top 5 Sectors	Value (INR Cr.)
CE	**2429**
Electricals	**1498**
Renewable Energy	**1069**
Other Manufacturing	**902**
Tractors	**567**

Drive Transmission & Steering : Demand Drivers

The demand drivers point towards a growth in Automatic Transmissions

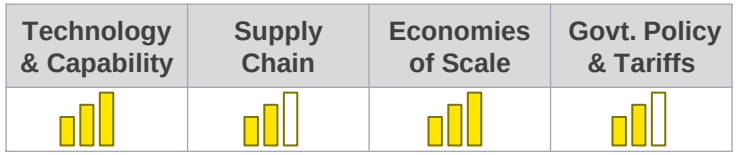
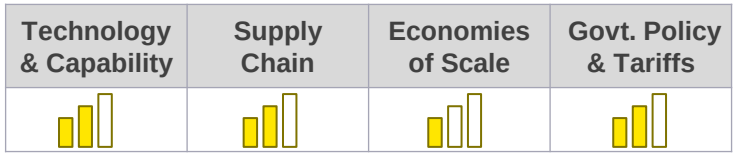
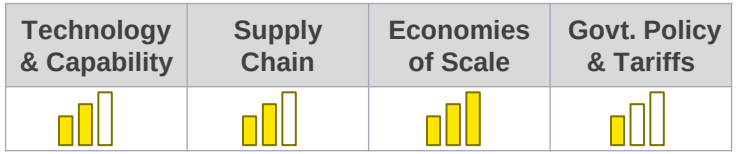
Key Demand Drivers	Impending Impacts			Trend Source
	Short Term	Long Term	Insight & Components Impacted	
Increasing consumer preference towards ease of driving-increased adoption of Automatic Transmissions in Mass segments 17.3% of PVs sold in in India in 2019 had automatic transmission Global automotive transmission market size is estimated to grow at a CAGR of 6.2% during 2019-26			• Substantial increase in automatic transmission variants in PVs, hence increase in imports of the automatic transmission components or whole sets • Will lead to significant increase in sensors and mechatronic systems vis-à-vis the traditional Manual transmissions	T R C
Increasing adoption of Electric Mobility *India EV market to reach US$10.1b by 2027 @12% CAGR over 2020-27*			• Increased usage of automatic/hybrid transmission • Will result in a gradual decline in traditional transmission components such as Clutches, multi-speed Gearboxes • No. of components and the weight of the gearbox is also likely to decrease with growth of the EV segment	T R C
Increasing focus on vehicle light-weighting *Light-weighting of Gears & Shafts :*			• Increase in lighter alloy steels for Gears and Shafts • Adoption of Hollow Shafts instead of solid shafts to reduce weight	T R C
Light-weighting of Bearings			• Companies in the segment are adopting new technologies such as construction with light weight alloys and better forging techniques	

 High  Medium  Low  Positive  Negative

T : Technology, R : Regulatory, C : Customer / Consumer
Short-term: next 3 years; Long term: beyond 7-10 years & beyond

Denotes the impact of the trend on the select components under the Drive, Transmission & Steering Commodity Category

Drive Transmission & Steering : Reasons for Import (1/2)

Key Components	Key Countries of Import	Key Import Reasons
Transmission	**Korea, China, Germany**	 • Limited in-house setups at OEMs & limited suppliers for AT • Complete transmission unit is currently being imported by Korean and German OEMs • Lack of high precision components & technology for Automatic Transmissions • Multiple AT Technologies across OEMs coupled with lower demand thereby not giving the required scale for localization
Transmission Components	**Korea, Japan, China**	 • Higher precision gears and shafts are imported due to lack of technology capability in India • 2W gears and shafts are imported (primarily from China) due to price advantage • Lack of capacity of Indian suppliers in case of sudden ramp-up requirements
Bearings	**China, Germany, Japan**	 • Axle and differential bearings are being imported; needle roller bearings are also imported from China due to cost competitiveness • Lack of capacity of Indian suppliers in case of sudden ramp-up requirements • Lack of design & technical capabilities and unavailability of quality raw materials in India makes imports from China a cost effective solution • Bearings are majorly imported owing to an intensive & long validation process • Inverted duty structure – raw material for bearings is imported at a higher duty than the child parts like needles, cage, balls, etc.

Yellow bar indicates severity of reason

Drive Transmission & Steering : Reasons for Import (2/2)

Key Components	Key Countries of Import	Key Import Reasons	
Steering Systems & Components	China	Technology & Capability; Supply Chain; Economies of Scale; Govt. Policy & Tariffs	• Steering wheel is imported as an assembly with infotainment components & airbag • EPS is imported as an assembly with majority electronic components (such as ECU, steering sensors) and motors • SUV/ Luxury vehicles' steering systems are imported due to low volumes
Axle & Axle Components	China, Korea, Thailand	Technology & Capability; Supply Chain; Economies of Scale; Govt. Policy & Tariffs	• Low volumes for specific components – no economies of scale for domestic manufacturing
Alloy Wheels	China	Technology & Capability; Supply Chain; Economies of Scale; Govt. Policy & Tariffs	• Cost competitiveness of Chinese suppliers vs Indian suppliers • Gravity Diecasting for high use parts has limited availability • Technology & capacity for 2W alloy wheels is limited in India • Lower Anti-dumping duty on ARW (Aluminium Alloy Road Wheel) makes import from China an economically better option

Yellow bar indicates severity of reason

Drive Transmission & Steering : Assessment of Localization Potential (1/2)

Assessment of Localization Potential

Key Components	Assessment of Localization Potential	Recommendations (Phase 1 : 0-2 yrs, Phase 2: 2-5 yrs)	Supporting Factors
Transmission	**Technology & Capability** | **Supply Chain** | **Economies of Scale** | **Govt. Policy & Tariffs**	**Phase 2** • Localize AT assembly (TC, CVT) in India for all the medium-high volume models • Localization for Medium Volume players possible if volumes touch the base of 5,00,000 /annum for specific technology • Localize sourcing of components to add-up to at least 30-40% content by value of the Transmission	**T** | **R** | **C** Consumer preferences primarily to drive adoption of AT
Transmission Components	**Technology & Capability** | **Supply Chain** | **Economies of Scale** | **Govt. Policy & Tariffs**	**Phase 1** • Localize Shaft & shaft assemblies, Gears, Gearbox housing, Flywheel assembly • Transmission Belts & Hoses	**T** | **R** | **C** Forthcoming regulations in Powertrain – light-weighting will be a norm; hence will impact the Transmission component technology
Bearings	**Technology & Capability** | **Supply Chain** | **Economies of Scale** | **Govt. Policy & Tariffs**	**Phase 1** • Invest in supplier development for upgrading the technology, designs & capability to strengthen the manufacturing ecosystem for bearings • Tier-1 suppliers for bearings should enable themselves and Tier-2 suppliers to target global programs to develop scale • Bearing manufacturers should work on joint development of bearing raw materials with steel makers **Phase 2** • Govt should allow imports of bearing raw material at reasonable duties to enable faster localization of bearing components	**T** | **R** | **C**

Ready · Can reach there · Infeasible

T | **R** | **C**

T : Technology, R : Regulatory, C : Customer / Consumer

Highly Favourable · Moderately favourable · Unfavourable

Drive Transmission & Steering : Assessment of Localization Potential (2/2)

Key Components	Assessment of Localization Potential	Recommendations (Phase 1 : 0-2 yrs, Phase 2: 2-5 yrs)	Supporting Factors
Steering Systems & Components	Technology & Capability; Supply Chain; Economies of Scale; Govt. Policy & Tariffs	**Phase 1** • Steering Column & assy., Rack & Pinion, EPAS (Electric Power Assisted Steering) should be targeted for Localization • Government support in terms of rationalization for testing & validation costs **Phase 2** • Steering wheel assembly along with infotainment switches & airbags	T R C Steer-by-wire systems, if massively adopted in long run will eliminate the need for these parts
Axle & Axle Components	Technology & Capability; Supply Chain; Economies of Scale; Govt. Policy & Tariffs	**Phase 1** • Axle Assembly followed by Bevel gears & pinions, Differential housing, Axle shafts	T R C
Alloy wheels	Technology & Capability; Supply Chain; Economies of Scale; Govt. Policy & Tariffs	• Localization of 2W Alloy wheels to be initiated in Phase-1, considering the testing & validation lead times, the efforts may start yielding results beyond 2 years	T R C

Ready · Can reach there · Infeasible

T R C

T : Technology, R : Regulatory, C : Customer / Consumer

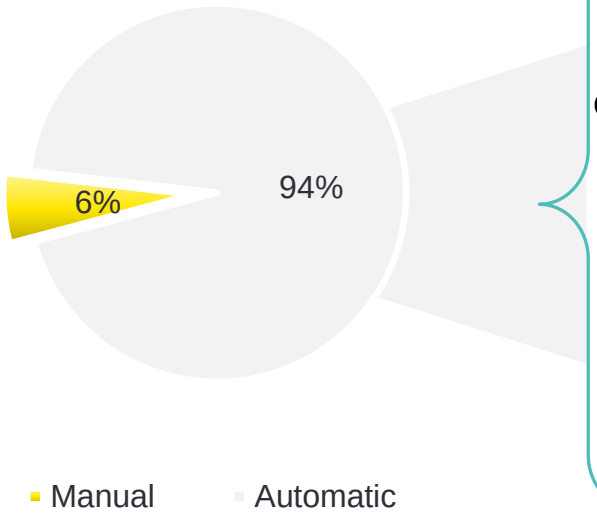
Highly Favourable · Moderately favourable · Unfavourable

Drive Transmission & Steering

Automatic Transmission: Imports into India

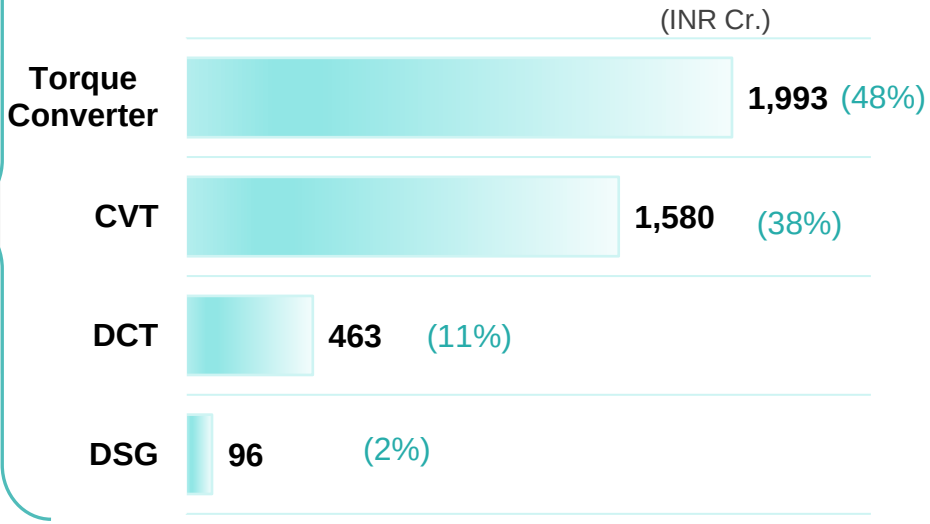
4.4K Cr.

Total Transmission Imports (FY20)

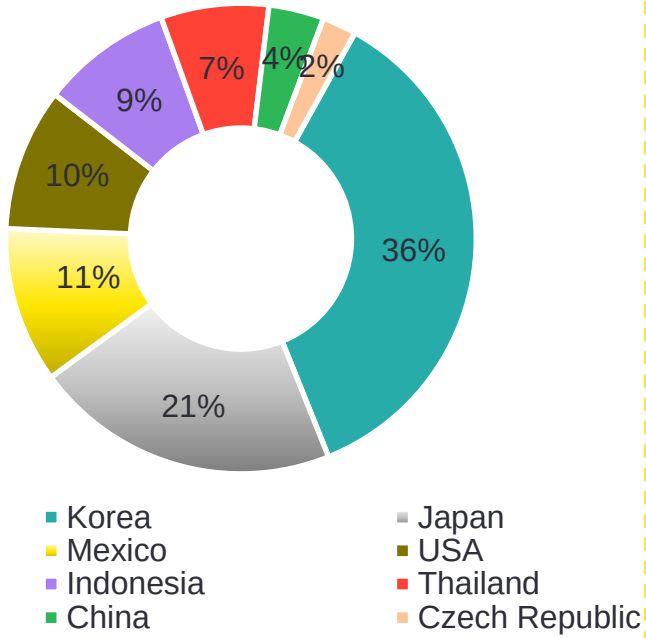


INR 4.1K Cr

Total Automatic Transmission Imports (FY20)



Country of Import



Automatic Transmission (94%) contributes towards the major Transmission imports

Torque Converter & CVT's (86%) contribute towards the major Automatic Transmission imports

Major Automatic Transmission Imports in India have been from Korea (36%) followed by Japan (21%)

Few OEM's Transmission Imports are focused for CBU export

Top 7 OEM's Transmission Imports are considered for Categorization

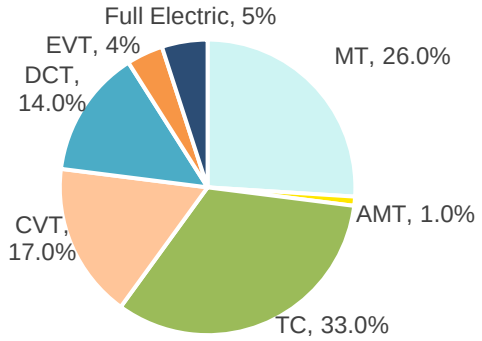
Drive Transmission & Steering
Automatic Transmission : Global Perspective

Global Automatic Transmission : Overview

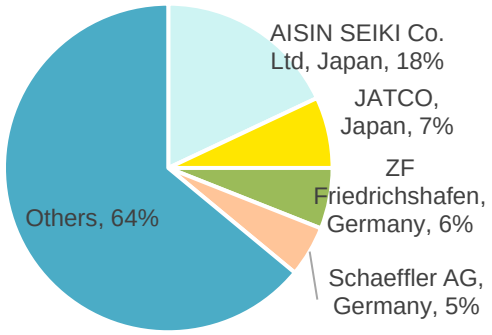
Global Manufacturing footprint

In advanced markets like Japan, US and South Korea the penetration of AT is over 80%

Global Transmission Market Share



Global Automatic Transmission Market : Suppliers



Key Market Trends

- Majority of the OEM and Supplier facilities for Automatic transmissions are located in geographies with AT penetration above 50-80%
- Major OEMs have setup mother plants in these key geographies to supply Automatic Transmissions for their global requirements
- AT supply is dominated majorly by Top 2~3 independent suppliers
- For any supplier to setup a local facility, economies of scale & ecosystem is required

Major Manufacturers of Automatic Transmissions Globally

Major Automatic Transmission Suppliers Globally :

- AISIN SEIKI Co. Ltd, Japan
- JATCO, Japan
- ZF Friedrichshafen AG, Germany
- Allison Transmission, USA
- Continental AG, Germany
- Magna International Inc, USA

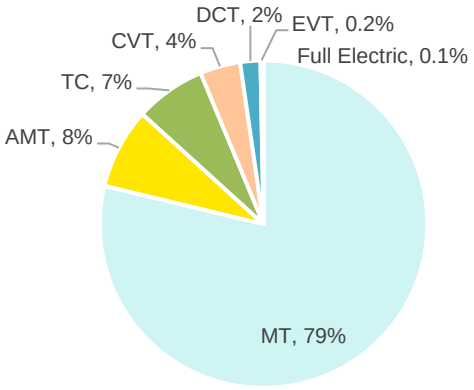
In addition, the following OEMs also manufacture automatic transmission inhouse for some/all of their models:

- Toyota, Japan
- Volkswagen, Germany
- Hyundai, Korea
- Honda, Japan
- General Motors, Korea
- Ford Motor, Mexico
- Suzuki, Japan
- Fiat, USA

*Source: IHS & Mordor Intelligence Report

Drive Transmission & Steering
Automatic Transmission : India Perspective

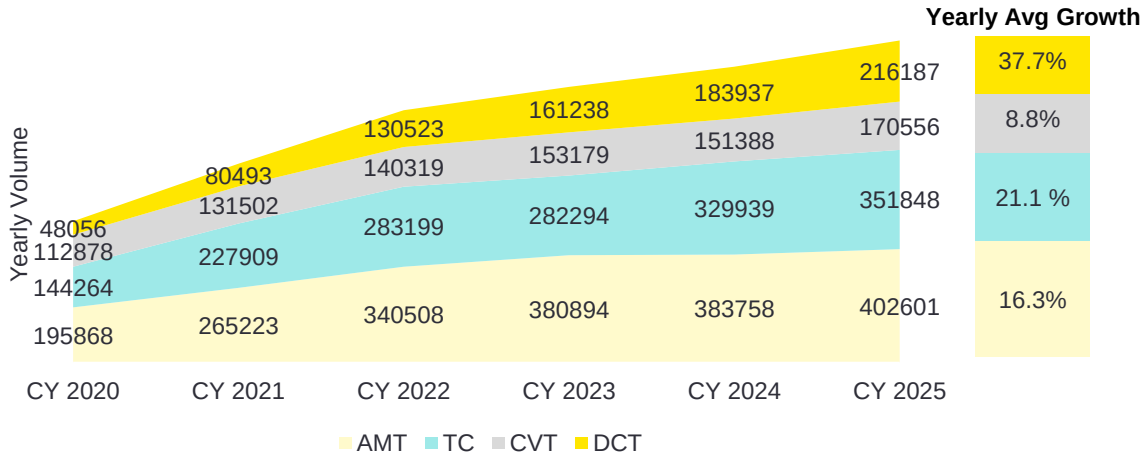
Transmission Type Market Share: FY 2020



- Manual Transmission (MT)
- Automated Manual Transmission (AMT)
- Torque Converter (TC)
- Continuously Variable Transmission (CVT)
- Dual Clutch Transmission (DCT)
- Electrical Variable Transmission (EVT)

Total AT Penetration (excluding AMT) in India is 13~14%

Automatic Transmission Volume in India : Projections



- Auto transmission vehicle penetration is projected to increase from 18% to 25% in next 5 years
- TC & CVT having major growth rather than AMT after CY2022

**Source: IHS Report*

Key Drivers for rise in Automatic Cars in India

- *Increasing traffic congestion in metropolitan cities has led to increase in demand for AT due to ease of usage & convenience*
- *The preference for automatic cars among women buyers and senior citizens to drive demand for AT*
- *Adoption of automatic transmission technology by the electric vehicle manufacturers is expected to propel the market growth in the near future*

Way Forward

- AT adoption in India is on the rise, although it is only 13~14% which is significantly less than the other developed markets
- No suppliers for AT in India (excl. AMT); need to invite global AT suppliers to setup base in India for global requirements
- AT technology is not standard and differs from OEM to OEM
- Major OEMs sourcing ATs from Mother plants have low volumes in India thereby not giving enough scale to set up an inhouse assembly facility
- AMT Technology is largely localized in India
- Raw Material to Sales Ratio for Automatic Transmission is 70~75%; Industry & government together can target assembly in 1st phase (2~5 year), 25-30% of localization target can be achieved
- Need to create a compelling environment for global supplier to set up plant in India

Drive Transmission & Steering

Automatic Transmission : Challenges and Support required for localization

Type of Challenge	Description	Government support	Industry Support
Strategic	• Lack of incentives for global suppliers to invest in manufacturing in India • Shift in recent industry trend from gasoline to electric might be an impediment for global suppliers to establish their base in India	• Localization impetus from the govt as part of the PLI scheme focussing on AT – CVT, Torque converter • Policy interventions for AT to expand current supplier base and to facilitate technology transfer from global OEMs/suppliers supplying parent parts to their subsidiaries in India (e.g. specifying local content requirements)	• Consolidation of current & forecasted requirements for AT (including export) to meet the MOQ for localized production. Discussion with concerned suppliers about the feasibility • Basis the above, formation of amalgamation of suppliers strongly recommended to cater the demand of Automatic Transmission & explore feasibility of common Technology / Platform • SIAM and ACMA to create an Industry Task Force to co-create a work plan for localizing AT
Technology	• Developing a common AT technology across OEMs is a challenge as it is unique/proprietary for each OEM • OEMs are exploring transmission technologies (such as hybrid) beyond currently available AT technologies		
Volume/ Economies	• Economies of scale is a challenge due to varying AT technologies across OEMs		
Supplier Base	• Lack of strong supplier base in India • Difficult to justify greenfield investment by new suppliers as volumes are low		

Drive Transmission & Steering : Localization Targets
By Key Component Categories

Component Category	Key Components with Localization Potential	Segment	FY 20 Import Value (INR Cr.)	Target Localization 2-5 years	Target Localization 5-7 years#	Net Impact
Transmission	Automatic Transmission Assembly (CVT, Torque Converter)	PV (Mass)	6,169	5-10%	25-30%	1,542 - 1,851 Cr.
		PV (Low Volume)	208	-	-	-
		PV (Niche)	72	-	-	-
		PV/CV	142	5-10%	15-30%	21 - 42 Cr.
		CV	270	-	8-10%	22 - 27 Cr.
		2W/3W	1	-	-	-
		Suppliers	619	-	-	-

Transmission

- Globally tried & tested Automatic Transmission like CVT and TC (86% of the overall value of Automatic Transmission imported into India) – should be an immediate priority for localization

#Localization efforts made in 0-5 years will result in additional localization impact of approx. INR 1,300 Cr. over a period of 5-7 years.

Drive Transmission & Steering : Localization Targets
By Key Component Categories

Component Category	Key Components with Localization Potential	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact
Transmission Components	Gears, Shafts & shaft assemblies, Transmission Belts & Hoses (especially AC & Brake Hoses)		3,152	5-10%	25-30%	788 - 946 Cr.

Transmission Components

- As the OEMs gradually identify and adopt the specific technology for Automatic transmission, especially in medium volume segment, the component localization is expected to be slower

Drive Transmission & Steering : Localization Targets
By Key Component Categories

Component Category	Key Components with Localization Potential	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact
Bearings	Child Parts of Bearings	**PV (Mass)**	230	-	-	-
		PV (Low Volume)	9	-	-	-
		PV (Niche)	5	-	-	-
		PV/CV	35	-	-	-
		CV	43	-	-	-
		2W/3W	192	-	-	-
		Suppliers*	2,486	-	5% - 10%	124 – 249 Cr.
Steering Systems & Components	Electronic Power Assisted Steering Parts (EPAS), Steering Column & assy., Rack & Pinion, Steering Wheel Assembly	**PV (Mass)**	664	34-38%	50-60%	332 – 398 Cr.
		PV (Low Volume)	15			
		PV (Niche)	116			
		PV/CV	132	35-40%	55-60%	73 - 79 Cr.
		CV	27			
		2W/3W	-			
		Suppliers	547	10-15%	25-30%	137 – 164 Cr.

Bearings

- High load capacity bearings – needle, tapered, ball bearings – are being imported from countries like China, Germany and Japan. These bearings are normally a part of transmissions, powertrain, drive shafts and steering gears
- Even the bearing manufacturers are importing these bearing in child parts form

Steering Systems & Components

- Focus for Localization- Steering Column & assy., Rack & Pinion should be targeted for Localization

*Bearings Suppliers are industry agnostic

Drive Transmission & Steering : Localization Targets
By Key Component Categories

Component Category	Key Components with Localization Potential	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact
Axle & Axle Components	Axle Assembly, Bevel gears & pinions, Differential housing, Axle shafts	**PV (Mass)**	537	5-10%	25-30%	134 – 161 Cr.
		PV (Low Volume)	47			
		PV (Niche)	55			
		PV/CV	57			
		CV	129	5-10%	25-30%	32 – 39 Cr.
		2W/3W	1			
		Suppliers	188	-10% to -5%	10-15%	19 – 28 Cr.
Clutch & Components	Clutch housing, clutch pressure plate & disc, Disc assembly Concentric Slave, Clutch Actuators, Cover assembly	**PV (Mass)**	412	5-10%	25-30%	103 - 124 Cr.
		PV (Low Volume)	1			
		PV (Niche)	1			
		PV/CV	11			
		CV	17			
		2W/3W	33			
		Suppliers	440	5-10%	25-30%	110 - 132 Cr.

**** The increase in imports from Suppliers is the net of increased Localization from the OEMs**

Axle & Differential Components

- Focus for Localization - Axle Assembly followed by Bevel gears & pinions, Differential housing, Axle shafts

Clutch Components

- Hydraulic clutch components like Concentric Slave, Clutch Actuators, Disc assembly, Cover assembly, Clutch Housing are imported from Korea, Germany
- Clutch Set (pressure plate and disc) are also being imported in high quantities from China
- Basic components such as Clutch Buttons are also imported from Austria (with ~49% import duty)

Drive Transmission & Steering : Localization Targets
By Key Component Categories

Component Category	Key Components with Localization Potential	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact
Alloy Wheels		PV (Mass)	25	-	-	-
		PV (Low Volume)	-	-	-	-
		PV (Niche)	6	-	-	-
		PV/CV	-	-	-	-
		CV	-	-	-	-
		2W/3W	1,672	2-5%	15-20%	251 - 334 Cr.
		Suppliers	1,013	2-5%	15-20%	152 - 203 Cr.
Other Components		Others	10,082	3-5%	18-22%	1,824 – 2,253

Alloy Wheels

- Localization of 2W Alloy wheels to be initiated in Phase-1, considering the testing & validation lead times, the efforts may start yielding results beyond 2 years

Drive Transmission & Steering : Localization Targets
Overall

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Drive Transmission & Steering	PV (Mass)	12,010	3-4%	11-16%	1,964 – 2,614
	PV (Low Volume)	730	-	-	-
	PV (Niche)	932	-	-	-
	PV/CV	820	12-14%	21-25%	173 – 203
	CV	1,194	1-3%	7-8%	79 – 95
	2W/3W	2,118	2-4%	13-18%	280 – 373
	Suppliers	12,057	3-6%	16-20%	1,899 – 2,457
Total		**29,861***	**3-5%**	**15-19%**	**4,394 – 5,742**

Category	Sub Category	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Drive Transmission & Steering	**Transmission**	7,481	-	4-8%	316 – 631[#]
	Transmission Components	3,152	5-10%	25-30%	788 – 946
	Bearings	3,000	-	4-8%	124 - 249
	Alloy Wheels	2,716	2-5%	15-20%	403 - 537
	Steering Systems & Components	1501	22-26%	36-43%	541 – 642
	Axle & Differential Components	1014	1-6%	18-22%	185 – 228
	Clutch & Clutch Components	915	5-9%	23-28%	213 – 256
	Others	10,082	3-5%	18-22%	1,824 – 2,253
Total		**29,861***	**3-5%**	**15-19%**	**4,394 – 5,742**

[#]Transmission Sub category: Localization efforts made in 0-5 years will result in additional localization impact of approx. INR 1,300 Cr. over a period of 5-7 years.

*** Import value for Aftermarket has been excluded**

Drive Transmission & Steering : Localization Roadmap

Components for localization

Gears, Shafts & shaft assemblies, electronic power assisted steering parts (EPAS), Steering Column & assy., Rack & Pinion, Axle Assembly, Clutch assembly parts such as clutch buttons, clutch plates, pressure plates & slave cylinder

Steering wheel assembly along with infotainment switches & airbags, Transmission Belts & Hoses (especially AC & Brake Hoses), AT assembly (TC, CVT), Child Parts of Bearings, Alloy Wheels, Axle Components

Localization Catalyst

Phase 1: 0-2 Years

Phase 2: 2-5 Years

- Consolidation of current & forecasted requirements for AT (including export) to meet the MOQ for localized production. Discussion with concerned suppliers about the feasibility
  - Formation of amalgamation of suppliers strongly recommended to cater the demand of Automatic Transmission & explore feasibility of common Technology / Platform
- Localization impetus from the govt as part of the PLI scheme focussing on Automatic Transmission (AT) – Continuously Variable Transmission (CVT), Torque converter (TC) (CVT & TC have a combined market share of 11% currently)
- Policy interventions for AT to expand current supplier base and to facilitate technology transfer from global OEMs/suppliers supplying to their subsidiaries in India (e.g. specifying local content requirements)
- Incentives for global OEMs to establish their mother plants in India
- SIAM and ACMA to create an Industry Task Force to co-create a work plan for localizing AT
- Tier-1 suppliers for bearings should enable themselves and Tier-2 suppliers to target global programs to develop scale & avoid repetition of Development & Validation costs
- Bearing manufacturers should work on joint development of bearing raw materials with steel makers
- Government support in terms of rationalization of validation norms to reduce testing & validation costs for steering column & column assembly to support industry localization effort
- Policy interventions for Bearing components to facilitate technology transfer from global OEMs/suppliers supplying child parts to their subsidiaries in India (e.g. specifying local content requirements)
- Invest in supplier development for upgrading the technology, designs & capability to strengthen the manufacturing ecosystem for bearings
- Build technology & capacity for gravity die casting & other machining processes for 2W Alloy wheels
- Focus on joint localization for Shaft & shaft assemblies, Gears, Gearbox housing, Flywheel assembly, Transmission Belts & Hoses (especially AC & Brake hoses) with suppliers
- Focus on building capability to localize clutch assembly parts
- Enable imports of bearing raw material at reasonable duties to enable faster localization of bearing components

FY19~20 Base — **5%** — **19%**

Government led initiatives

Industry led initiatives

Initiatives to be executed parallelly

Initiatives to be executed sequentially

Expected Localization %

Categories Identification

27 6-digit HS Code details for Drive Transmission and Steering

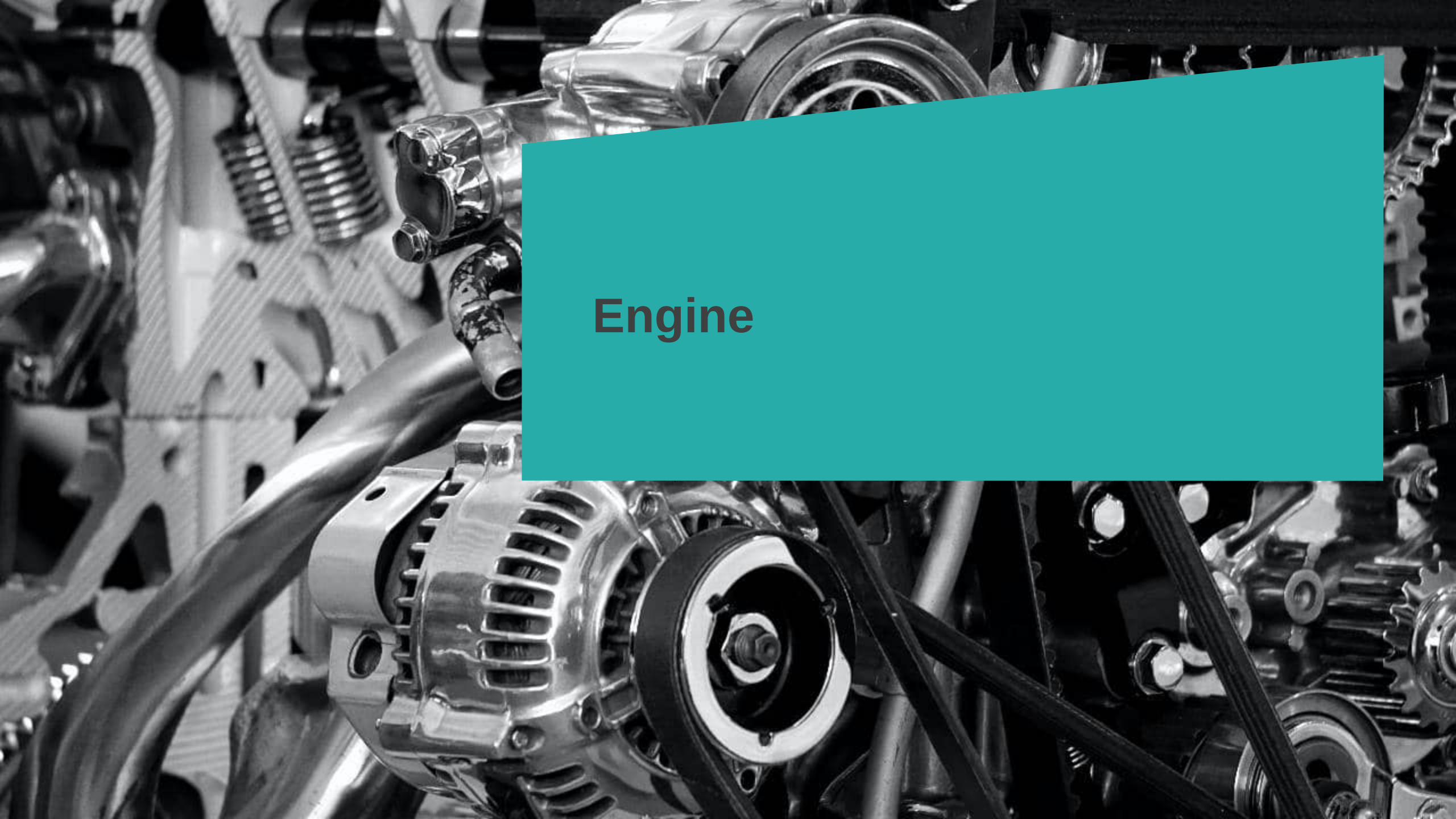
HS Code 6 Digit	HS Code 8 digit	Description	ACMA Description
848120	84812000	VALVES FR OLEOHYDRAULIC/PNEUMATIC TRNSMSNS	
841221	84122100	LINEAR ACTING (CYLINDERS),HYDRAULIC POWER ENGINES AND MOTORS	
841290	84129090	PARTS OF OTHER ENGINES AND MOTORS	
848210	84821011	ADAPTER BALL BEARINGS(RADIAL TYPE) <=50MM OR 2 INCHES BORE DIAMETER	Drive Transmission & Steering
848210	84821012	ADAPTER BALL BEARINGS (RADIAL TYPE): OF BORE DIAMETER EXCEEDING 50 MM BUT NOT EXCEEDING 100 MM	Drive Transmission & Steering
848210	84821013	ADAPTER BALL BEARINGS (RADIAL TYPE): OF BORE DIAMETER EXCEEDING 100 MM	Drive Transmission & Steering
848210	84821020	BALL BERNG(RADL TYP)EXCL ADTR BALL BERNG (RADL TYP)(SLF-ALIGNING BAL BERNG,N.E.S., SEPRABL BAL BERNGS,<=50MM/2 INCHS BO	Drive Transmission & Steering
848210	84821030	BALL BEARINGS(RADIAL TYPE)EXCL ADAPTER BAL BEARNG(RADL TYPE)>50MM/2 INCHES BORE DIAMETER BUT<=100MM OR 4 INCHES BORE	Drive Transmission & Steering
848210	84821040	BALL OR ROLLER BEARINGS: CLASSIFICATION OF BORE DIAMETER EXCEEDING 100 MM	Drive Transmission & Steering
848210	84821051	BALL BEARINGS(THRUST TYPE)<=50 MM OR 2 INCHES BORE DIAMETER	Drive Transmission & Steering
848210	84821052	THRUST BALL BEARINGS: OF BORE DIAMETER EXCEEDING 50 MM BUT NOT EXCEEDING 100 MM	Drive Transmission & Steering
848210	84821053	THRUST BALL BEARINGS: OF BORE DIAMETER EXCEEDING 100 MM	Drive Transmission & Steering
848210	84821090	OTHER BALL BEARINGS	Drive Transmission & Steering
848220	84822011	TAPPERED ROLLER BEARINGS(RADIAL TYPE) <=50 MM OR 2 INCHES BORE DIAMETER	Drive Transmission & Steering
848220	84822012	TAPERED ROLLER BEARINGS(RADIAL TYPE) >50 MM OR 2 INCHES BORE DIAMETER BUT <=100 MM OR 4 INCHES BORE DIAMETER	Drive Transmission & Steering

HS Code 6 Digit	HS Code 8 digit	Description	ACMA Description
848220	84822013	BALL OR ROLLER BEARINGS: OF BORE DIAMETER EXCEEDING 100 MM OR 4 INCHES	Drive Transmission & Steering
848220	84822090	OTHER TAPERED ROLLED BEARINGS	Drive Transmission & Steering
848230	84823000	SPHERICAL ROLLER BEARINGS	Drive Transmission & Steering
848240	84824000	NEEDLE ROLLER BEARINGS	Drive Transmission & Steering
848250	84825011	RADIAL TYPE ROLLER BEARINGS,EXCL TAPERED, <=50MM OR 2 INCHES BORE DIAMETER	Drive Transmission & Steering
848250	84825012	RADIAL TYPE ROLLER BEARINGS,EXCL TAPERED, >50 MM OR 2 INCHES BORE DIAMETER BUT <=100 MM OR 4 INCHES BORE DIAMETER	Drive Transmission & Steering
848250	84825013	BALL OR ROLLER BEARINGS: OF BORE DIAMETER EXCEEDING 100 MM.	Drive Transmission & Steering
848250	84825021	THRUST ROLLER BEARINGS<=50 MM OR 2 INCHES BORE DIAMETER	Drive Transmission & Steering
848250	84825022	THRUST ROLLER BEARINGS: OF BORE DIAMETER EXCEEDING 50 MM BUT NOT EXCEEDING 100 MM	Drive Transmission & Steering
848250	84825023	THRUST ROLLER BEARINGS: OF BORE DIAMETER EXCEEDING 100 MM	Drive Transmission & Steering
848280	84828000	OTHR BALL OR ROLLER BEARINGS INCL CMBIND BALL/RLLR BEARNGS	
848291	84829120	NEEDLES	
848291	84829130	ROLLERS	
848299	84829900	OTHER BALL/RLR BEARNG PARTS	Drive Transmission & Steering
848320	84832000	BEARNG HOUSNG,INCORPORTNG BALL/RLLR BEARN	Drive Transmission & Steering
848330	84833000	BEARING HOUSUNGS,NOT INCORPORATING BALL OR ROLLER BEARINGS;PLAIN SHAFT BEARINGS	Drive Transmission & Steering
848340	84834000	GEARS AND GEARNG,EXCL TOOTHD WHEELS,TRNSMSN ELMNTS PRSNTD SEPRTLY;BALL SCRWS;GEAR BOXSAND SPEED CHNGRS,INCL TORQUE C	Drive Transmission & Steering

Categories Identification

27 6-digit HS Code details for Drive Transmission and Steering

HS Code 6 Digit	HS Code 8 digit	Description	ACMA Description
848350	84835010	PULLEYS,POWER TRANSMISSION	Drive Transmission & Steering
848350	84835090	OTHERS	Drive Transmission & Steering
848360	84836010	FLEXIBLE COUPLING	Drive Transmission & Steering
848360	84836020	FLUID COUPLING	Drive Transmission & Steering
848360	84836090	OTHERS	Drive Transmission & Steering
848390	84839000	PARTS OF THE ITEMS OF HDG 8483	Drive Transmission & Steering
848410	84841010	ASBSTS MTLC PCKNGS AND GSKTS(EXCL GSKTS OF ASBSTS BOARD REINFRCD WTH MTL GAUZE/WIRE)	Drive Transmission & Steering
848410	84841090	OTHER GSKTS AND SMLR JOINTS	Drive Transmission & Steering
870840	87084000	GEAR BOXES	Drive Transmission & Steering
870850	87085000	DRIVE AXLES WITH DIFFERENTIAL W/N PROVIDEDWITH OTHER TRANSMISSION COMPONENTS	Drive Transmission & Steering
870893	87089300	CLUTCHES AND PRTS THEREOF	Drive Transmission & Steering
870894	87089400	STERNG WHEELS,STERNG COLUMNS AND STERNG BOXS	Suspension & Braking
870899	87089900	OTR PRTSANDACCSSRS OF VHCLS OF HDG 8701-8705	Drive Transmission & Steering
870990	87099000	PARTS OF THE VEHICLES OF HDG 8709	Drive Transmission & Steering
871420	87142010	OF CARRIAGES FOR DISABLED PERSONS: MECHANICALLY PROPELLED	Drive Transmission & Steering
871420	87142090	OF CARRIAGES FOR DISABLED PERSONS: OTHER	Drive Transmission & Steering
871496	87149600	PEDALS AND CRANK-GEAR, AND PARTS THEREOF	Drive Transmission & Steering
871410	87141010	SADDLES	Interiors (non-electronic)
871410	87141090	PARTS AND ACCESSORIES OF MOTORCYCLE EXCL. SADDLE	Interiors (non-electronic)



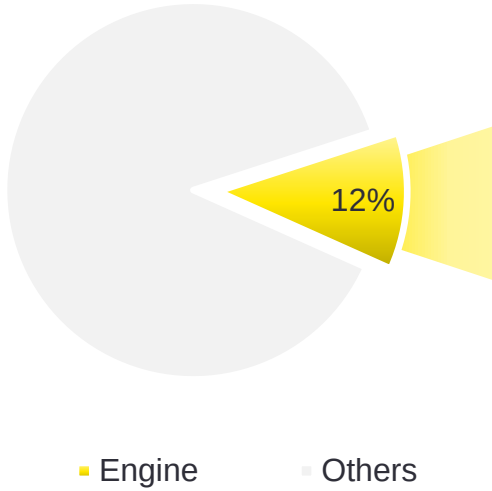
Engine

Engine : Category Snapshot FY19-20

Key Takeaways

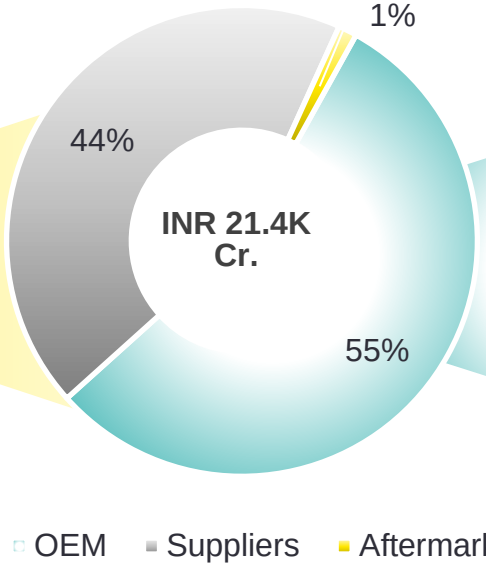
INR 1.83 Lakh Cr.

Total Automotive Imports (FY20)

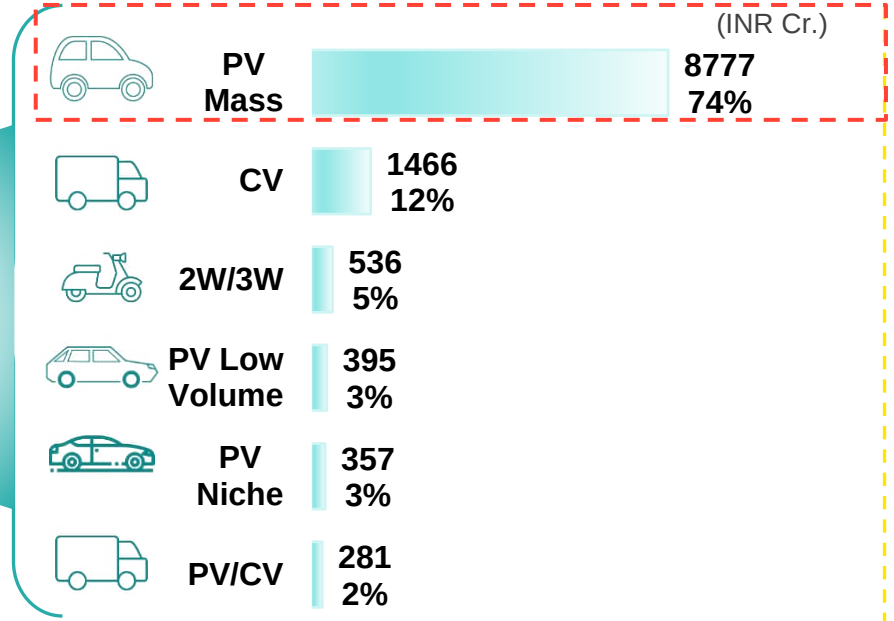


INR 21.4K Cr

Total Automotive Imports (FY20)



Imports by Vehicle Category



OEMs (55%) contribute to substantial imports of Engine

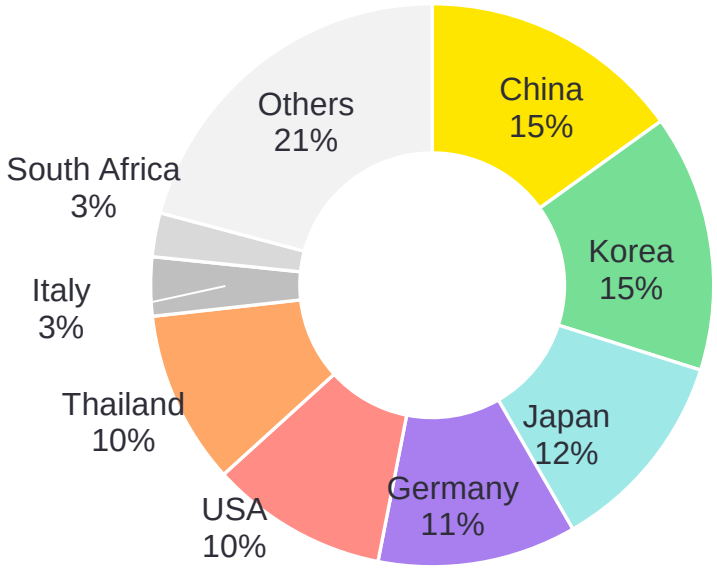
Among the OEMs, PV Mass alone contribute to 74% of the total imports

The import share of Engine has been rising consistently due to the emission norms & regulation

26 6-digit HS codes were considered for analysis of Engine category

Engine : Category Snapshot FY19-20
Key Takeaways

Import by Country of Origin



Components of Import

(INR Cr.)

Engine components	**16,427**	77%
Engines	**4,667**	22%
Tubes, Pipes & Hoses	**161**	1%
Cooling system	**101**	0.5%
Transmission belts	**9**	Negligible

Import by Country of Origin : Top 3 Countries

China	Japan	Ger.
15%	14%	13%

Korea	USA	SA
28%	15%	14%

China	Korea	Japan
22%	12%	12%

Germ.	Japan	China
32%	14%	12%

Germ.	China	Japan
44%	14%	12%

Korea, China & Japan contribute a significant share of the Engine imports into India (42%)

Engines & Engine Components (Diesel, Gasoline) account for 99% of the total Engine Category imports

Certain OEMs are importing complete turbo-gasoline engines

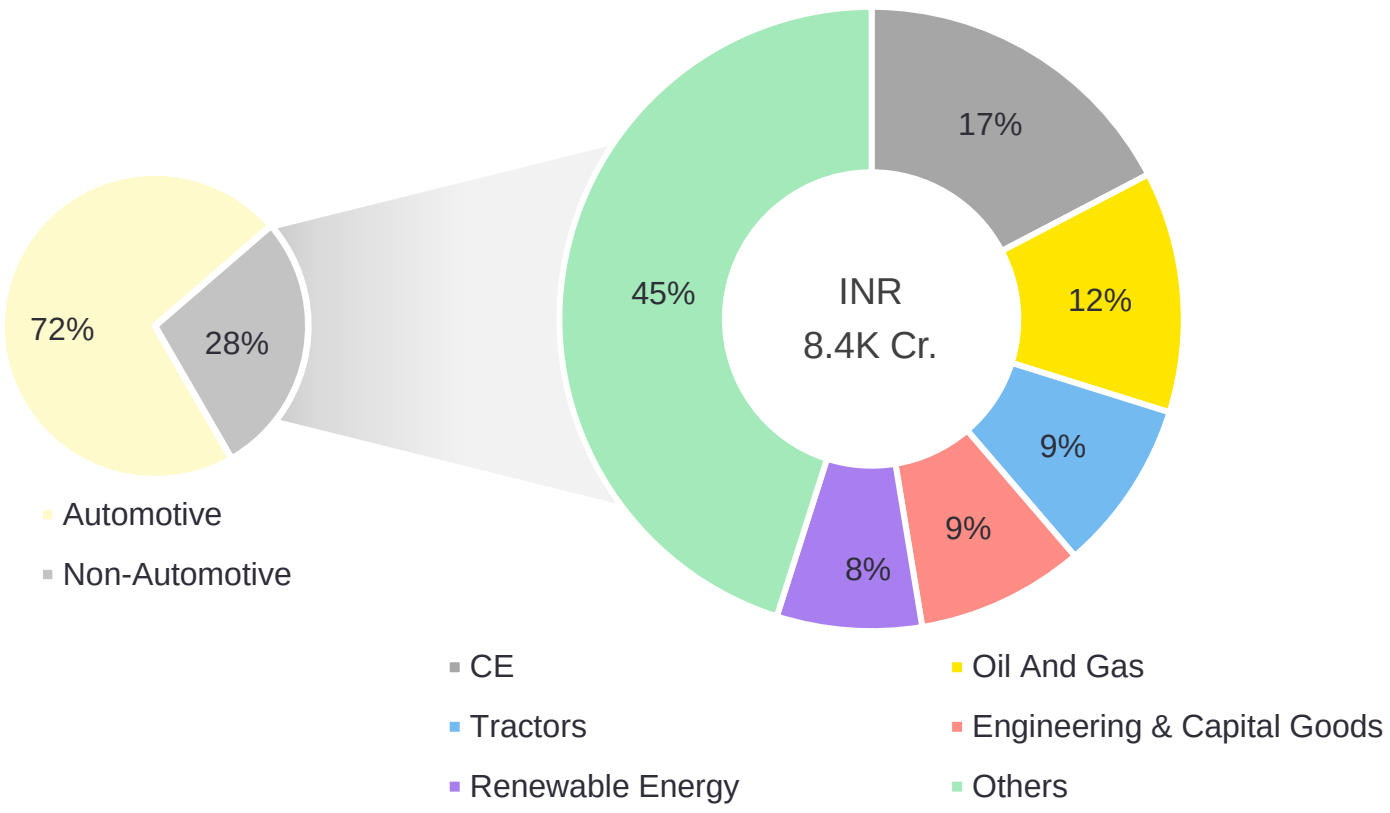
Engine Components are further classified as Fuel injection system & components (36%) , 5Cs (24%), Exhaust systems (32%) and others (8%)

Engine : Category Snapshot FY19-20

Key Takeaways : Non-Automotive (Adjacent) sectors

INR 29.8K Cr.

Total value of Engine imports in FY20



Key Insights

- Top 5 sectors contribute ~55% to the total import value of non-automotive segment in FY20
- CE holds the first spot in terms of contribution to import value at 17%

Top 5 Sectors	Value (INR Cr.)
CE	1460
Oil And Gas	1052
Tractors	748
Engineering & Capital Goods	731
Renewable Energy	632

Engine : Demand Drivers

Key Demand Drivers	Impending Impacts			Trend Source
	Short Term	Long Term	Insight & Components Impacted	
Rising demand for affordable, turbo-engine powered vehicles *India turbocharger market to reach $1.7 bn. @ 6.5% CAGR from 2019-2027*			• Substantial increase in turbo chargers due to current and forthcoming regulations • Persistent growth of turbochargers is predominantly driven by heightened demand for vehicle manufacturers to align with environmental emission regulations	T R C
Increasing adoption of Electric Mobility *India EV market to reach US$10.1b by 2027 @12% CAGR over 2020-27*			• Growing EV adoption will hamper the growth of the complete engine unit and related components	T R C
Engine right-sizing to reduce Vehicle Weight *In order to improve vehicle efficiency (primarily vehicle emissions), OEMs moving towards vehicle downsizing*			• Increase in alternate technology/ components such as turbo chargers, superchargers, twin-chargers • India established BS-VI and CAFE norms to improve vehicle efficiencies	T R C
Growing use of VVT technology in engines during last decade *Includes technologies such as VTVT / VVT / i-VTEC / VVT-i / Ti-VCT etc.*			• Increase in demand for high-performance vehicles using VVT technology has led to a significant surge in the sales of camshafts across the globe	T R C

 High  Medium  Low  Positive  Negative

T : Technology, R : Regulatory, C : Customer / Consumer
Short-term: next 3 years; Long term: beyond 7-10 years & beyond

Denotes the impact of the trend on the select components under Engine Commodity Category

Engine : Reasons for Import

Key Components	Key Countries of Import	Technology & Capability	Supply Chain	Economies of Scale	Govt. Policy & Tariffs	Key Import Reasons
Engines	Korea, USA, Eastern Europe					• Low vehicle volume, especially in premium PV segment, lead to majority imports for such engines • Many OEMs comply with their organisation's global sourcing strategy to import necessary parts • Certain OEMs are importing complete turbo-gasoline engines • OEMs not willing to invest in ICE Localization foreseeing rise of EVs • Duty advantage from South-East Asian countries; FTA with Korea
Engine Components	Fuel Injection Systems (~45%) China, Germany, Korea					**Fuel Injection System** • Currently components such as injectors, rail assemblies, Inlet-Outlet Pipe are being imported due to duty advantage, quality concerns, cost competitiveness and import for export • Low-value parts such as Pressure spindle, Coils, Injector Nozzles, Inlet Connectors, Inlet & Outlet tube, Distributer Tube are also preferred choice of imports as concerns stated above • High pressure fuel pumps are imported due to superior quality of these critical parts • Limited tech. capability, long validation cycles & low volumes
	5Cs & Others (~40%) China, Germany					**5Cs - Crankshaft, Camshaft, Cylinder block, Cylinder head, Connecting rod** • High precision parts – 5Cs – and even small value parts – valve cotters, inlet exhaust seals – are being preferred to import by OEMs and Suppliers; Quality and Cost being the top reasons • Components like lash adjuster, hydraulic lash adjuster, exhaust valve seals, pistons are being imported from China & Germany • 2W OEMs, due to cost competitiveness, importing crankshaft and camshaft assemblies, primarily from China
	Exhaust Systems (~5%) Korea, Thailand					**Exhaust Systems** • Precious metals/ rare-earths (Palladium, Rhodium) are unavailable in India, although canning, coating for catalytic convertor will be initiated locally • Manifold module assembly, converter sub-assembly are the key components imported from Korea and Thailand (FTA) • Due to BS-VI, imports of exhaust systems expected to significantly increase across segments, particularly CV where the value is higher • High grade of steel used in catalytic convertor in short supply • EGR difficult to localize due to low volumes & unavailability of Stainless Steel

Yellow bar indicates severity of reason

Engine : Assessment of Localization Potential

Key Components	Assessment of Localization Potential	Recommendations (Phase 1 : 0-2 yrs, Phase 2 : 2-5 yrs)	Supporting Factors
Engines	Technology & Capability; Supply Chain; Economies of Scale; Govt. Policy & Tariffs	• Phase 1 : Initiate assembly of gasoline force aspirated engines. In case the engines are imported, should be encouraged in CKD form rather than CBU	T R C No major risk foreseen in the next decade for Gasoline Engines.
Engine Components – A) Fuel Injection Systems & Components	Technology & Capability; Supply Chain; Economies of Scale; Govt. Policy & Tariffs	• Phase 1 : Localization of key fuel injection parts such as throttle body, distributor pipes Inlet, outlet), fuel rail • Phase 2 : Localization of injectors for gasoline engines	T R C No major risk foreseen in the next decade for Gasoline Engines.

**Engine Components –
B) 5Cs & Others**
(Crankshaft, Camshaft, Connecting Rod, Cylinder Head, Cylinder Block)
	Technology & Capability; Supply Chain; Economies of Scale; Govt. Policy & Tariffs	• Phase 1 :
		  • Localize liners, cylinder blocks and cylinder heads across vehicles categories especially 2W OEMs
		  • Localize AC pulley, Tensioners
		  • Encourage contract manufacturing
		• Phase 2 :
		  • Localize Crankshafts & Camshafts across OEMs specifically PV segment
		  • Localize Turbochargers, EGR Assembly
			T R C
			No major risk foreseen in the next decade for Gasoline Engines.

Engine Components – C) Exhaust Systems	Technology & Capability; Supply Chain; Economies of Scale; Govt. Policy & Tariffs	• Phase 1 : Localization of exhaust manifold assembly, canning process • Phase 2 : Localization of EATS (excluding speciality chemicals and rare earths)	T R C No major risk foreseen in the next decade for Gasoline Engines.

Ready Can reach there Infeasible

T R C

Highly Favourable Moderately favourable Not favourable

T : Technology, R : Regulatory, C : Customer / Consumer

Engine : Localization Targets
By Key Component Categories

Component Category	Key Components with Localization Potential	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact
Engines	Assembly of gasoline force aspirated engines	PV (Mass)	3,803	5-10%	25-30%	951 - 1,141 Cr.
		PV (Low Volume)	208	-	-	
		PV (Niche)	41	-	-	
		PV/CV	-	-	-	
		CV	-	-	-	
		2W/3W	-	-	-	
		Suppliers	-	-	-	
Engine Components A) Fuel Injection Systems & Components	Throttle body, distributor pipes Inlet, outlet), fuel rail, tensioners, injectors for gasoline engines	PV (Mass)	2,190	-	15-20%	328 - 438 Cr.
		PV (Low Volume)	35	-	-	
		PV (Niche)	100	-	-	
		PV/CV	176	-	15-20%	26 - 35 Cr.
		CV	404	-		
		2W/3W	-	-	-	
		Suppliers	3,046	-	8-10%	244 - 305 Cr.

If Niche OEMs could localize their engines and transmission assembly in India, is it really a big constraint for Mass players to replicate the same?

ICE vs EV is the main determinant for Localization. What will be the Policy Directive by the Government for the Automotive Industry?

Components pertaining to CNG kits have not been included in the above numbers and presents substantial scope for Localization, especially in aftermarket

Engine : Localization Targets
By Key Component Categories

Component Category	Key Components with Localization Potential	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact
Engine Components **B) 5Cs & Others** *(Crankshaft, Camshaft, Connecting Rod, Cylinder Head, Cylinder Block)*	Liners, cylinder blocks and cylinder heads, AC pulley, Crankshafts, Camshafts, Turbochargers, EGR Assembly	**PV (Mass)**	1,790	3-5%	20-25%	358 - 448 Cr.
		PV (Low Volume)	110	-		
		PV (Niche)	84	-		
		PV/CV	65	-		
		CV	122	-		
		2W/3W	386	5-10%	25-30%	97 - 116 Cr.
		Suppliers	1,405	-10% to -5%	8-10%	112 - 141 Cr.
Engine Components **C) Exhaust Systems**	Exhaust manifold assembly (including canning and coating process), EATS (excluding speciality chemicals and rare earths)	**PV (Mass)**	1,043	2-5%	10-15%	104 - 157 Cr.
		PV (Low Volume)	48	-	10-15%	5 - 8 Cr.
		PV (Niche)	80	-	-	-
		PV/CV	31	2-5%	10-15%	3 - 4 Cr.
		CV	882	2-5%	10-15%	88 - 132 Cr.
		2W/3W	-	-	-	-
		Suppliers	3,170	-	10-15%	317 - 476 Cr.
Other Components		**Others**	1,873	-	10-13%	179 – 242 Cr.

As OEM localize, Supplier imports might increase in short-med. term

- **EATS – Substrates & Precious metals (coating) and special steels (canning), Urea dosing and supply modules are all imported**
- **EATS accounts to ~10% of total material cost – significant increase in imports; very little/ no scope of Localization except for special steels in the next 3 to 5 years**

Engine : Localization Targets
Overall

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Engine	PV (Mass)	8,777	3-6%	20-25%	1,732 – 2,171
	PV (Low Volume)	395	-	1-1.5%	5 – 7
	PV (Niche)	357	-	-	-
	PV/CV	281	0-1%	11-15%	31 – 41
	CV	1,466	1-3%	6-9%	92 – 138
	2W/3W	536	5-10%	25-30%	134 – 161
	Suppliers	9,280	-2% to -1%	9-12%	820 – 1,121
Total		**21,092***	**1-3%**	**13-17%**	**2,822 – 3,653****

Category	Sub Category	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Engine	Engine	4,052	5-9%	23-28%	951 – 1,141
	Engine Components : Fuel Injection Systems & Components	5,950	-	10-13%	599 – 778
	Engine Components : 5Cs & Others	3,962	-2% to -1%	14-18%	567 – 704
	Engine Components : Exhaust Systems	5,255	1-2%	10-15%	526 - 788
	Others	1,873	-	10-13%	179 – 242
Total		**21,092***	**1-3%**	**13-17%**	**2,822 – 3,653**

*** Import value for Aftermarket has been excluded**

**** A portion of the overall target for Engines might come from the PV (Niche) segment to meet the overall PV (Niche) segment target of 1-2% localization of the overall automotive imports**

Engine : Localization Roadmap

Components for localization

Assembly of exhaust manifold (including canning and coating process), assembly of gasoline force aspirated engines, key fuel injection parts such as throttle body, distributor pipes (Inlet, outlet), fuel rail, tensioners, etc., Cylinder Block, Head & Liners for 2W, AC pulley

Injectors for gasoline engines, EATS, Turbochargers, Crankshafts & Camshafts, EGR Assembly

Localization Catalyst

Phase 1: 0-2 Years

Prioritize localization of components impacted by BS6 and CAFÉ norms (such as injectors & sub parts of injectors, turbochargers) due to expected surge in volume in the coming years

Validation norms in terms of time for testing (ARAI testing etc.) to be rationalized (incl extension of validation) to support Industry efforts towards localization especially for repeated items

Incentives for localization of CNG kits

Incentives for global manufacturers to set up a manufacturing facility in India to support localization for exhaust after treatment system, fuel injection system

Suppliers to focus on developing capabilities to meet the global standards for critical parts like injection systems & components

Phase 2: 2-5 Years

Policy interventions to facilitate technology transfer between global OEMs/suppliers to their subsidiaries in India (e.g. specifying local content requirements)

Develop self-reliance on Advanced Materials & Rare earths (especially for Engine & EATS materials)

FY19~20 Base — **3%** — **17%**

Government led initiatives

Industry led initiatives

Initiatives to be executed parallelly

Initiatives to be executed sequentially

Expected Localization %

Categories Identification

26 6-digit HS Code details for Engine

HS Code 6 Digit	HS Code 8 digit	Description	ACMA Description
400921	40092100	TUBES,PIPES AND HOSES OF VULCNSD RUBR REINFORCED/OTHRWSE CMBND ONLY WTH METAL MATERIALS WITHOUT FITTINGS	Engine Components
400931	40093100	TUBES, PIPES AND HOSES OF VULCNSD RUBR REINFORCED/OTHRWSE CMBND ONLY WTH TEXTILE MATERIALS WTHOUT FITTINGS	Engine Components
400941	40094100	TUBES.PIPES AND HOSES OF VULCNSD RUBR REINFORCED/OTHRWSE COMBINED WTH OTHR MATERIALS WITHOUT FITTINGS	Engine Components
400942	40094200	TUBES,PIPES,ANDHOSES OF VULCNSD RUBR REINFORCED OTHERWSE COMBINED WITH OTHER MATARIALS WITH FITTINGS	Engine Components
401032	40103290	ENDLESS TRNSMSN BLT/BLTNG OF V-BLT/OTHER THAN V-RIBBED OF CIRCUM BETWN 60 CM AND 180 CM WHERE RUBY COMPD MORE THAN 25%	Engine Components
401034	40103490	CONVEYOR OR TRANSMISSION BELTS OR BELTING, OF VULCANISED RUBBER - OTHER	Engine Components
681299	68129921	ASBESTOS PACKING JOINTS AND GASKETS: PACKING JOINTS	Engine Components
681299	68129922	ASBESTOS PACKING JOINTS AND GASKETS: GASKETS	Engine Components
840731	84073110	SPRK-IGNTN ENGINES FOR MOTOR CARS	Engine Components
840731	84073190	SPRK-IGNTN ENGINES FOR OTHERS	Engine Components
840732	84073210	OF A CYLINDER CAPACITY EXCEEDING 50 CC BUT NOT EXCEEDING 250 CC: FOR MOTOR CYCLES	Engine Components
840732	84073290	SPRK-IGNTN ENGINES FOR OTHERS	Engine Components
840733	84073310	SPRK IGNTN ENGINES FOR MOTOR CARS	Engine Components
840733	84073320	SPRK-IGNTN ENGINES FOR MOTOR CYCLES	Engine Components
840733	84073390	SPRK-IGNTN ENGINES FOR OTHERS	Engine Components
840734	84073410	SPRK-IGNTN ENGINES FOR MOTOR CARS	Engine Components
840734	84073490	SPRK-IGNTN ENGINES FOR OTHERS	Engine Components
840790	84079010	PETROL ENGINES	
840820	84082010	ENGNS OF CYLNDR CPCTY>50 CC BUT <=250 CC	Engine Components
840820	84082020	ENGINES OF CYLNDR CPCTY>250 CC	Engine Components
840991	84099111	VALVES,INLET AND EXHAUST	Engine Components
840991	84099112	PISTONS	Engine Components
840991	84099113	PISTON RINGS	Engine Components
840991	84099114	PISTON ASSEMBLES	Engine Components
840991	84099120	FUEL INJCTN EQPMNT EXCL INJCTN PUMPS	Engine Components
840991	84099191	OTHER CMPONENT PARTS OF PETROL ENGINES FOR MOTOR VEHICLES	Engine Components
840991	84099194	OTHER: OF GAS ENGINES	Engine Components
840991	84099199	OTHER PARTS OF SPRK-IGNITION ENGINES	Engine Components
840999	84099911	VALVES,INLET AND EXHAUST	Engine Components
840999	84099912	PISTONS	Engine Components

Categories Identification

26 6-digit HS Code details for Engine

HS Code 6 Digit	HS Code 8 digit	Description	ACMA Description
840999	84099913	PISTON RINGS	Engine Components
840999	84099914	PISTON ASSEMBLES	Engine Components
840999	84099920	FUEL NOZZELES	Engine Components
840999	84099930	FUEL INJECTN EQPMNT EXCL INJCTN PUMPS	Engine Components
840999	84099941	COMPONENT PARTS FOR DIESEL ENGINES FOR MOTOR VEHICLES,N.E.S.	Engine Components
840999	84099949	OTHER PARTS OF DIESEL/SEMI DIESEL ENGINES	Engine Components
840999	84099990	OTHER PARTS OF SEMI DIESEL ENGINES	Engine Components
841330	84133010	INJECTION PUMPS FOR DIESEL ENGINES	Engine Components
841330	84133020	OIL PUMP	Engine Components
841330	84133030	WATER PUMP	Engine Components
841330	84133090	OTHER FUEL, LUBRICATING OR COOLING MEDIUM PUMPS	Engine Components
841381	84138120	PUMPS: HYDRAULIC RAM	Engine Components
841391	84139190	OTHERS	Engine Components

HS Code 6 Digit	HS Code 8 digit	Description	ACMA Description
842123	84212300	OIL/PRTL-FLTRS FR INTRNL CMBSTN ENGNS	Engine Components
842131	84213100	INTAKE AIR FLTRS FR INTRNL CMBSTN ENGNS	Engine Components
848310	84831091	CRANK SHAFT FOR ENGINES OF HEADING 8407	Engine Components
848310	84831092	CRANK SHAFT FOR ENGINES OF HEADING 8408	Engine Components
848310	84831099	OTHER TRNSMSN SHFT(INCL CAM AND CRNK SHFT)	Engine Components
851110	85111000	SPARKLING PLUGS	Engine Components
870891	87089100	RADIATORS	Engine Components
870892	87089200	SILENCERS AND EXHAUST PIPES	Engine Components
842199	84219900	OTHR PARTS OF FLTRNG/PURFYNG MCHNRY	Interiors (non-electronic)
842139	84213920	AIR PURIFIERS OR CLEANERS	Interiors (non-electronic)
842139	84213990	OTHERS	Interiors (non-electronic)

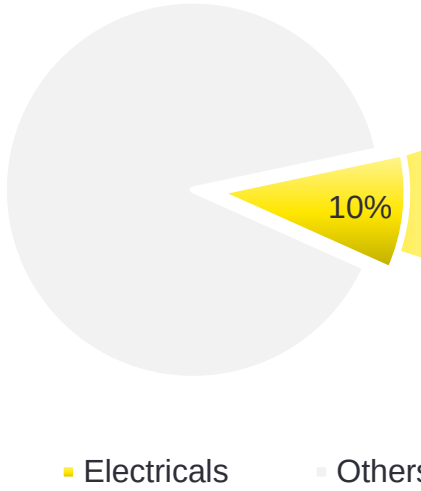
Electricals

Electricals : Category Snapshot FY19-20

Key Takeaways

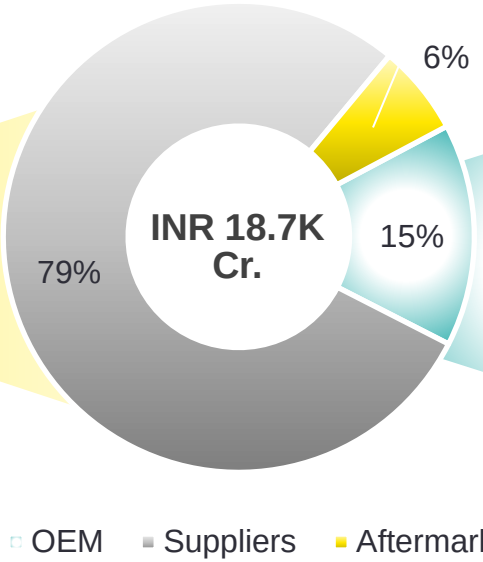
INR 1.83 Lakh Cr.

Total Automotive Imports (FY20)

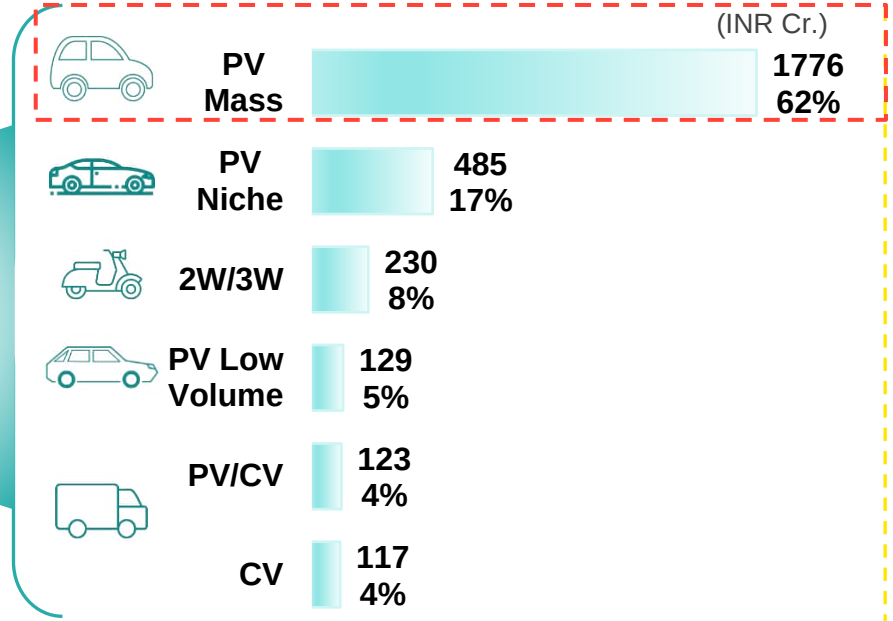


INR 18.7K Cr

Total Automotive Imports (FY20)



Imports by Vehicle Category



Automotive Suppliers (79%) contribute to substantial imports of Electricals component

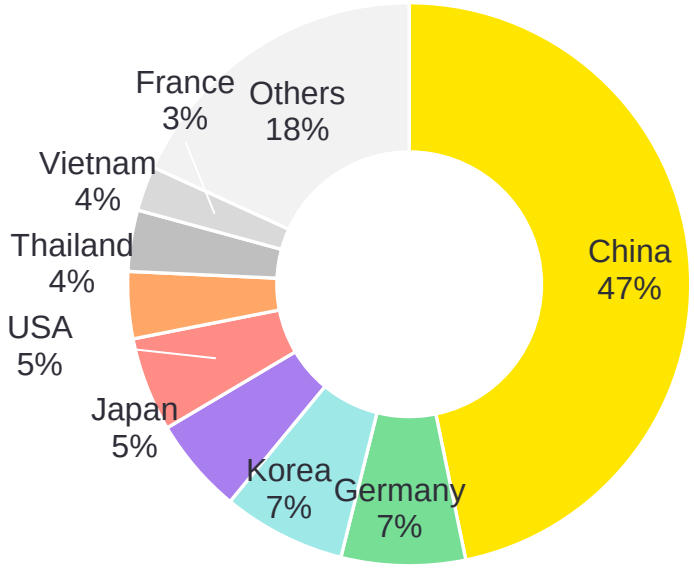
Among the OEMs, PV Mass alone contribute to 62% of the total imports

The share of Electrical components has been increasing across vehicle segments due to regulatory changes and consumer trends

42 6-digit HS codes were considered for analysis of electricals category

Electricals : Category Snapshot FY19-20
Key Takeaways

Import by Country of Origin



Components of Import

(INR Cr.)

			Import by Country of Origin : Top 3 Countries		
Cables, Wires & Wiring harnesses	**6,536**	35%	China 29%	Germ. 11%	USA 10%
Motors & Motor components	**4,096**	22%	China 42%	Japan 9%	Korea 8%
Lighting components	**3,511**	19%	China 70%	Thai. 7%	Vietnam 7%
Switches & Switch Gear Components	**1,750**	9%	China 21%	Germ. 12%	Korea 11%
Battery & Components	**1,738** ##	9%	China 58%	Thai 6%	Germ. 5%
Electrical Components	**1,027**	5%	China 34%	Germ. 13%	Korea 8%
Others	**36**	Negligible	China 57%	Japan 10%	Taiwan 7%

China owns a lion's share of the Electricals imports into India (47%)

Cables, Wires & Wiring harnesses and Motors & Motor components account for 57% of the total Electricals imports

Battery & Components category includes Chargers, Inverters and Converters amounting to ~ 690 Cr.

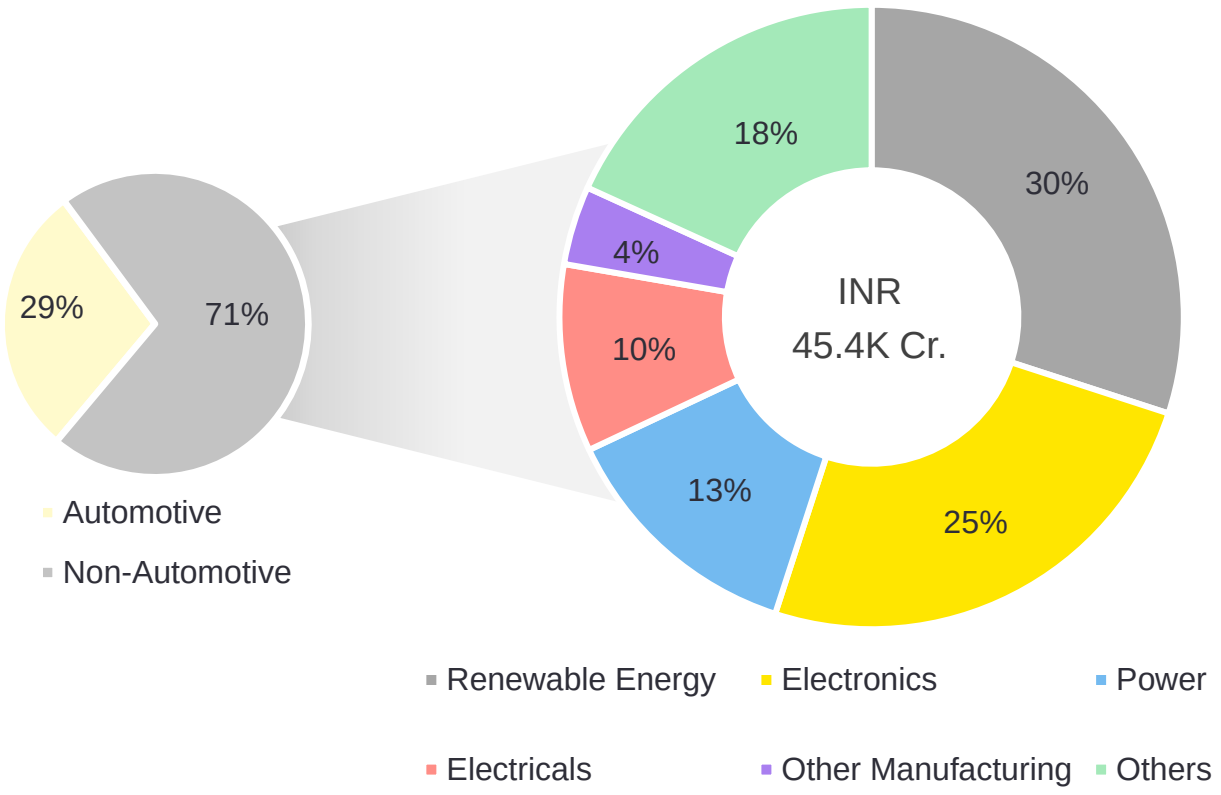
Component Categories	Key Components Considered
Cables, Wires & Wiring harnesses	Wires, harnesses, connectors, Junction Boxes, Cables,
Motors & Motor components	Motors & Components for Power windows, starter, alternator, wiper, cooling fans, HVAC, EPS, ORVM
Lighting components	Headlamps, Tail lamps, Turn Indicators, Combination lamps, DRLs, fog lamps,
Battery & Components	Lead-Acid Battery assy., Separators
Switches & Switch Gear Components	Power window switches, HVAC / manual AC control switches
Electrical Components	Fuses, Resistors, Relays, Sensors & Horns, ignition components
Others	

Electricals : Category Snapshot FY19-20

Key Takeaways : Non-Automotive (Adjacent) sectors

INR 64.1K Cr.

Total value of Electrical imports in FY20



Key Insights

- Top 5 sectors contribute ~82% to the total import value of non-automotive segment in FY20
- Renewable Energy holds the first spot in terms of contribution to import value at 30%

Top 5 Sectors	Value (INR Cr.)
Renewable Energy	13640
Electronics	11276
Power	6072
Electricals	4420
Other Manufacturing	1856

Electricals : Demand Drivers
Key Trends & their impending impact

Key Demand Drivers	Impending Impacts			Trend Source
	Short Term	Long Term	Insight & Components Impacted	
Rising adoption of infotainment systems			• Increase in boards, panels, consoles & other electrical apparatus • Components of infotainment systems: Motors, wiring, lighting, displays, speakers, etc.	**T** R **C**
Increasing adoption of Electric Mobility			• Increase in motors, cables, wiring harnesses and other related electrical components • Components of Charging Infrastructure: Chargers, Plugs, Cables, etc.	T **R** C
Growing demand for advanced automotive lighting			• Increase in automobile lighting equipment: head lamps, tail lamps, stop lamps, side lamps, blinkers, etc. • Components of automobile lighting equipment such as LED bulbs, wiring, motors, relays, sensors, switches, etc.	**T** R **C**
Adoption of ADAS and safety systems			• Increase in electrical lighting or visual signalling equipment, motors, cables, wiring harnesses, conductors, etc. • Components: Camera, switches, sensors, displays, speakers,	**T** R C
Increasing uptake for Safety & Convenience features : Electrically powered systems			• Increase in motors & micro-motors	**T** R **C**

 High  Medium  Low  Positive  Negative

T : Technology, R : Regulatory, C : Customer / Consumer
Short-term: next 3 years; Long term: beyond 7-10 years & beyond

Denotes the impact of the trend on the select components under the Electricals Commodity Category

Electricals : Reasons for Import

Key Components	Key Countries of Import	Key Import Reasons	
Cables & Wiring Harnesses	China, Germany, USA	Technology & Capability:  Supply Chain:  Economies of Scale:  Govt. Policy & Tariffs: 	▸ Mother plants of certain Suppliers operating at very high volumes catering to multiple industry segments; OEMs' and Suppliers' preference to import on account of Cost ▸ Lack of vendor ecosystem in India due to large variety of Junction Boxes (Boxes, coupled with relays & fuses are imported- proprietary components)
Motors & Motor Components	China, Japan, Korea	Technology & Capability:  Supply Chain:  Economies of Scale:  Govt. Policy & Tariffs: 	▸ Low volumes (no economies of scale) in India – not competitive on price ▸ Magnets (Grade 6 & 7) imported due to unavailability of RM ▸ Brushes : due to economies of scale ▸ Commutators for EPS motors : Quality critical ▸ Micromotors, actuators & stepper motors : imported by tier-1 suppliers as a part of the resp. sub-systems due to Price & IP
Lighting Systems & Components	China	Technology & Capability:  Supply Chain:  Economies of Scale:  Govt. Policy & Tariffs: 	▸ Lack of local manufacturing competence : capacity constraints, quality Issues ▸ Cost also plays a key role in OEMs & Suppliers importing the lighting systems & components (due to FTA) ▸ Risk Mitigation strategy : Maintain some share of revenue from China to hedge against capacity & quality constraints in India
Battery & Components	China	Technology & Capability:  Supply Chain:  Economies of Scale:  Govt. Policy & Tariffs: 	▸ AGM Separators are the major component of import besides Battery assemblies. ▸ China – price competitive vis-à-vis India for Glass Mats

 Yellow bar indicates severity of reason

Electricals : Assessment of Localization Potential

Key Components	Assessment of Localization Potential	Recommendations (Phase 1 : 0 to 2 yrs., Phase 2 : 2-5 yrs)	Supporting Factors
Cables & Wiring Harnesses	**Technology & Capability** | **Supply Chain** | **Economies of Scale** | **Govt. Policy & Tariffs**	• Phase 1 : Antenna Cables • Phase 2 : Connectors for wiring harnesses, Terminals, High Temperature Cables	T R C
Motors & Motor Components	**Technology & Capability** | **Supply Chain** | **Economies of Scale** | **Govt. Policy & Tariffs**	• Phase 1 : Starter Motor & Alternator Assembly, (cage, armature), Motors for Power Windows, Wipers, Blowers, Radiators, MCU Assembly / Sub-assemblies • Phase 2 : Micromotors & Actuators for ORVM, Headlamp, Latch, HVAC, ABS	T R C EV, Rising consumer preferences for Safety & Convenience
Lighting Systems & Components	**Technology & Capability** | **Supply Chain** | **Economies of Scale** | **Govt. Policy & Tariffs**	• R&D and validation of alternate raw materials could create opportunities for localization • Policies to allow auto industry to grow as a whole, policies to allow raw material makers to enter into Indian markets	T R C
Battery & Components	**Technology & Capability** | **Supply Chain** | **Economies of Scale** | **Govt. Policy & Tariffs**	• AGM batteries could be substituted with EFB batteries wherever feasible • This will also lead to a reduction in the AGM separators (predominantly imported)	T R C

Ready Can reach there Infeasible

T R C

T : Technology, R : Regulatory, C : Customer / Consumer

Highly Favourable Moderately favourable Not favourable

Electricals : Localization Targets
By Key Component Categories

Component Category	Key Components with Localization Potential	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact
Cables & Wiring Harnesses	Antenna Cables, Connectors for wiring harnesses, Terminals, High Temperature Cables	**PV (Mass)**	500	5-10%	25-30%	125 - 150 Cr.
		PV (Low Volume)	3			
		PV (Niche)	132			
		PV/CV	29			
		CV	26			
		2W/3W	10			
		Suppliers	5,122	5-7%	20-25%	1024 - 1280 Cr.
Motors & Motor Components	Starter Motor & Alternator Assembly (cage, armature), Motors for Power Windows, Wipers, Blowers, Radiators, MCU Assembly / Sub-assemblies, levelling motors (micromotors) Micromotors & Actuators for ORVM, Headlamp, HVAC, ABS	**PV (Mass)**	508	5-10%	25-30%	127 - 152 Cr.
		PV (Low Volume)	11			
		PV (Niche)	24			
		PV/CV	11			
		CV	30			
		2W/3W	77			
		Suppliers	3,166	5-10%	15-20%	475 - 633 Cr.

Cables & Wiring Harnesses

- Government incentives needed to reduce upfront investment in tooling. Testing and validation – facilities need to be augmented
- Focus on establishing domestic capacities by aggregating the demand, especially for connectors and terminals
- Key constraint for localization of connectors & terminals is volumes. Get global suppliers to setup plants as part of their expansion plans
- Take advantage of PLI for Aluminium Wire production - to support future EV ecosystems (Orissa being considered, state govt. incentives seem encouraging)
- Harness connectors is a potential candidate for localization
- Exporting finished wire harness to Indonesia & Vietnam from India to aid localization initiatives

Motors & Motor Components

- Key challenge here is volumes & quality capability of the suppliers
- Current micromotor supplier can be encouraged to expand the capacity
- R&D augmentation to boost domestic production of motor magnets (Light rare earth minerals may also be processed further for certain applications)

Electricals : Localization Targets
By Key Component Categories

Component Category	Key Components with Localization Potential	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact
Lighting Components		PV (Mass)	349			
		PV (Low Volume)	79			
		PV (Niche)	253			
		PV/CV	31			
		CV	10			
		2W/3W	2			
		Suppliers	2,431	2-5%	10-15%	243 - 365 Cr.
Battery & Components	AGM Separators, Battery Assemblies	PV (Mass)	80	-	5-10%	4 - 8 Cr.
		PV (Low Volume)	3		-	
		PV (Niche)	41		-	
		PV/CV	7		-	
		CV	19		-	
		2W/3W	7			
		Suppliers	830	-	10-15%	83 - 125 Cr.
Other Components		Others	3,749	4-6%	15-19%	556 – 725 Cr.

Lighting Components

- Raw Material unavailability in India is one of the key constraints for localization of lighting system materials and components (PC for the front transparent glass and DMC for the Reflector)
- R&D and validation of alternate raw materials could create opportunities for localization
- Policies to allow auto industry to grow as a whole, policies to allow raw material makers to enter into Indian markets

Battery & Components

- OEMs are importing predominantly for exports & their premium models
- PV (niche) OEMs are importing batteries for all their applications
- AGM vs EFB is a technology choice that should be evaluated, at least for the domestic markets and this could result in reduction in imports of AGM separators as well.
- JV for cell production/ capacity building for Li-on batteries in India to give the initial boost in investment
- Basic cell manufacturing remains the same - solid state batteries, improved anodes. Process will remain the same for next 5 to 10 years. Investment risk is low.
- Treaties/ Partnerships with countries like Indonesia for import of nickel.

Electricals : Localization Targets
Overall

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Electricals	PV (Mass)	1,776	4-7%	18-22%	316 – 384
	PV (Low Volume)	129	-	-	-
	PV (Niche)	485	-	-	-
	PV/CV	123	-	-	-
	CV	117	-	-	-
	2W/3W	230	-	-	-
	Suppliers	14,680	4-7%	16-21%	2,320 – 3,054
Total		**17,540***	**4-6%**	**15-20%**	**2,637 – 3,438**

Category	Sub Category	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Electricals	Cables & Wiring Harnesses	5,822	5-7%	20-25%	1,149 – 1,430
	Motors & Motor Components	3,827	5-10%	16-21%	602 – 786
	Lighting Components	3,155	2-4%	8-12%	243 – 365
	Battery & Components	987	-	9-13%	87 - 133
	Others	3,749	4-6%	15-19%	556 - 725
Total		**17,540***	**4-6%**	**15-20%**	**2,637 – 3,438**

*** Import value for Aftermarket has been excluded**

Electricals : Localization Roadmap

Components for localization

Antenna cables, Starter Motor & Alternator Assembly (cage, armature), Motors for Power Windows, Wipers, Blowers, Radiators, MCU Assembly / Sub-assemblies, levelling motors (micromotors)

Connectors for wiring harnesses, Terminals, High Temperature Cables, Micromotors & Actuators for ORVM, Headlamp, HVAC, ABS

Localization Catalyst

Phase 1: 0-2 Years

- Interest subsidies for investment into ecosystem development in line with supplier requirements
- Govt aid for augmentation of testing & validation facilities
- Promote investments at supplier end with aggressive targets towards manufacturing cables, wiring & harnesses, motors & its sub-components
- Incentives for global suppliers to setup plants in India especially for connectors & terminals as part of their expansion plans
- Aggregation of demand for connectors & terminals to establish domestic capacity for localization
- Standardization of wiring harness designs as well the connectors to explore opportunity towards localization

Phase 2: 2-5 Years

- PLI scheme to include incentives to boost future EV ecosystem (e.g. Components for EVs such as Charger, Battery, DC Motor, etc.)
- R&D augmentation to boost domestic production of motor magnets (Light rare earth minerals may also be processed further for certain applications)
- Exporting finished wire harness from India instead of sourcing globally aid localization initiatives through economies of scale

FY19~20 Base — **6%** — **20%**

Government led initiatives
Industry led initiatives
Initiatives to be executed parallelly
Initiatives to be executed sequentially
Expected Localization %

Categories Identification

42 6-digit HS Code details for Electricals

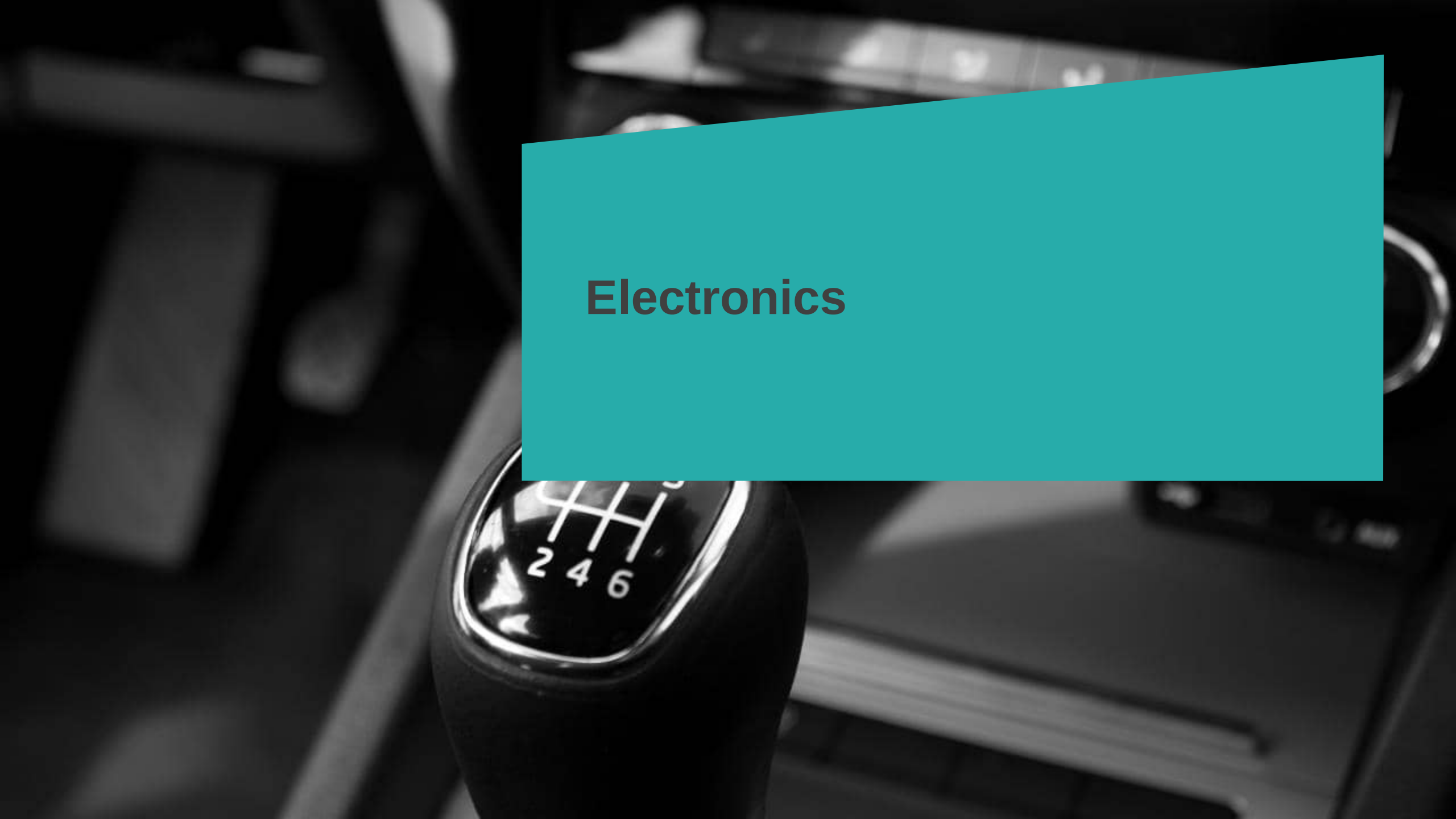
HS Code 6 Digit	HS Code 8 digit	Description	ACMA Description
850110	85011011	CLASSIFICATION OF MICRO MOTOR	Electricals & Electronics
850110	85011012	STEPPER MOTOR WTH OUTPUT <=37.5 W	Electricals & Electronics
850110	85011013	WIPER MOTOR WTH OUTPUT <=37.5 W	Electricals & Electronics
850110	85011019	OTHER MOTOR WTH OUTPUT <=37.5 W	Electricals & Electronics
850110	85011020	AC MOTOR WTH OUTPUT <=37.5 W	Electricals & Electronics
850131	85013111	MICRO MOTOR WTH OUTPUT >37.5 W	Electricals & Electronics
850131	85013112	STEPPER MOTOR	Electricals & Electronics
850131	85013113	WIPER MOTOR WTH OUTPUT >37.5 W	Electricals & Electronics
850131	85013119	OTHER MOTOR WTH OUTPUT >37.5 W	Electricals & Electronics
850131	85013120	D.C.GENERATORS	Electricals & Electronics
850132	85013210	D.C.MOTORS	Electricals & Electronics
850151	85015190	OTHER TYPES OF A.C. MOTORS	
850152	85015290	OTHER TYPES OF A.C. MOTORS	
850153	85015390	OTHER TYPES OF A.C. MOTORS	
850300	85030029	PARTS OF ELECTRC MTRS OTHR THN DC	

HS Code 6 Digit	HS Code 8 digit	Description	ACMA Description
850300	85030090	PARTS OF OTHR ROTATING ELECTRC PLANTS	Electricals & Electronics
850434	85043400	OTHR TRNSFRMRS HVNG A PWR HNDLNG CAPACITY EXCEEDING 500 KVA	
850440	85044010	ELECTRIC INVERTERS	
850710	85071000	LEAD ACID ACCUMULATORS OF A KIND USED FOR STARTING PISTON ENGINES	
850790	85079010	HRD RUBBER ACCMLTRS CASES AND SEPARATORS	
851120	85112090	OTHERS	Electricals & Electronics
851130	85113010	DISTRIBUTORS	Electricals & Electronics
851130	85113020	IGNITION COILS	Electricals & Electronics
851140	85114000	STRTR MTRS AND DUAL PURPOSE STRTR GNRTRS	Electricals & Electronics
851150	85115000	OTHER STATER-GENERATORS	Electricals & Electronics
851180	85118000	OTHER STARTING EQUIPMENTS	Electricals & Electronics
851190	85119000	PARTS OF ARTICLS OF HDNG 8511	Electricals & Electronics
851220	85122010	HEAD LAMPS,TAIL LAMP,STOP LAMP, SIDE LAMP,BLINKERS	Electricals & Electronics
851220	85122020	AUTOMOBILE LIGHTING EQPMNT	Electricals & Electronics
851220	85122090	OTHERS	Electricals & Electronics

Categories Identification

42 6-digit HS Code details for Electricals

HS Code 6 Digit	HS Code 8 digit	Description	ACMA Description
851230	85123090	OTHERS	Electricals & Electronics
851290	85129000	PARTS OF ELCTRCL LIGHTNG/SIGNALNG EQUIP	Electricals & Electronics
853321	85332119	ELCTRCL RESISTANCE WIRE BARE OTHER THAN NICHROME	
853321	85332129	ELCTRCL RESISTANCE WIRE,INSULATED OTHER THAN NICHROME	
853329	85332929	ELCTRCL RESISTANCE WIRE,INSLTD EXCL NICHRM	
853641	85364100	RELAYS FR A VLTG NT EXCDG 60 V	
853649	85364900	OTHER RELAYS	
853669	85366990	PLUGS AND SOCKETS OF OTHER MATERIALS	
853690	85369010	OTHER APPRATUS OF HEADING 8536 SPEED INCL REVRSNG STRTRS AT <=60 VOLTS	
853710	85371000	BORDS ETC FOR A VOLTAGE<=1000 VLTS	
853890	85389000	OTHER PARTS OF HDG 8538	
853910	85391000	SEALED BEAM LAMP UNITS	Electricals & Electronics
853921	85392120	OTHER HALOGEN LAMPS FOR AUTOMOBILES	Electricals & Electronics
853929	85392940	OTHER AUTOMOBILE LAMPS	Electricals & Electronics
854140	85414011	SOLAR CELLS WHETHER OR NOT ASSEMBLED IN MODULES OR PANELS	
854140	85414020	LIGHT EMITTING DIODES (ELCTR LUMINESCENT)	
854310	85431090	OTHER INCLUDING CYCLOTRONS	
854430	85443000	IGNTN WIRING SETS AND OTHR WIRING SETS OF A KIND USED IN VEHICLES AIRCRAFT/SHIPS	Electricals & Electronics
854442	85444299	OTHR ELCTRC CNDCTRS FITTED WTH CONNCTRS USED IN TELECOM FR <=1000V EXCL PAPR PLSCTIC AND RUBBER INSULATED	
854449	85444999	OTHR ELCTRC CNDCTRS NOT FITTED WTH CONNCTRS USED IN TELECOM FR <=1000V EXCL PAPR PLSCTIC AND RUBBER INSULATED	
854520	85452000	BRUSHES	
854790	85479090	OTHR INSLTNG FTTNGS	
854720	85472000	INSLTNG FTTNGS OF PLASTICS	
853650	85365020	OTHER SWITCHES OF PLASTICS	
854419	85441990	OTHER WINDING WIRES OF OTHR METLS/SUBSTNCE EXCL COPPER OTH THN PLASTIC, RUBBER INSULATED AND ASBESTOS COVERED	
391739	39173990	OTHR TUBES PIPES AND HOSES NES	



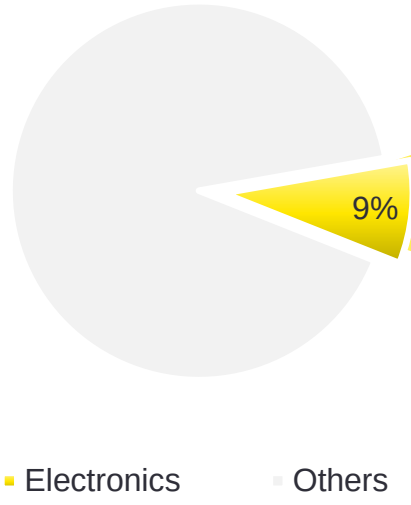
Electronics

Electronics : Category Snapshot FY19-20

Key Takeaways

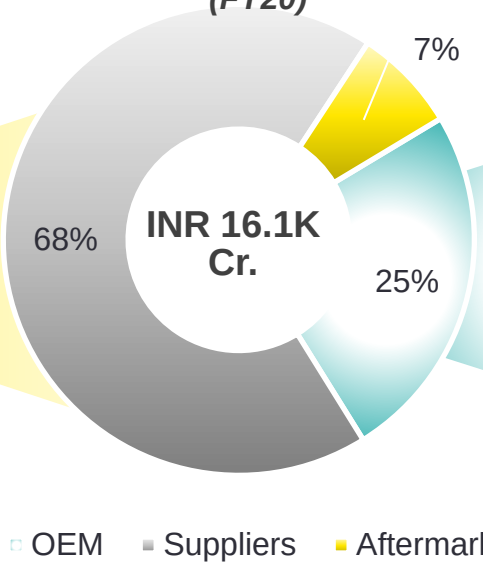
INR 1.83 Lac Cr.

Total Automotive Imports (FY20)



INR 16.1K Cr

Total Automotive Electronics Imports (FY20)



Imports by Vehicle Category

(INR Cr.)

PV Mass	3428	86%
PV Low Volume	270	7%
PV Niche	196	5%
PV/CV	103	3%
2W/3W	0	0%

Automotive Suppliers (68%) contribute to substantial imports of Electronics

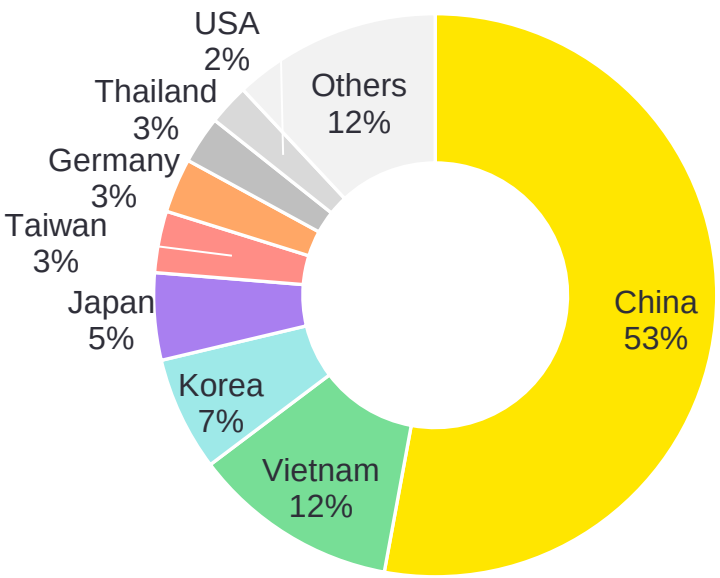
Among the OEMs, PV Mass contribute to 86% of the total imports

The share of Electronics has been increasing across vehicle segments due to regulatory changes and consumer trends

29 6-digit HS codes were considered for analysis of Electronics category

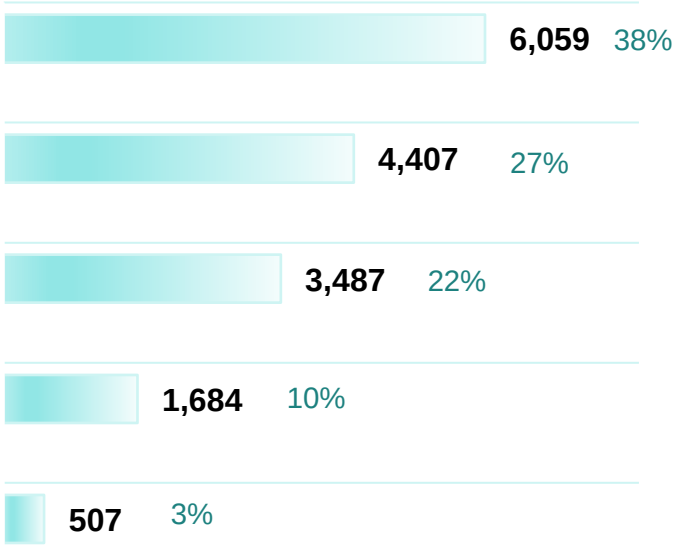
Electronics : Category Snapshot FY19-20
Key Takeaways

Import by Country of Origin



Components of Import

(INR Cr.)



Import by Country of Origin : Top 3 Countries

China	Korea	Ger.
17%	14%	12%

China	Korea	Taiwan
61%	10%	7%

China	Vietnam	Thai.
56%	25%	4%

China	Thai.	Korea
42%	14%	10%

China	Japan	Sing.
54%	9%	4%

China owns a lion's share of the Electronics imports into India (53%)

Sensors & ECU and PCB and electronics components account for around 65% of the total Electronics imports

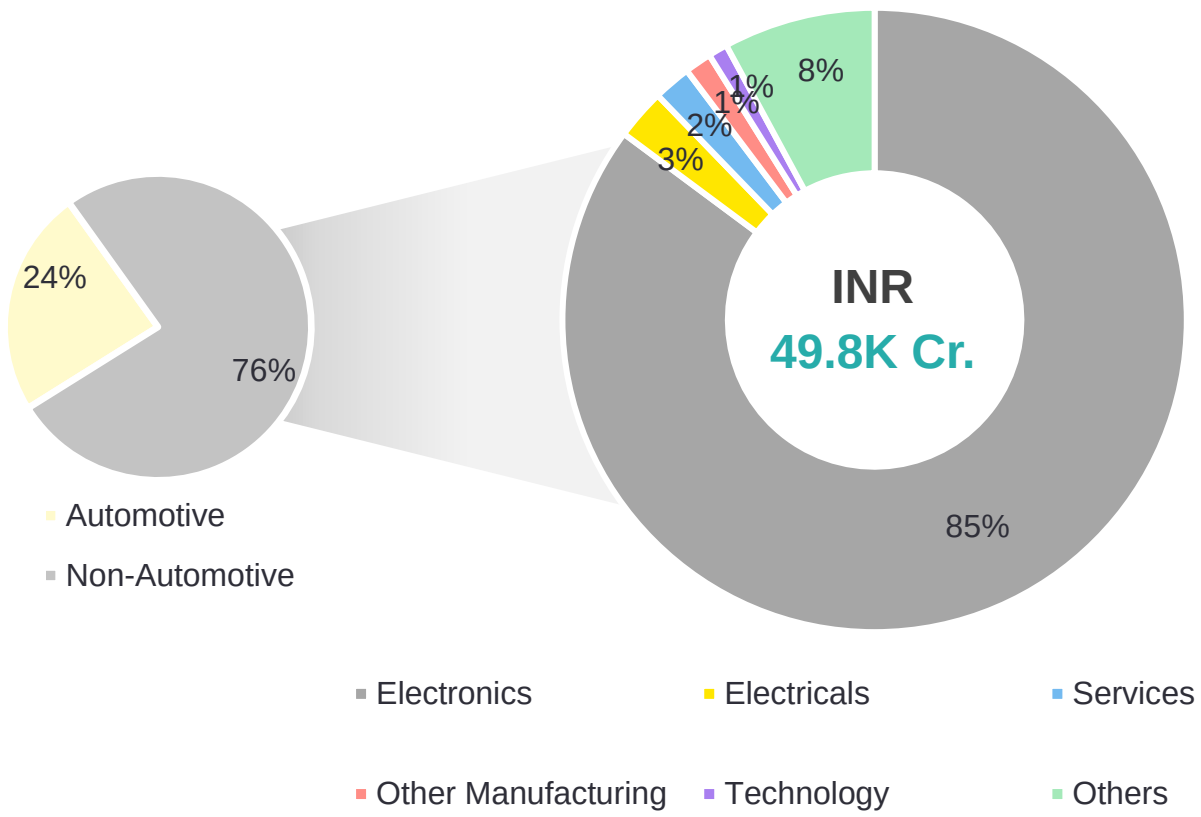
Component Categories	Key Components Considered
Sensors & ECU	Sensors for Oxygen, Wheel Speed, MAT, MAP, Oil Temperature, Coolant Temperature, RPS, etc.
PCB and Electronic Components	PCB Assembly & Components, Thyristors, Capacitors, Resistors, ICs,
Infotainment and Vision Cameras	Infotainment System & Components like Antenna, Speakers, Tweeters, etc.
Airbag Unit & Inflator	
Others	

Electronics : Category Snapshot FY19-20

Key Takeaways : Non-Automotive (Adjacent) sectors

INR 66K Cr.

Total value of Electronics imports in FY20



Key Insights

- Top 5 sectors contribute ~92% to the total import value of non-automotive segment in FY20
- Electronics holds the first spot in terms of contribution to import value at 85%

Top 5 Sectors	Value (INR Cr.)
Electronics	42475
Electricals	1302
Services	972
Other Manufacturing	694
Technology	522

Electronics : Demand Drivers

All the demand drivers support a significant increase in the Electronics content per vehicle

Key Demand Drivers	Impending Impacts			Trend Source
	Short Term	Long Term	Insight & Components Impacted	
Increasing customer preference for Safety, Comfort & Infotainment Safety – Parking Sensors, ABS, Airbags, Connectivity Features, Infotainment, Comfort , etc.			• PCBs, connecting technology, connecting and regulating components • Camera and video recording equipment to accommodate new technology capabilities	T R **C**
Evolution of C.A.S.E* Mobility FAME I & II, NMPEP, Make in India all promote EV			• Complete vehicle platforms have evolved, demanding new electronics technology throughout	T **R** C
Increasing Regulatory Standards Safety, Emission, Fuel consumption, Performance dynamics in India as well as globally			• New safety standards (e.g. Euro NCAP) require more air bags and inflation systems as standard • New emission standards require new technology • Higher use of controlling and monitoring electronic parts across the vehicle system	T **R** C
Strong Government Policies To shift India's value chain dependency on China or ASEAN countries			• Incentives and subsidies drive this capital-intensive industry to grow and evolve • All major economies already have policies implemented as part of "China+1 initiatives"	T **R** C

*C.A.S.E. – Connected, Autonomous, Shared, Electric

High Medium Low Positive Negative

Denotes the impact of the trend on the select components under the Electronics Commodity Category

T : Technology, R : Regulatory, C : Customer / Consumer
Short-term: next 3 years; Long term: beyond 7-10 years & beyond

Electronics : Reasons for Import

Key Components	Key Countries of Import	Key Import Reasons	
Sensors & ECU	China, Korea, Germany	Technology & Capability:  Supply Chain:  Economies of Scale:  Govt. Policy & Tariffs: 	• Sensors for Safety critical applications (Wheel Speed, ESC), the trust of OEMs is more towards global suppliers for several decades (located in China & Europe) • Global Tier-1 suppliers' mother plants located outside India manufacture to scale at global volumes / global platforms • Smaller components – easy for logistics and therefore, imports are not a concern • In the case of specialised products/ patented designs; local suppliers struggle with consistency in quality
Infotainment & Vision Camera	China, Vietnam	Technology & Capability:  Supply Chain:  Economies of Scale:  Govt. Policy & Tariffs: 	• High capacity availability in China, lack of commercial viability for manufacturing in India • Global Tier-1s have built factories for scale outside India and prefer to import components from the global factories • India doesn't have capable suppliers to manufacture LCDs
Semiconductors	China	Technology & Capability:  Supply Chain:  Economies of Scale:  Govt. Policy & Tariffs: 	• Lack of Technology, Raw Materials, Fab manufacturing in India • Significantly low volumes to justify an investment in India when compared to markets like China or Europe • Quality constraints when local procurement was attempted by select OEMs
Airbag Unit & Inflators	China, Thailand	Technology & Capability:  Supply Chain:  Economies of Scale:  Govt. Policy & Tariffs: 	• Unavailability of Airbags and associated parts manufacturers in India, despite being mandatory in PVs
PCBs & Electronic Components	China	Technology & Capability:  Supply Chain:  Economies of Scale:  Govt. Policy & Tariffs: 	• Silver immersion technology for PCBs not available in India; • Negligible raw material ecosystem for PCBs present in India • Cost competitiveness of China due to economies of scale from Automotive and adjacent industries • Capability for double–layered & 4-layered PCBs exists but not for higher complexity variants

 Yellow bar indicates severity of reason

Electronics : Assessment of Localization Potential

Key Components	Assessment of Localization Potential	Recommendations (Phase 1 : 0-2 yrs, Phase 2 : 2-5 yrs)	Supporting Factors

Sensors & ECU	Technology & Capability; Supply Chain; Economies of Scale; Govt. Policy & Tariffs	• Phase 1 :
		  • Outer Casings & Plastic Injection Moulded parts could be sourced 100% from India
		  • Brackets assembly can be localized
		• Phase 2 : Manufacturing of non-critical Sensors like MAP, Cabin Temperature Sensor, Rear Parking Sensor, etc. to be manufactured locally
			T R C

Infotainment & Vision Camera	Technology & Capability; Supply Chain; Economies of Scale; Govt. Policy & Tariffs	• Phase 1 : Infotainment parts like Speakers, Tweeters, Bluetooth microphones & antenna to be localized for mass market vehicles • Deep Localization of assembly of Infotainment Systems could also be evaluated	T R C
Semiconductors	Technology & Capability; Supply Chain; Economies of Scale; Govt. Policy & Tariffs	• Not feasible in the short-mid term.	T R C
Airbag Unit & Inflators	Technology & Capability; Supply Chain; Economies of Scale; Govt. Policy & Tariffs	• Phase 1 : Assembly of Airbag units • Phase 2 : Manufacturing of critical parts like inflators, Canister & steering wheel	T R C
PCBs & Electronic Components	Technology & Capability; Supply Chain; Economies of Scale; Govt. Policy & Tariffs	• Phase 1 : Single, double & 4 layer PCBs to be manufactured in India (HVAC & Instrument cluster) • Phase 2 : Forming a consortium of top PCB players to setup a mega PCB factory catering multiple sectors	T R C

Ready | Can Reach There | Infeasible

T R C

T : Technology, R : Regulatory, C : Customer / Consumer

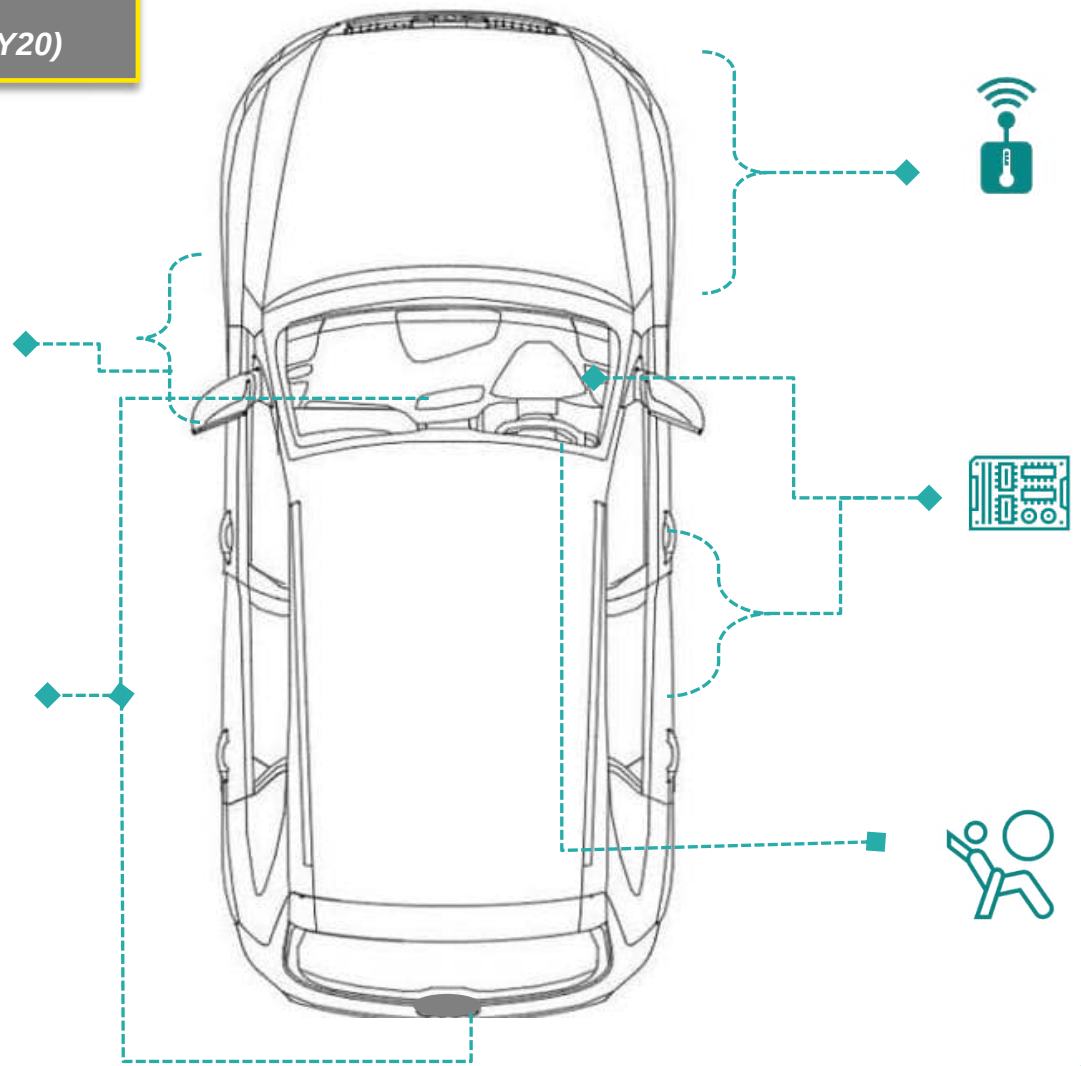
Highly Favourable | Moderately favourable | Not favourable

Electronics : Summary Snapshot

Import value of Electronics in a Car

INR 16.1K Cr

Total Automotive Electronics Imports (FY20)



Others	
507 Cr.	↑
T	R / C

Infotainment and Vision Cameras	
3,487 Cr.	↑
T / C	R

Sensors & ECU	
6,059 Cr.	↑
T / C	R

PCB & Electronic Components	
4,407 Cr.	↑
T / C	R

Airbag Inflators	
1,684 Cr.	↑
T / R / C	

↑ ***Demand Trend***

Electronics : Localization Targets
By Key Component Categories

Component Category	Key Components with Localization Potential	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Sensors & ECU	Outer Casings, Plastic Injection Moulded parts, Low-tech sensors such as rear parking sensors, cabin temp. sensors, immobilizers etc., Ultrasonic sensors, components of ECU such as casing/ cover, bracket High tech sensors like wheel speed, crankshaft, camshaft, oxygen, etc	PV (Mass)	1,886	2-5%	20-25%	377 – 472 Cr.
		PV (Low Volume)	129	-	5-10%	6 – 13 Cr.
		PV (Niche)	159	-	-	-
		PV/CV	92	-	20-25%	18 – 23 Cr.
		CV	-	-	-	-
		2W/3W	-	-	-	-
		Suppliers	3,136	-10% to -5%	15-20%	470 – 627 Cr.
Infotainment & Vision Camera	Speakers, Tweeters, Bluetooth microphones & antenna	PV (Mass)	1,110	20-25%	40-50%	444 – 555 Cr.
		PV (Low Volume)	139	5-10%	25-30%	35 - 42 Cr.
		PV (Niche)	24	-	-	-
		PV/CV	6	15-20%	30-40%	2 – 3 Cr.
		CV	-	-	-	-
		2W/3W	-	-	-	-
		Suppliers	2,204	15-20%	40-50%	882 – 1,102 Cr.

Electronics : Localization Targets
By Key Component Categories

Component Category	Key Components with Localization Potential	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact
Airbag unit & Inflators	Assembly of Airbag units Inflators, Canister & steering wheel	PV (Mass)	424	5-10%	20-25%	85 – 106 Cr.
		PV (Low Volume)	2	-	-	
		PV (Niche)	10	-	-	
		PV/CV	3	-	10-20%	1 Cr.
		CV	-	-	-	-
		2W/3W	-	-	-	-
		Suppliers	910	5-10%	15-20%	137 - 182 Cr.
PCBs & Electronic Components		PV (Mass)	9	-	-	-
		PV (Low Volume)	-	-	-	-
		PV (Niche)	3	-	-	-
		PV/CV	2	-	-	-
		CV	-	-	-	-
		2W/3W	-	-	-	-
		Suppliers	4,255	-	5%-10%	213 – 426 Cr.
Other Components		Others	489	-	16-22%	79 – 109 Cr.

Electronics : Localization Targets
Overall

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Electronics	PV (Mass)	3,429	8-12%	26-33%	906 – 1,133
	PV (Low Volume)	270	3-5%	15-20%	41 – 55
	PV (Niche)	196	-	-	-
	PV/CV	103	1%	20-25%	20 – 26
	CV	-	-	-	-
	2W/3W	-	-	-	-
	Suppliers	10,994	1-5%	16-22%	1,780 – 2,445
Total		**14,991***	**2-6%**	**18-25%**	**2,756 – 3,677****

Category	Sub Category	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Electronics	Sensors & ECU	5,401	-5% to -1%	16-21%	880 – 1,150
	PCBs & Electronic Components	4,269	-	5-10%	213 - 426
	Infotainment & Vision Cameras	3,483	16-24%	39-49%	1,362 – 1,704
	Airbag Unit & Inflators	1,349	5-10%	16-21%	222 – 289
	Others	489	-	16-22%	79 - 109
Total		**14,991***	**2-6%**	**18-25%**	**2,756 – 3,677**

*** Import value for Aftermarket has been excluded**

**** A portion of the overall target for Electronics might come from the PV (Niche) segment to meet the overall PV (Niche) segment target of 1-2% localization of the overall automotive imports**

Electronics : Localization Roadmap

Components for localization

Low-tech sensors such as rear parking sensors, cabin temp. sensors, immobilizers etc., Ultrasonic sensors, components of ECU such as casing/ cover, bracket, Infotainment parts like Speakers, Tweeters, Bluetooth microphones & antenna, assembly of Infotainment Systems, assembly of Airbag units, Outer Casings & Plastic Injection Moulded

PCBs, Inflators, high tech sensors like wheel speed, crankshaft, camshaft, oxygen, etc. Explore adjacency with consumer electronics, capital goods, etc

Localization Catalyst

Phase 1: 0-2 Years	Phase 2: 2-5 Years
Incentivise suppliers to invest for localization through interest subsidies, export incentives to boost total volumes, tax holidays, etc.	Incentivise Indian manufacturers for alliances with global manufacturers including FDI opportunity, to facilitate technology transfer to create capability especially for PCBs
Incentivise the entire value chain for localization of the entire value chain including OEMs & suppliers	Lowering the duty on import of raw materials for setting up the PCB industry → Forming a consortium of top PCB players to setup a mega PCB factory catering multiple sectors
Need to identify semi-conductor requirements for the future-both direct & indirect	Consolidation of semiconductor requirement across sectors and joint representation to be made to the GOI
	Creation of an Cross Industry Task Force to work towards a work plan for setting up semiconductor industry locally → Policy intervention for development of the electronics-semiconductor sector by consolidating demand across all major contributing sectors such as telecom, mobility, automotive, etc. Inviting global suppliers to set up capacities in India.
Support through PMP for high value components	

FY19~20 Base — 6% — 25%

Government led initiatives

Industry led initiatives

Initiatives to be executed parallelly

Initiatives to be executed sequentially

Expected Localization %

Electronics

Initiatives to be taken by Government/Industry for localization

Industry actionable:

- Create an Industry Task force to create an action plan for development of Semiconductor industry
- Form a consortium of top PCB players to aggregate demand catering multiple sectors
- Aggregation of demand and technical design requirement across sectors
- Development of step by step localization plan including technology upgradations required

India needs to adopt a Public-Private Partnership (PPP) model to become a "**facilitator**" for semi conductors

Government support: To promote domestic manufacturing of electronic components and semiconductors to strengthen the electronics manufacturing ecosystem in the country similar to countries like the USA, Taiwan, South Korea, Japan and China

Form a cross industry/ Ministry task force → Float EOI to global manufacturers for different elements of the value chain → Develop Semi Conductor Fund with contribution from Central and interested State Govt., Industry Bodies as shareholders for investment → Concession in land purchase, set up subsidy, interest free loan, Corporate Tax exemption to be evaluate, etc → Favourable tariff policy for child parts & raw material

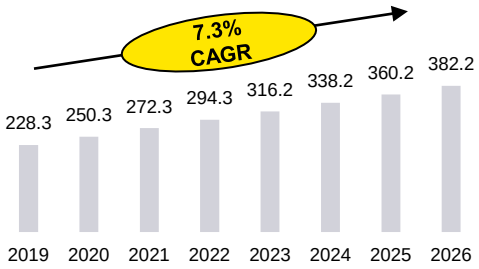
Government of India Schemes for Electronics Manufacturing
Scope for the Automotive Sector

To promote/boost domestic manufacturing of electronic components and semiconductors in order to strengthen the electronics manufacturing ecosystem in the country

	Target Segment	Budget	Investment	Scheme Tenure	Incentives
PLI for electronics manufacturing	**Mobile Phones and Electronic Components**	**INR 40,951 Cr**	**Domestic INR 200 Cr & Foreign Co, INR 1000 Cr**	**Valid for 5 Years**	**Incentive of 4% to 6% on incremental sales**
SPECS	**Active & Passive Components, Semiconductors, ATMP**	**INR 3,285 Cr**	**INR 5 - 1000 Cr**	**3 Years for Filing Applications, 5 Years for Investment**	**Upto 25% of Capital Expenditure**
Electronics Manufacturing Clusters	**Infrastructure and Common Facilities**	**INR 3,672 Cr**	**INR 300 Cr**	**Valid for 8 Years**	**Upto 50% of project cost for setting up of EMCs and CFCs**

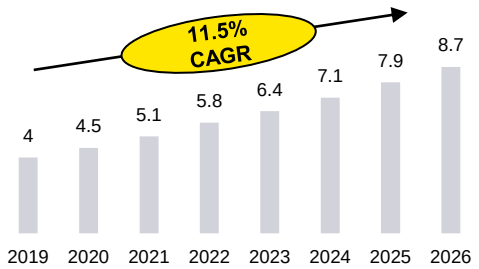
Why is it important for the Indian Automotive Sector?

Global Automotive Electronics Market (US$b)



Export opportunity

Indian Automotive Electronics Market (US$b)



Electrical and electronics constitute 15% of auto component imports as of 2020

	Rising adoption of infotainment systems	**Global in-car infotainment** market projected to reach **US$21.53b by 2026**, **@8.3% CAGR** over 2019-26	**Indian in-car infotainment** market projected to reach **US$661.8m by 2026**, **@7.7% CAGR** over 2019-26
	Increasing adoption of Electric Mobility	**Global EV market** projected to reach **US$802.8b by 2027**, **@22.6% CAGR** over 2020-27	**Indian semiconductor market for EVs** expected to reach **US$17.9m by 2027**, **@61.7% CAGR** over 2019-27
	Growing demand for advanced automotive lighting	**APAC automotive lighting market** projected to reach **US$23.31b by 2027**, **@3.9% CAGR** over 2019-27	**Indian automotive lighting market** projected to reach **US$2.2b by 2027**, **@3.4% CAGR** over 2019-27

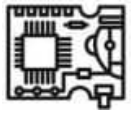
Electronics : Category Snapshot

Why not India ? - Best Practices by export leaders in the category

1 Regulating and Measuring Equipments

- **Huge priority given to electronics parts** (up to 50%) in the total investment planned in the sector
- **State controlled enterprises** are shielded by market competition with subsidies making large-scale manufacturing affordable

2 Printed Circuit Boards



- **'Top-down' innovation system** that promotes "close collaboration between stakeholders
- **Strong industry-University collaboration** culture (e.g. Samsung & SKKU Chemistry to develop new tech.
- **Regional FTZ clusters** with high Govt. subsidies
- **National Semiconductor Fund (I & II)** in China**, Four emerging intellectual industries** policy in Taiwan

3 Safety Airbags With Inflator System

- **Deep integration** into global electronics value chain with major linkages with US and China
- **Increasing diversification** of trade relations in the region increasing resilience over time
- **Increasing standardization** of global safety standards in the region (e.g. Euro NCAP)

4 Parts, electric switches, protectors and connectors

- **Subsidized export policies** and easy capital financing in the region has ensured huge steady volumes
- **Cheaper and easy** availability of resources (man and material) including power, water and land

Strong government actions and supply chain development made these countries todays " Global Hubs" for electronics

Global Benchmarking of Growth enablers
China vis-à-vis India at a policy standpoint

Government Initiatives

China	**US$ 29 bn** National Semiconductor Phase – II Fund **2019**	**2014-2025** A 10-15 year plan of govt. support & incentives
India	**US$ 6.5 bn** PLI + SPECS + EMC 2.0 **2019**	**2019-2025** A 5 year plan of govt. support & incentives

28% of Global Automotive Mfg. comes from China

Government support to the private sector players is crucial to set up high technology manufacturing like fabs, as has been the case in some countries like the USA, Taiwan, South Korea, Japan and China.

Example : to start a fab in India

Initial investment of US$ 8 bn and upwards ✚ Heavy running costs ✚ Technology upgrades every 3-4 years

Aggressive & Consistent fiscal support package Is needed

02 units
No. of FABs in India
Both under DRDO

VS

200+ units
No. of FABs in China
Capability to produce 7mn as well

India's Policies must now become a "**facilitator**" instead of a "**regulator**"

Key Differences

No size-specific benefits from GOI
(China has nanometre based tax exemption structure)

Shorter Duration of Promotional Plans from GOI – 5to 8 years
(China has 15+ years of plan laid out since this is a capital intensive sector)

Spend mostly on incentives/benefits for manufacturing and not R&D
(China has major portion allocated for new tech development to win new future markets)

1K-10K-100K (1K products start-ups, 10K IPs created and 100K crore of business value) approach from IESA
(China has target of 70% localization for domestic market fulfilment)

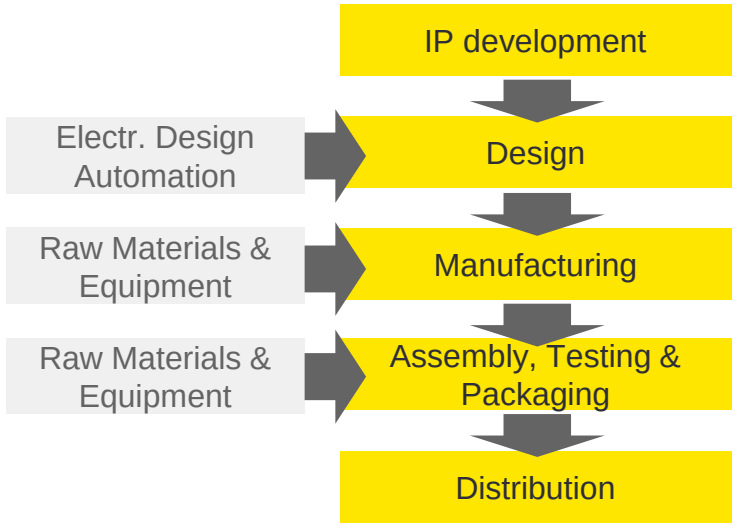
India just has 2 Fabs – both serving defence needs only, all other in progress

Industry Opinion to beat China

- Independent National Electronics Commission directly reporting to PM
- $2 billion spend per year for the next 15 years – (70:20:10 for Mfg.: Design: R&D)
- $1 billion spend to create a dedicated national research institute

Semiconductor Industry
Supply Chain overview & the success story of China

Typical Semiconductor supply chain



Source: SIA & Beyond Borders

CHINA – EVOLUTION OF SEMICONDUCTOR POLICIES & LOCALIZATION TARGETS

National Semiconductor Fund Phase I (2014)

Fund of CNY120 billion (US$19 billion) in Phase I

Global Leader Electronics Exports

80%+ Import dependency for semiconductors

Doubled Trade Deficits from 2005 to 2014

- Private equity investment
- Provide incentives & remove regulatory constraints
- Investments in more than 77 projects, 55 IC enterprises by 2018, capital expenditure more than doubled in 2014-17

National Semiconductor Fund Phase II (2019)

Investment Doubled By "Big Fund"

CNY 204.15 Approx. US$ 29 bn

- Shareholder funds - Multiple domestic IC groups, Yangtze River Economic Belt, major telecom operators etc.
- Incorporation of local funds

Additional favourable tax policy as a catalyst ahead

- IC Projects given tax exempts
- 5yr tax exemption + 10% tax rate (instead of 25%)

Easier financing options to boost growth & consolidation

- Encouragement to consolidate with full support from government funds
- Risk Compensation mechanisms by local governments for easy access to IP pledge financing

Thousand Talents Program

- Aims to attract Chinese diaspora in high technology areas, including AI and semiconductors
- Chinese Communist Party (CCP) uses overseas "talent-recruitment" stations to gain access to technology; more than 600 stations globally

Upcoming 14th Five Year Plan (2021-2025)

- Include 3rd gen semiconductor industry to rapidly evolve technologically
- Support policies for target industries like semiconductors to build resilience against changing trade US-China trade dynamics

The Road Ahead

16% Domestic Demand through localization **in 2018**

Target State

40% Domestic Demand through localization **in 2021**

70% Domestic Demand through localization **in 2025**

Categories Identification

29 6-digit HS Code details for Electronics

HS Code 6 Digit	HS Code 8 digit	Description	ACMA Description
851810	85181000	MICROPHONES AND STANDS THERE FOR	
851821	85182100	SINGLE LOUDSPEKERS,MOUNTD IN THR ENCLSRS	
851822	85182200	MULTIPLE LOUDSPEAKERS, MOUNTED IN THE SAME ENCLOSURE	
851829	85182900	OTHR LOUD SPEAKERS,W/N MNTD IN THR ENCLSRS	
851830	85183000	HEADPHONES EARPHONES AND COMBINED MICROPHONE/SPEAKER SETS	
852190	85219090	OTHR VIDEO RECRDNG/REPRDCNG APPRTS	
852580	85258020	DIGITAL CAMERAS	
852721	85272100	RADIO BRDCST RECVRS WTH RADIO TELPHONY ETCCMBND WTH SND RECRDNG/REPRDCNG APPRTS, USEDMTR VEHCLS, CAN NT OPERATE WTOUT	
852729	85272900	OTHR REDIO-BROADCST RCVRS NT CPBL TO OPRT WTHT EXTRNL POWR,USD IN MOTR VHCLS,INCL APPRTS FR RCVNG RADIO-TLPHNY/RADIO-T	
852910	85291029	OTHR ANTENNA FR OTHR USE	
853110	85311090	OTHR ALARM	
853222	85322200	OTHR FXD CAPACITORS,ALMNM ELECTRLYTC	
853224	85322400	OTHR FXD CAPACITORS,CERAMIC DIELECTRIC,MULTILAYER	
853229	85322990	OTHER FIXED CAPACITORS	

HS Code 6 Digit	HS Code 8 digit	Description	ACMA Description
853310	85331000	FXD CRBN RESISTORS,COMPOSITION/FILM TYPES	
853340	85334030	THERMISTORS	
853400	85340000	PRINTED CIRCUITS	
853810	85381010	BORDS,PANELS,CONSOLES ETC.FR INDSTRL USE	
853810	85381090	BORDS,PANELS,CONSOLES ETC.FR OTHR USE	
854110	85411000	DIODES,OTHER THAN PHOTOSENSITIVE OR LIGHT EMITTING DIODES	
854129	85412900	OTHER TRANSISTOR,OTHER THAN PHOTOSENSITIVE TRANSISTORS	
854130	85413010	THYRISTORS	
854160	85416000	MOUNTED PIEZO-ELECTRIC CRYSTALS	
854232	85423200	ELECTRONIC INTEGRATED CIRCUITS: MEMORIES HS CODE AND INDIAN HARMONISED SYSTEM CODE	
870895	87089500	SAFETY AIRBAGS WITH INFLATER SYSTEM; PARTS THEREOF	Electricals & Electronics
902620	90262000	INSTRMNTS AND APRTS FR MSRNG/CHKNG PRESSURE	
902910	90291010	TAXIMETERS	Electricals & Electronics
902910	90291090	OTHER	Electricals & Electronics

Categories Identification

29 6-digit HS Code details for Electronics

HS Code 6 Digit	HS Code 8 digit	Description	ACMA Description
903289	90328910	ELCTRNC AUTOMATIC REGULATORS(CONTROLLERS)	
903289	90328990	OTHR ATMTC RGLTNG/CNTRLNG INSTRMNTSANDAPPRTS	Electricals & Electronics
903290	90329000	PARTS AND ACCESSORIES OF INSTRMNTS OF 9032	
851840	85184000	AUDIO-FREQUENCY ELCTRC AMPLIFIERS	

Iron & Steel

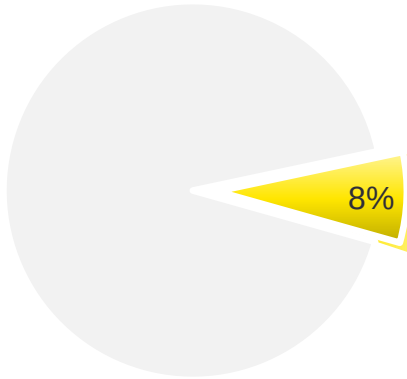
Iron & Steel : Category Snapshot FY19-20

Key Takeaways

Category Snapshot

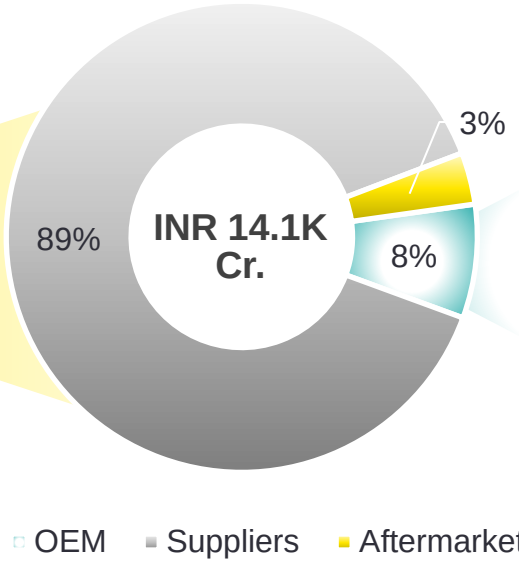
INR 1.83 Lakh Cr.

Total Automotive Imports (FY20)



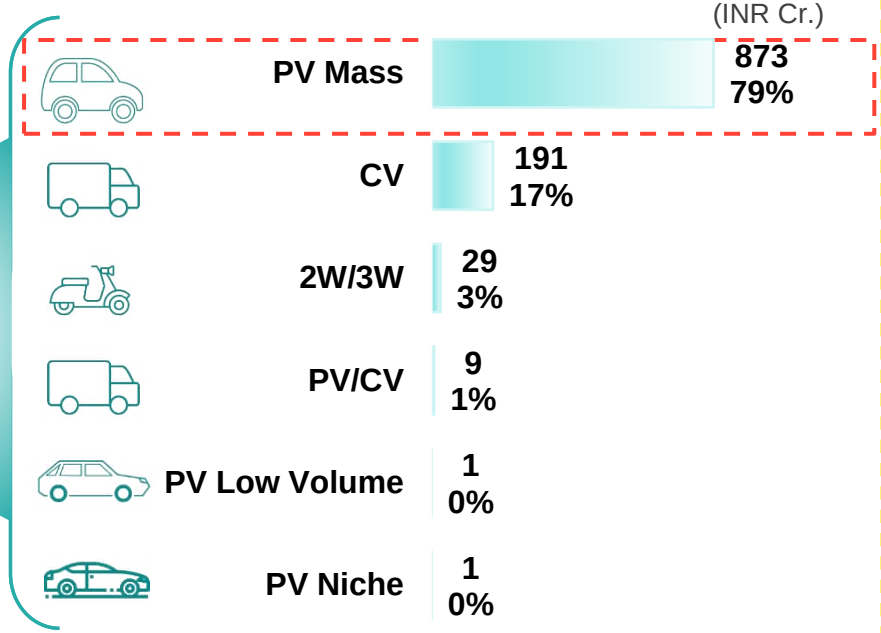
INR 14.1K Cr

Total Automotive Imports (FY20)



Imports by Vehicle Category

(INR Cr.)



Suppliers (89%) contribute to substantial imports of Iron & Steel

Among the OEMs, PV Mass alone contribute to 79% of the total imports.

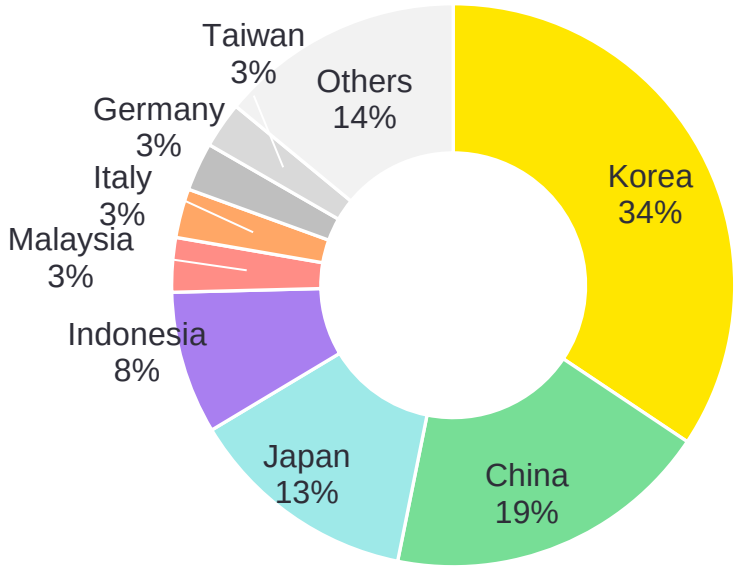
Iron & Steel Imports have remained consistent & elevated due to multiple reasons

~80-85% of Steel for Automotive consumption is produced domestically with Indian steel mills consistently working towards building capacity, capability & competitiveness to support auto requirements in terms of quality and quantity

43 6-digit HS codes were considered for analysis of Iron & Steel category

Iron & Steel : Category Snapshot FY19-20
Key Takeaways

Import by Country of Origin



Components of Import

(INR Cr.)

Flat Rolled	**10,497**	74%
Bars and Rods	**1,142**	8%
Coated	**858**	6%
Wires	**674**	5%
Other Articles of Iron & Steel	**420**	3%
Tubes	**265**	2%
Primary Forms (Ingots/Billets)	**172**	1.2%
Structural Parts	**93**	0.7%

Import by Country of Origin : Top 3 Countries

Flat Rolled	Korea 51%	Japan 16%	Indo. 13%
Bars and Rods	China 28%	Japan 22%	Korea 13%
Coated	Korea 68%	Japan 27%	China 1%
Wires	China 47%	Malay. 10%	Korea 10%
Other Articles of Iron & Steel	China 27%	Korea 10%	Italy 8%
Tubes	China 25%	Italy 16%	Korea 7%
Primary Forms (Ingots/Billets)	China 42%	Sweden 29%	Italy 22%
Structural Parts	Malay. 27%	China 22%	UAE 14%

Korea contributes a significant share of the Iron & Steel imports into India (34%)

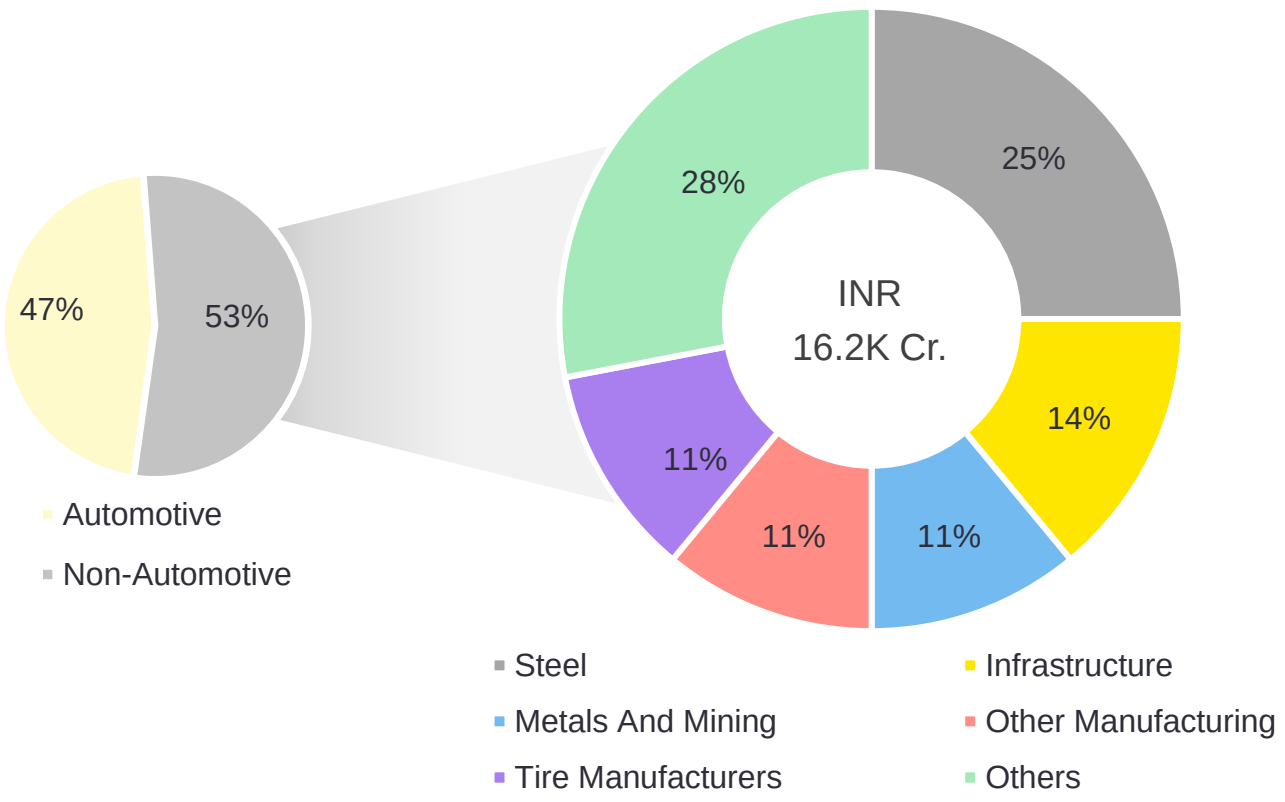
Flat Rolled components account for 74% of the total Iron & Steel imports

Iron & Steel : Category Snapshot FY19-20

Key Takeaways : Non-Automotive (Adjacent) sectors

INR 30.3K Cr.

Total value of Iron & Steel imports in FY20



Key Insights

- Top 5 sectors contribute ~72% to the total import value of non-automotive segment in FY20
- Steel holds the first spot in terms of contribution to import value at 25%

Top 5 Sectors	Value (INR Cr.)
Steel	4045
Infrastructure	2228
Metals And Mining	1840
Other Manufacturing	1772
Tyre Manufacturers	1746

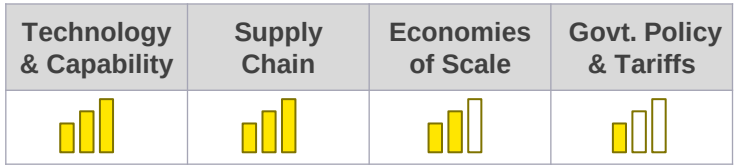
Iron & Steel : Demand Drivers

Key Demand Drivers	Impending Impacts			Trend Source
	Short Term	Long Term	Insight & Components Impacted	
Increasing Operational Costs *Raw materials cost due to trade disputes, COVID recovery, Regulatory costs*			• Elevated coking coal prices globally • Reducing size of third-party sales as new competitors start up their capacity • Consolidation into larger enterprises due to increasing compliance costs making it difficult for small companies	T R **C**
Chronic oversupply & sluggish demands *Cheap imports due to India's FTAs with ASEAN*			• Highly subsidised imports from Korea, Japan, China impacting national inventory • Economic slowdown and diversion of govt. tenders to international firms	T R **C**
International Trade Situation *Safety, Emission, Fuel consumption, Performance dynamics*			• Export re-direction from US and EU post import restrictions & tariffs on the alloy to India by global leaders like Japan, Korea • China ships products through Indonesia (other ASEANs) to circumvent an additional import tax that India levied in 2017	T **R** C
Technology Upgradation *Development of in-house high-end technologies to meet industry quality demands*			• Technology is under development in the domestic steel industry to meet high-end requirements resulting in imports • Imports of value-added steel, primarily for the auto sector and high-end electrical steel are the biggest source of imports	**T** R C
Upcoming Government Policies *Trade remedies being explored – Anti dumping, countervailing duties, associated suspensions & safe guards*			• Addressing the market-distorting effects of unfair trade by recent surge in imports (net importer for 2nd consecutive year)	T **R** C

Denotes the impact of the trend on the select components under the Iron & Steel Commodity Category

T : Technology, R : Regulatory, C : Customer / Consumer
Short-term: next 3 years; Long term: beyond 7-10 years & beyond

Iron & Steel : Reasons for Import

Key Components	Key Countries of Import	Key Import Reasons	
Flat Rolled	**Korea, Japan**		**Technology:** ► Technology gaps for few grades in the combination of GWT, esp. for low thickness applications; limited availability of special coated steels & other high strength steel grades **Quality:** ► Consistency in quality of coated steel grades as per industry requirement **Delivery:** ► Delay in delivery & shortfall of delivered quantity against ordered quantity in case of ramped up demand. ► Allocation of steel as per OEM requirements product wise, issue persist more in coated/high strength steel, etc. ► MOQ concerns (In case of new grades, one heat is ~400 ton & even for regular grades the MOQ is min 20 Ton, whereas import mills accept even 5-ton order quantity).

Yellow bar indicates severity of reason

Iron & Steel : Assessment of Localization Potential

Key Components	Assessment of Localization Potential	Recommendations (Phase 1 : 0-2 yrs, Phase 2 : 2-5 yrs)	Supporting Factors
Flat Rolled	**Technology & Capability** | **Supply Chain** | **Economies of Scale** | **Govt. Policy & Tariffs**	**Phase 1** • Cold Rolled – High Tensile, Ultra High Tensile, High Strength Low Alloy **Phase 2** • Coated Steels (HR - Galvanised, Galvanised DP, Al-Si coated Boron Steels)	**T** | **R** | **C**

Ready Can reach there Infeasible **T** | **R** | **C** Highly Favourable Moderately favourable Not favourable

T : Technology, R : Regulatory, C : Customer / Consumer

Iron & Steel : Localization Targets
By Key Component Categories

Component Category	Key Components with Localization Potential	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact
Flat Rolled	Coated stainless steel, high abrasive & high tensile steel, High strength coated steel in Skin panel quality, Special grade steel – high grade steel for EATS, cold rolled & hot rolled, Boron Steel of special alloy coatings, Sandwich type steel	PV (Mass)	429	5-10%	25-30%	107 - 129 Cr.
		PV (Low Volume)	-	-	-	
		PV (Niche)	-	-	-	
		PV/CV	-	-	-	
		CV	180	5-10%	25-30%	45 – 54 Cr.
		2W/3W	-	-	-	
		Suppliers	9,460	5-10%	25-30%	2,365 - 2,838 Cr.
Other Components		Others	3,546	3-7%	25-30%	877 – 1,052 Cr.

- *Automotive steel accounts for ~ 10% of the total consumption of the Steel in India*
- *India is a net exporter of steel*

- *Government incentives to support steel industry in focusing on capacity expansion and R&D to build a reliable supply chain*
  - *R&D support through SRTMI (Steel Research & Technology Mission of India*
  - *BCD reduction on plant & equipment*
  - *100% FDI through automatic route*
- *R&D efforts should be focused on developing high grade & advanced alloy steels at par with imported steel in quality & price*

Iron & Steel : Localization Targets
Overall

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Iron & Steel	**PV (Mass)**	873	5-10%	25-30%	218 – 262
	PV (Low Volume)	1	-	-	-
	PV (Niche)	1	-	-	-
	PV/CV	9	-	-	-
	CV	191	5-10%	25-30%	48 – 57
	2W/3W	29	-	-	-
	Suppliers	12,511	5~10%	25-30%	3,128 – 3,753
Total		**13,615***	**5-10%**	**25-30%**	**3,394 – 4,073**

Category	Sub Category	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Iron & Steel	**Flat Rolled**	10,069	5-10%	25-30%	2,517 – 3,021
	Others	3,546	3-7%	25-30%	877 – 1,052
Total		**13,615***	**5-10%**	**25-30%**	**3,394 – 4,073**

*** Import value for Aftermarket has been excluded**

Iron & Steel : Localization Roadmap

Components for localization

Coated stainless steel, high abrasive & high tensile steel such as DP980, HSS900, HSS1000, etc., UHSS - HSLA, DP, CP, MS, TRIP, TWIP steel in HR, CR & Coated, BH High strength coated steel in Skin panel quality

Special grade steel – high grade steel for EATS, cold rolled & hot rolled (basis gap identification), etc., Boron Steel of special alloy coatings like Al Si, EG steel of special alloy coatings such as Al Si, Zn Ni & one side coating technology, Sandwich type steel

Localization Catalyst

Phase 1: 0-2 Years

- Collaboration between SIAM & ISA for import substitution with defined timelines and regular review through a joint task force
- Incentivise Indian manufacturers for alliances with global manufacturers including FDI opportunity, especially for specialised steel grade requirements
- Conversion & consolidation of BS6 standards for steel into 1-2 segments to achieve MOQ across OEM requirements for viability of manufacturing
- R&D focus towards development of advanced steels – High grade Automotive Steels, special steels, Tool Steels, Advanced materials for cutting tools (Carbide, Cermets, etc.)
- Consolidation of grade wise steel requirements across OEMs to make local manufacturing viable for steel mills
- With Vehicle scrappage introduced by Government of India, OEMs, Steel Manufacturers & Vehicle scrapyards need to collaborate and develop a value chain to reuse & remanufacture/recycle iron & steel components
- OEMs need to translate their requirement of steel grades to equivalent IS standard and if a certain grade is not available, SIAM & ISA need to discuss and include the same in IS standards on a periodic basis
- Govt to revisit the BIS certification timelines to enable faster approvals to support localization
- OEMs need to invest into steel makers to develop GWT ranges ensuring quality consistencies and delivery commitment
- Few grades at very low volumes required domestically might even call for an additional investment – Suppliers can target export market requirements to consolidate volumes
- Development of flat steel grades (esp. low thickness) and introduce technologies like vacuum degassing in forging steels to meet the Auto quality requirements

Phase 2: 2-5 Years

- Steel grade for tools manufacture to be included in the production roadmap
- Govt Aid/incentivisation for self-reliance in new & emerging advanced materials

FY19~20 Base — **10%** — **30%**

Government led initiatives
Industry led initiatives
Initiatives to be executed parallelly
Initiatives to be executed sequentially
Expected Localization %

Interdependency between Iron & Steel & Auto components

Impediment to Localization of Iron & Steel

While Indian Steel Industry is capable to produce select grades, however, certain finished components are directly imported into India owing to:

- FTAs with certain countries - components directly imported
- Lack of technology/ capability/ import for export for auto components, thus, impacting localization effort for steel raw material
- High lead time to attain BIS marking for steel grades to be used in India for component manufacture

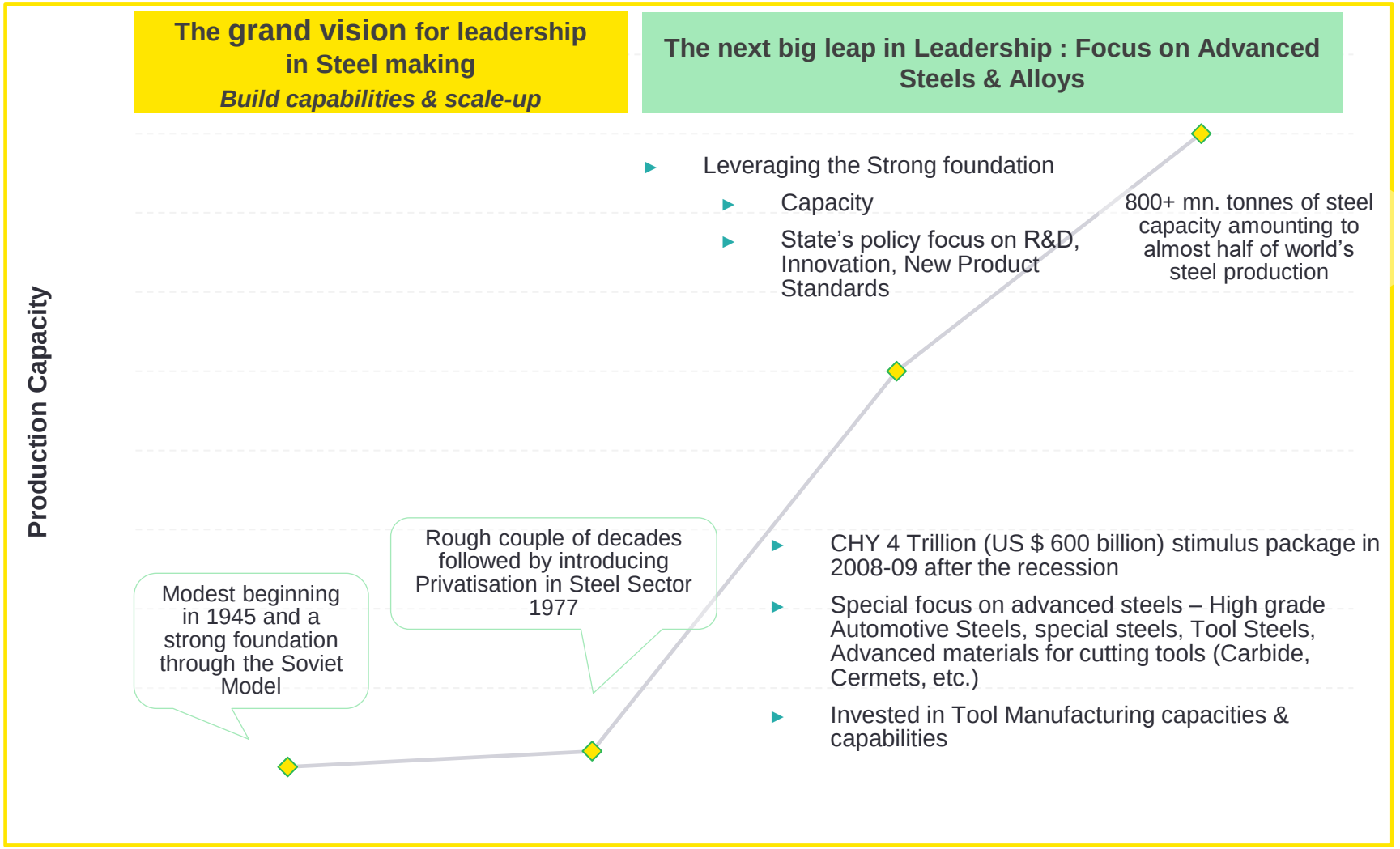
Impact of Iron & Steel as a Raw Material

Bearings (e.g. child parts like needle, roller, etc)	• Raw Material imports from China due to cost competitiveness & quality concerns as per Industry Standards • To reduce imports, bearing manufacturers should work on joint development of bearing raw materials with steel makers
Tools, Dies & Moulds (e.g. Injection moulds, Press Tools)	• Limited availability of raw materials in India for accessories & components of tools & dies (valves, taps, cocks, etc.). Also, Economies of Scale is high for countries such as China, Korea and Japan • Tooling steel (alloy steel) for Metal forming, plastics and components is imported • To improve competitiveness of Indian tool makers, duties of above raw materials (tool steel etc.) to be reduced
Body/Chassis/BiW	• Unavailability of Advanced materials and limited capability on advanced processes, especially for Premium vehicles
Fasteners (e.g. Nuts, Bolts, Washers, Rivets)	• Domestic raw material prices are not globally competitive and, thus, significantly affect over all cost of local production
Engine (e.g. 5Cs)	• High grade of steel used in catalytic convertor in short supply • Stainless Steel grade for Exhaust Gas Recirculation (EGR) not available locally

Iron & Steel : Case Study
China's story of self reliance

Enablers

- **Massive governmental aids** after the 2008-09 recession in China
- East Coast provinces developed as **Tooling Clusters,** accounting to almost 70%+ of China's Production
- **Low cost & availability** of raw materials for tooling
- China has **control over the raw material supplies** of rare earths for tool materials as well as coating materials
- "**Made in China 2025**" focusing on self-reliance on new & emerging advanced materials as well.



Categories Identification

43 6-digit HS Code details for Iron & Steel

HS Code 6 Digit	HS Code 8 digit	Description	ACMA Description
720826	72082630	SHEETS OF FLAT-ROLD PRDCTS IN COILS OF A THCKNS>= 3MM BUT < 4.75MM HOT-ROLD,PICKLD	
720836	72083610	PLATES OF FLAT-ROLD PRDCTS IN COILS OF A THCKNS< 10MM HOT-ROLD,EXCL. PICKLD	
720837	72083710	PLATES OF FLAT-ROLD PRDCTS IN COILS OF A THCKNS>=4.75 BUT< 10MM HOT-RLD,EXCL.PICKL	
720837	72083790	OTHR FLAT-ROLD PRDCTS IN COILS OF A THCKNS>=4.75 BUT< 10MM HOT-RLD,EXCL.PICKL	
720838	72083890	OTHR FLAT-ROLD PRDCTS IN COILS OF A THCKNS>=3 BUT< 4.75MM HOT-RLD,EXCL.PICKL	
720839	72083990	OTHR FLAT-ROLD PRDCTS IN COILS OF A THCKNS< 3 MM HOT-RLD,EXCL.PICKL	
721049	72104900	OTHR PRDCTS OF IRON/NON-ALLOY STEEL OTHERWISE PLTD/COTD WTH ZINC	
721069	72106900	FLT-ROLD PRDCTS OF IRON/NON ALOY STL PLTD OR COTD WTH OTHER ALOYS OF ALUMINIUM EXCL (EXCL ZINC ALLOY)	
721260	72126000	FLAT, ROLLED, PRODUCTS	
721710	72171030	WIRE OF IRON ON NON ALLOY STEEL : NOT PLATED OR COATED, WHETHER OR NOT POLISHED: OF A THICKNESS ABOVE 26 SWG	
721730	72173010	OF A THICKNESS OF 18 SWG AND BELOW	
721730	72173020	WIRE OF IRON ON NON ALLOY STEEL : OF A THICKNESS ABOVE18 SWG BUT UPTO 26 SWG	
721730	72173030	PLATED OR COATED WITH OTHER BASE METALS: OF A THICKNESS ABOVE 26 SWG	
721790	72179099	OTHER	
721899	72189910	BILLETS	

HS Code 6 Digit	HS Code 8 digit	Description	ACMA Description
721912	72191200	FLAT-ROLLED PRODUCTS OF STAINLESS STEEL, OF A WIDTH OF 600 MM OR MORE - OF A THICKNESS OF 4.75 MM OR MORE BUT NOT EXCEEDING 10 MM	
721913	72191300	HT-RLLD PRDCTS IN COILS OFTHCKNS >= 3 MM BT < 4.75 MM	
721933	72193390	OTHR COLD ROLD PRDCTS OF THCKNS >1MM BUT < 3MM N.E.S.	
721934	72193490	COLD ROLD PRDCTS OF STAINLESS STEEL OF A THCKNS >=0.5MM BUT < 1MM OF OTHR TYPES	
722211	72221111	BARS, RODS, STAINLESS	
722220	72222011	BARS, RODS, STAINLESS	
722230	72285090	OTHERS	
722300	72230091	WIRE, STAINLESS, STEEL	
722410	72241000	INGOTS AND OTHER PRIMARY FORMS	
722490	72249099	OTHER ALLOY STEEL IN INGOTS OR OTHER PRIMARY FORMS; SEMI-FINISHED PRODUCTS OF OTHER ALLOY STEEL: OTHER	
722519	72251990	FLAT, ROLLED, PRODUCTS	
722530	72253090	OTHER HOT-ROLLED PRODUCTS IN COILS	
722550	72255010	COLD-ROLLED,OF THCKNS <3MM	
722592	72259200	FLT ROLD PRDCTS OF OTHER ALLOY STEEL OTHRWSE PLTD/COTD WTH ZINC	
722790	72279040	COLD HEADING QUALITY	

Categories Identification

43 6-digit HS Code details for Iron & Steel

HS Code 6 Digit	HS Code 8 digit	Description	ACMA Description
722810	72281090	BARS, RODS, HIGH	
722830	72283029	OTHERS	
722850	72285090	OTHERS	
722880	72288090	OTHER HOLLOW DRILL BARS AND RODS	
722990	72299090	OTHERS	
730490	73049000	OTHR SEAMLESS TUBES/PIPES AND HOLOW PORFILES	
730690	73069090	OTHER TUBES,PIPES ETC.OF IRON/STEEL N.E.S.	
730799	73079990	NON-GALVANISED	
730890	73089090	OTHER STRUCTURE AND PARTS OF STRUCTURES OF IRON AND STEEL(EXCL FLOATING STRUCTURES)	
730900	73090090	RESERVRS,TANKS,VATS ETC.OF IRN/STL N.E.S.	
731029	73102990	OTHERS	
731210	73121010	WIRE ROPES,BLACK	
731210	73121020	WIRE ROPES,GALVANISED	
731210	73121090	OTHERS(E.G.TRANSMISSION BELTING)	
731290	73129000	PLAITED BAND,SLINGS AND LIKE OF IRON OR STEEL NT ELECTRCALLY INSULATED	

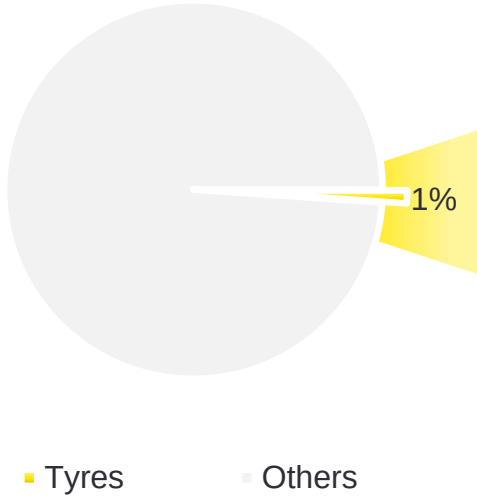
HS Code 6 Digit	HS Code 8 digit	Description	ACMA Description
731519	73151900	PARTS OF ARTICULATED LINK CHAIN	
732510	73251000	OTHR ARTICLES OF NON-MALLEABLE CAST IRON	
732599	73259999	OTHER CAST ARTICLES OF IRON OR STEEL N.E.S	

Tyres, Rubber Components & Rubber as Raw Material

Tyres : Category Snapshot FY19-20
Key Takeaways

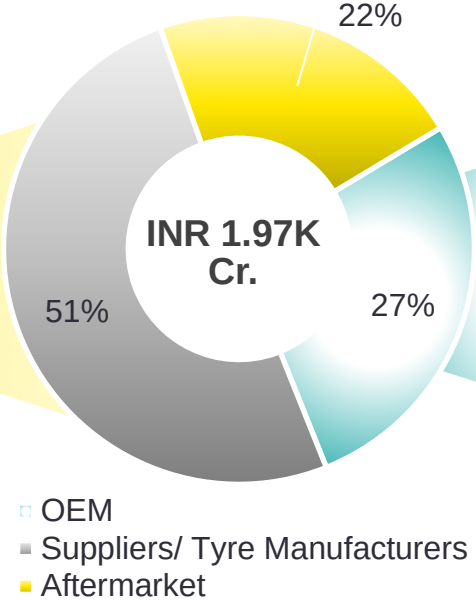
INR 1.83 Lakh Cr.

Total Automotive Imports (FY20)



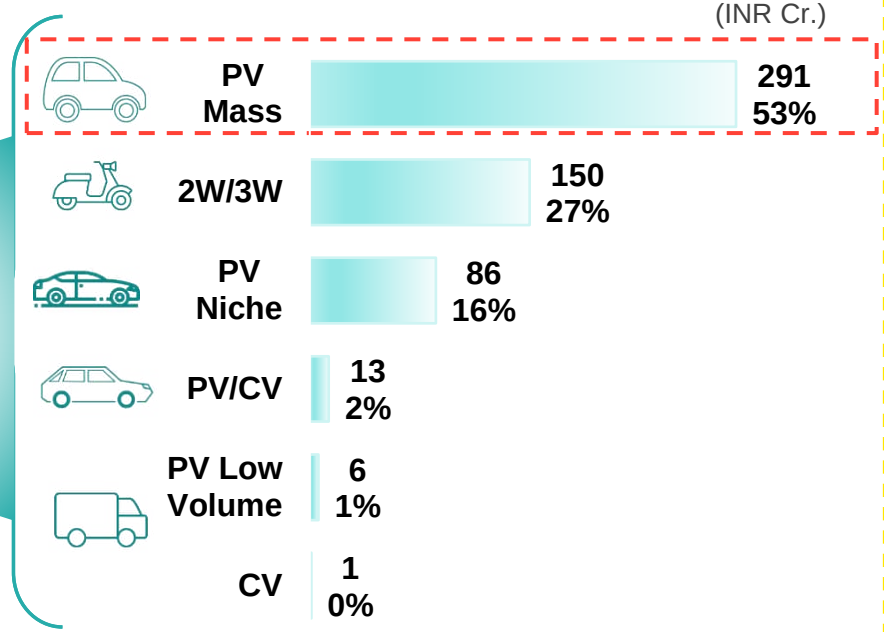
INR 1.97k Cr

Total Automotive Tyre Imports (FY20)



Imports by Vehicle Category

(INR Cr.)



Automotive Suppliers/Tyre Manufacturers & Aftermarket (73%) contribute to substantial imports of Tyres

Among the PV OEMs, Niche players (High value, Low volume) alone contribute to 16% of the total imports

Among the Automotive Suppliers, ~60% of the imports are by Tyre Suppliers who do not have manufacturing facilities in India

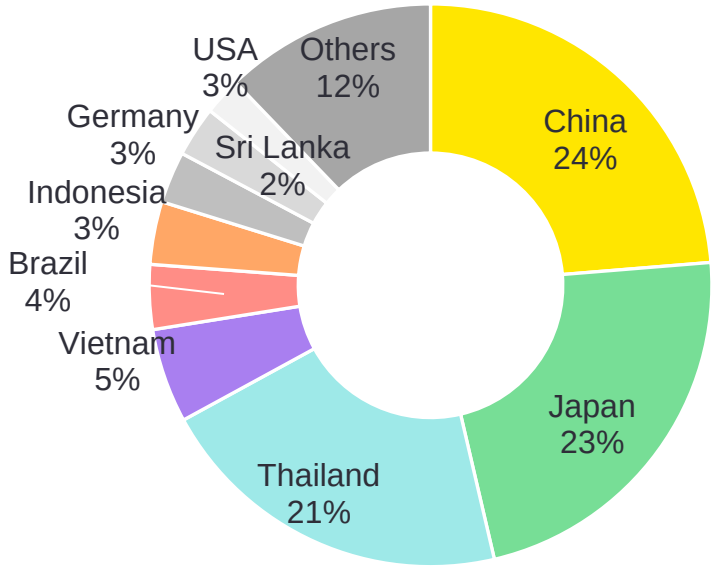
Import by Country of Origin : Top 5 Countries for OEMs

Vietnam	Thai.	Indo.	Ger.	China	Others
28%	22%	16%	13%	7%	14%

5 6-digit HS codes were considered for analysis of tyre category

Tyres : Category Snapshot FY19-20
Key Takeaways

Import by Country of Origin



Components of Import

(INR Cr.)

Tyres for PV	1,319	67%
Tyres for CV	364	18%
Tyres for 2W	170	9%
Tyres for Heavy Equipment	111	6%
Tyre Flaps	5	0.3%

Import by Country of Origin : Top 3 Countries

Thai.	China	Indo.
32%	30%	7%

China	Thai.	Japan
39%	38%	6%

Vietnam	Brazil	Thai.
47%	20%	11%

Japan	China	USA
59%	11%	7%

SL	China	Thai.
42%	18%	16%

China, Japan & Thailand contribute to a major share (68%) of the Tyre imports into India

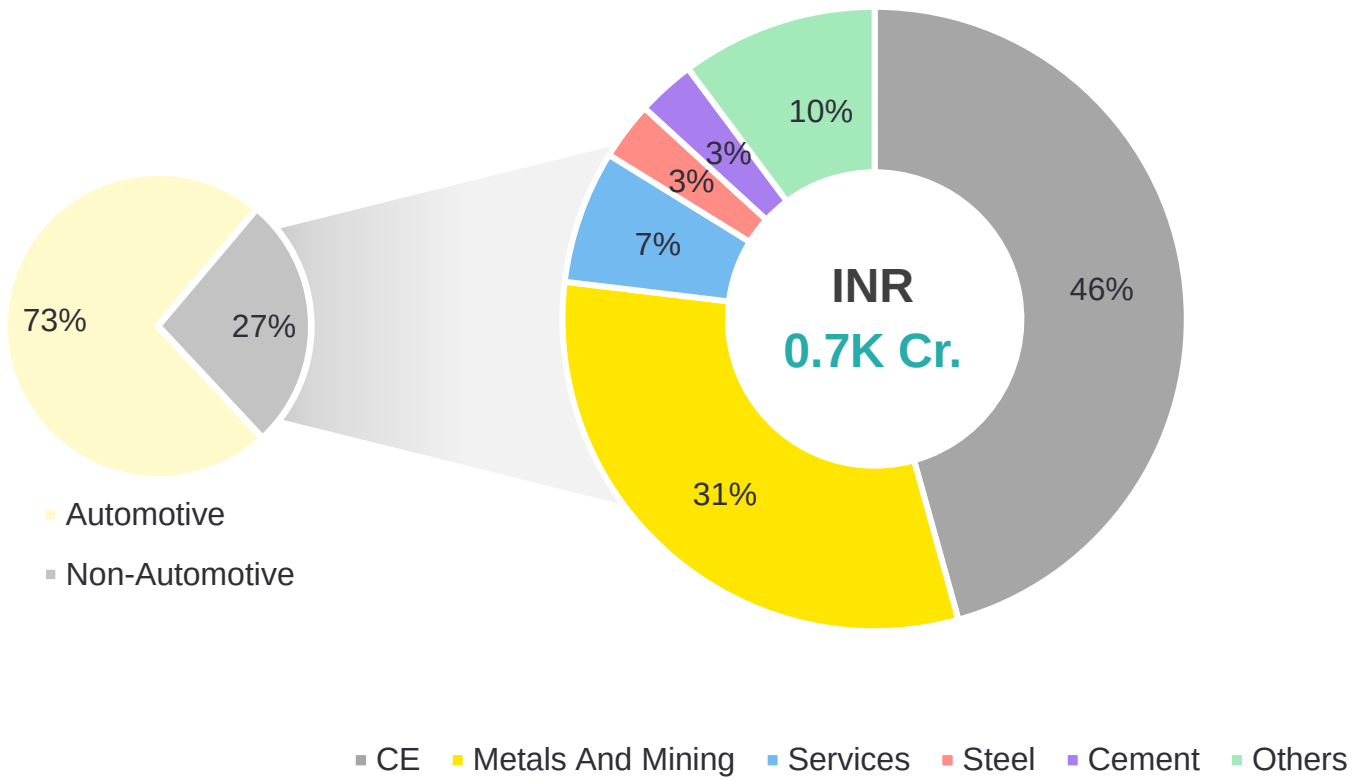
Tyre imports for Passenger Vehicles account for 67% of the total Tyre imports

Tyres : Category Snapshot FY19-20

Key Takeaways : Non-Automotive (Adjacent) sectors

INR 2.7K Cr.

Total value of Tyres imports in FY20



Key Insights

- Top 5 sectors contribute ~89% to the total import value of non-automotive segment in FY20
- CE holds the first spot in terms of contribution to import value at 46%

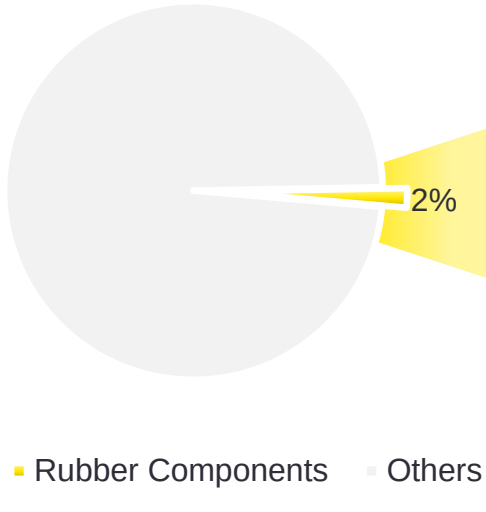
Top 5 Sectors	Value (INR Cr.)
CE	331
Metals And Mining	226
Services	50
Steel	20
Cement	20

Rubber Components : Category Snapshot FY19-20

Key Takeaways

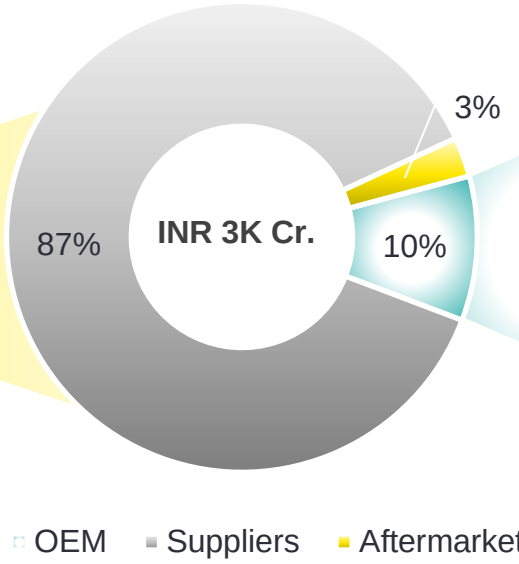
INR 1.83 Lakh Cr.

Total Automotive Imports (FY20)

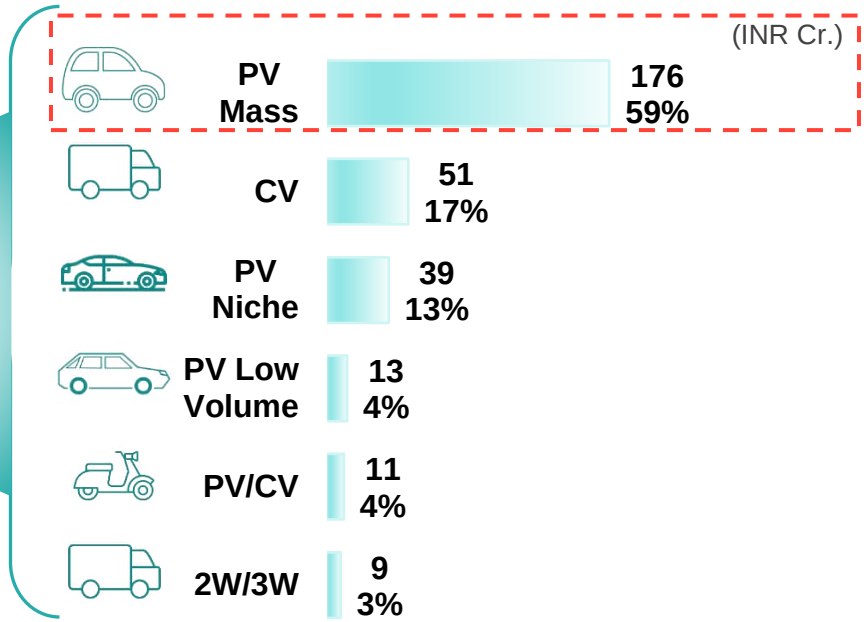


INR 3K Cr

Total Automotive Imports (FY20)



Imports by Vehicle Category



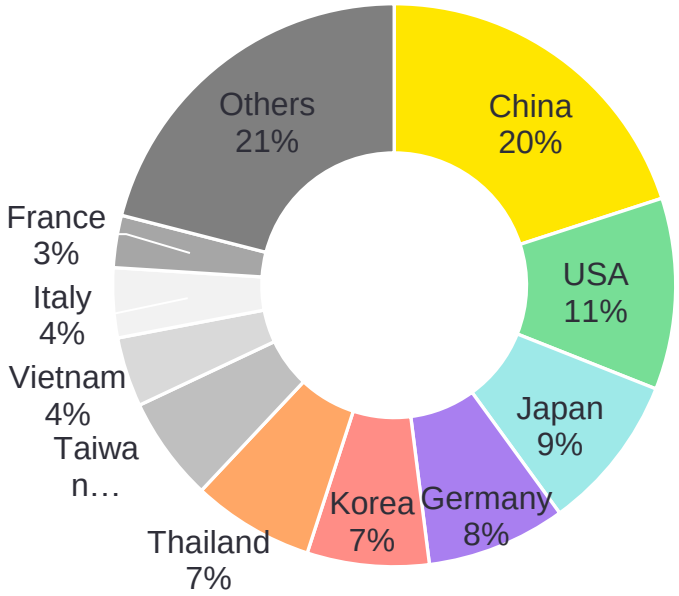
Suppliers (87%) contribute to substantial imports of Rubber components

Among the OEMs, PV Mass alone contribute to 59% of the total imports.

8 6-digit HS codes were considered for analysis of Rubber components category

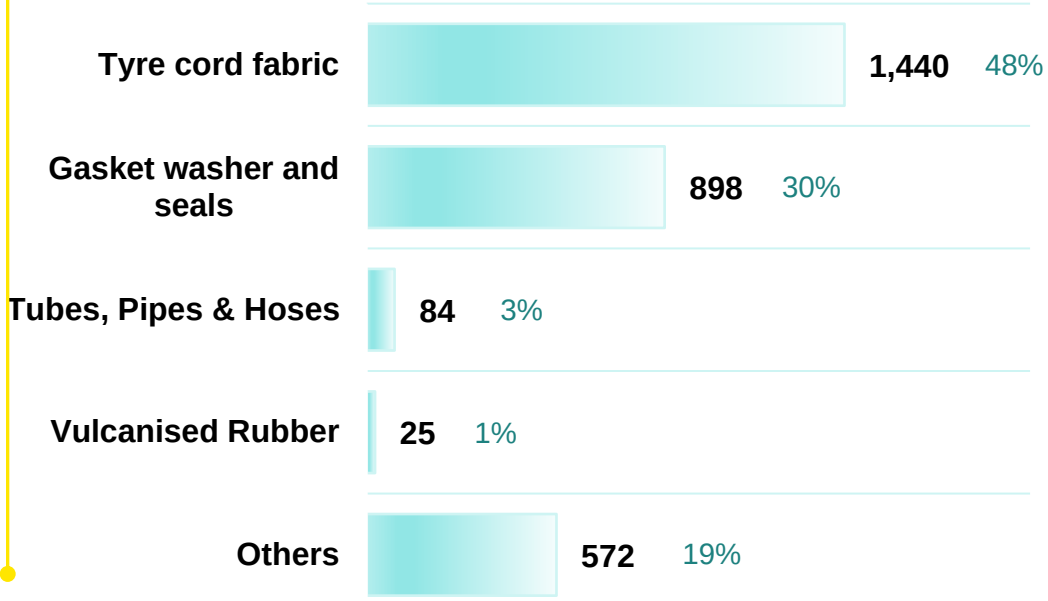
Rubber Components : Category Snapshot FY19-20
Key Takeaways

Import by Country of Origin



Components of Import

(INR Cr.)



Import by Country of Origin : Top 3 Countries

China	Taiwan	Thai.
33%	21%	17%

USA	Japan	Germ.
15%	14%	13%

China	Korea	Japan
27%	13%	10%

China	Hung.	Slov.
41%	22%	5%

China	USA	Korea
17%	14%	11%

China, USA and Japan contribute a significant share of the Rubber components imports into India (40%)

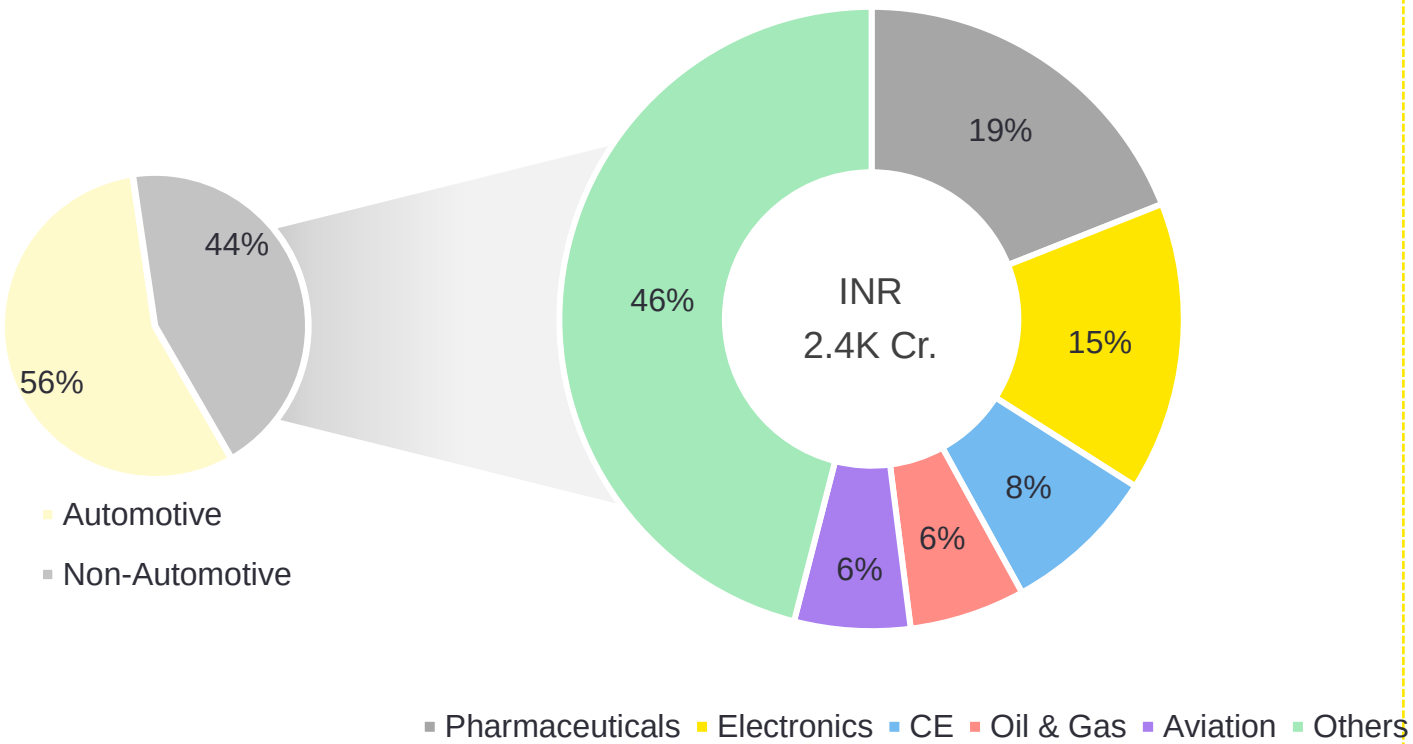
Tyre cord fabric account for 48% of the total Rubber components imports

Rubber Components : Category Snapshot FY19-20

Key Takeaways : Non-Automotive (Adjacent) sectors

INR 5.4K Cr.

Total value of Rubber Components imports in FY20



Key Insights

- Top 5 sectors contribute ~54% to the total import value of non-automotive segment in FY20
- Pharmaceuticals holds the first spot in terms of contribution to import value at 19%

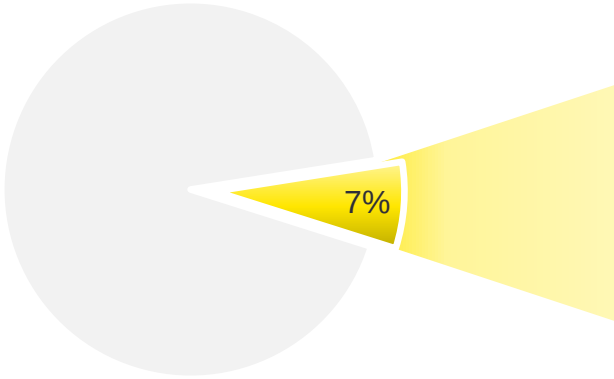
Top 5 Sectors	Value (INR Cr.)
Pharmaceuticals	**456**
Electronics	**343**
CE	**193**
Oil And Gas	**137**
Aviation	**133**

Rubber Raw Material : Category Snapshot FY19-20

Key Takeaways

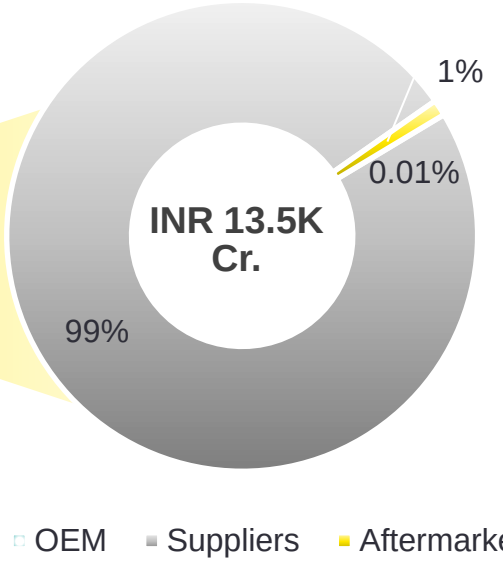
INR 1.83 Lakh Cr.

Total Automotive Imports (FY20)

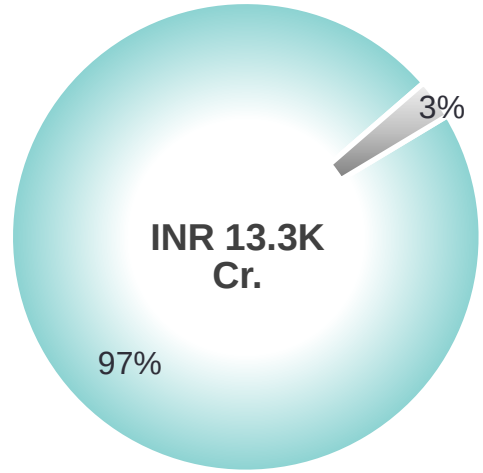


INR 13.5K Cr

Total Automotive Tyre Imports (FY20)



Supplier Breakup



Automotive Suppliers (99%) are the major Contributor for Rubber Raw Material

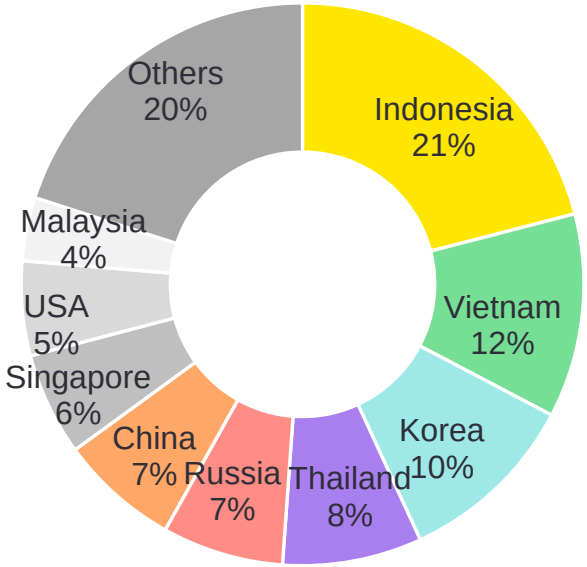
OEM's contribute a very small fraction of Imports in this category (0.01%)

Tyre Manufactures (97%) are the Major Suppliers importing Rubber Raw Material

16 6-digit HS codes were considered for analysis of Rubber raw material category

Rubber Raw Material : Category Snapshot FY19-20
Key Takeaways

Import by Country of Origin



Components of Import

(INR Cr.)

Natural Rubber	**8,115**	60%
Poly Rubber	**4,612**	34%
Unvulcanised Rubber	**766**	6%
Cellular Rubber	**0.02**	Negligible

Import by Country of Origin : Top 3 Countries

Indo.	Vietnam	Thai.
42%	22%	9%

Korea	China	USA
23%	15%	10%

Thai.	Malaysia	Germ.
53%	25%	8%

China	Korea	Thai.
20%	17%	14%

Indonesia & Vietnam contribute to a major share (33%) of the Rubber Raw Material imports into India

Natural Rubber accounts for 60% of the total Rubber raw material imports

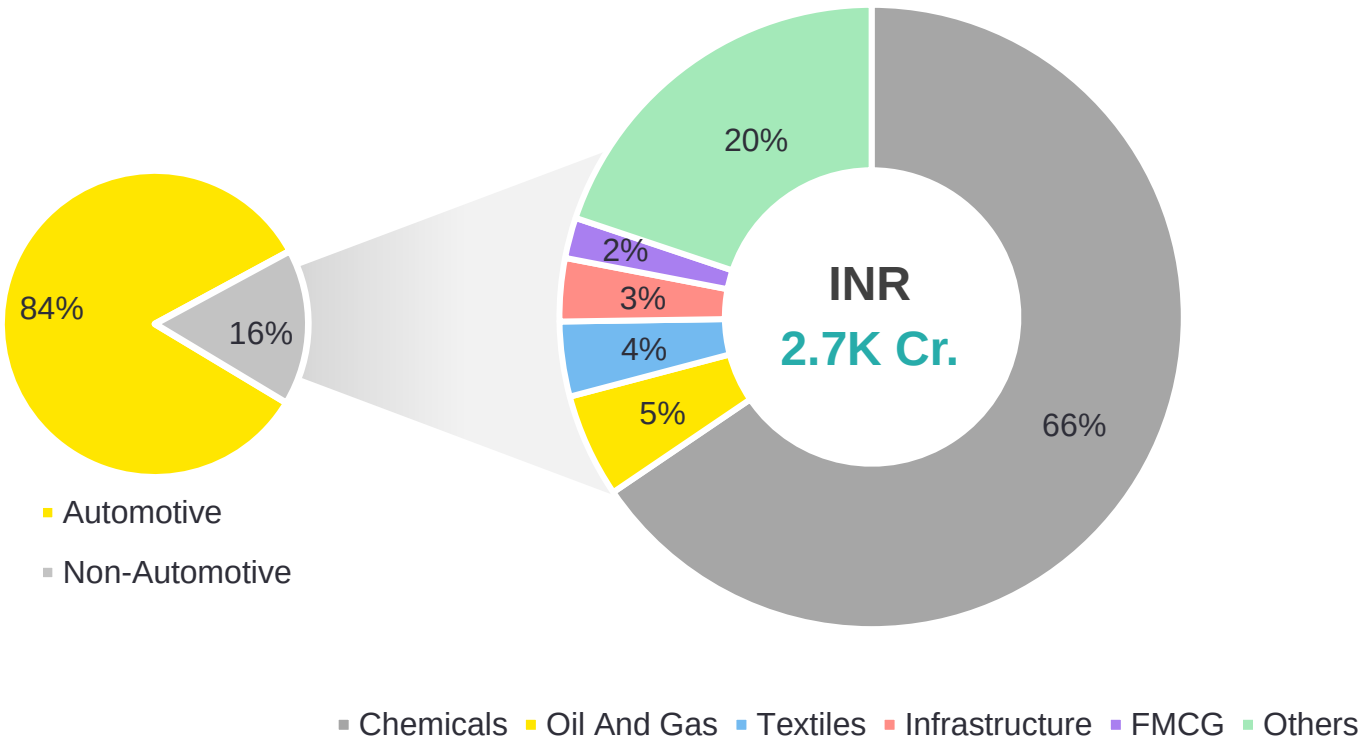
Component Categories	Key Components Considered
Natural Rubber	Technically specified natural rubber (TSNR)
Poly Rubber	Synthetic rubber
Unvulcanised Rubber	
Cellular Rubber	

Rubber Raw Material : Category Snapshot FY19-20

Key Takeaways : Non-Automotive (Adjacent) sectors

INR 16.2K Cr.

Total value of Rubber RM imports in FY20



Key Insights

- Top 5 sectors contribute ~80% to the total import value of non-automotive segment in FY20
- Chemicals holds the first spot in terms of contribution to import value at 66%

Top 5 Sectors	Value (INR Cr.)
Chemicals	**1747**
Oil And Gas	**143**
Textiles	**103**
Infrastructure	**87**
FMCG	**56**

Tyres : Demand Drivers
Key Trends and their Impending Impact

Key Trends	Impending Impacts			Trend Source
	Short Term	Long Term	Insight & Components Impacted	
Increasing adoption of HRD (High-Rim Diameter) tyres Gradual increase from 12/13 inch to 16/18 inch tyres; trend expected to continue over the next few years			• Will lead to higher imports of TSNR & Steel	T R C
Rising trend of Smart tyres India connected tyre market projected to reach US$4.4m by 2025, @139.8% CAGR USD 77.5 bn. Market estimated by 2024 for Intelligent tyres			• Integrated chips / sensors / tags to take advantage of the connected features of a vehicle • Increasing partnerships with Tech. companies to develop connected tyres • Pressure, RPM, temperature & load are the key parameters being considered for monitoring	T R C
Increasing trend of Light-weight, fuel efficient vehicles in view of CAFE norms			• Could lead to adoption of light weight tyres • Will increase the demand for low density raw materials and additives	T R C
Increasing penetration of Radial tyres in Truck/Bus segments Estimated penetration in India at ~ 50% in FY19; expected to gradually increase in the next few years.			• Will lead to higher imports of TSNR & Steel	T R C

High Medium Low Positive Negative

Denotes the impact of the trend on the select components under the Tyre Commodity Category

T : Technology, R : Regulatory, C : Customer / Consumer
Short-term: next 3 years; Long term: beyond 7-10 years & beyond

Tyres & Rubber Raw Material : Reasons for Import

Key Components	Key Countries of Import	Technology & Capability	Supply Chain	Economies of Scale	Govt. Policy & Tariffs	Key Import Reasons
Tyres for PV (mass market), Luxury Car Applications, CV and 2W/3W (mass & niche)	**Thailand, China**					• Luxury Car manufacturers require significantly lower quantities compared to mass market for a particular specification of tyres (low profile) • These companies also follow global standards and therefore, prefer to source globally • In both the above cases, the volumes being low / specific preferences of the end market, tyres are imported by the OEMs • Specific homologation requirements and customers' preference for select brands of tyres in global markets for PVs lead to imports • Specialty tyres like self-sealing, run flat tyres etc. are imported due to unavailability of supplier ecosystem in India • In case of certain tyre sizes catering to 2W and 4W, tuning is a challenge considering differences in infrastructure and weather aspect in Europe
Technically Specified Natural Rubber (TSNR)	**Indonesia, Vietnam**					• Deficiency in Supplies in India, ~ 40% of the total Natural Rubber requirement is imported • Domestic TSNR prices are ~ 25% higher than International rubber prices • Quality not in line with industry standards
Butadiene Rubber BR	**Korea, Singapore**					• Demand supply deficit (~30% of synthetic rubber is imported)

Tyres are being imported from Thailand at a customs duty rate which is half of the existing levy in India, due to the ASEAN Free Trade Agreement

 Yellow bar indicates severity of reason

Tyres & Rubber Raw Material : Assessment of Localization Potential

Key Components	Assessment of Localization Potential	Recommendations (Phase 1 : 0 to 2 years, Phase 2 : 2-5 years)	Supporting factors
Tyres for PV (mass market), Luxury Car Applications, CV and 2W/3W (mass & niche)	Technology & Capability; Supply Chain; Economies of Scale; Govt. Policy & Tariffs	**Phase 1** • Technology & capability for special applications to be developed through global alliances, investment focus, training, etc. in collaboration with ATMA • SIAM and ATMA to collaborate to optimize tuning requirements to reduce development and validation lead time for tyres • Need for tyre scrappage policy • ATMA along with Government support to work towards brand building for Indian tyre manufacturers for target export markets • Service support to be streamlined internationally for positioning India as a tyre export hub to achieve economies of scale • Specific models are being imported due to low volumes and unless the volumes mature, localization doesn't seem appropriate. **Phase 2** • India should look at leveraging the volume advantage by making India as global sourcing hub to localize the tyres even for premium / luxury car segments	T R C
Technically Specified Natural Rubber (TSNR)	Technology & Capability; Supply Chain; Economies of Scale; Govt. Policy & Tariffs	**Phase 1** • Invest in capacity augmentation in India for production of natural rubber • Duty structure on natural rubber to be relooked into and rationalised • However, the duty on rubber imports to be aligned in such a way that it doesn't marginalize the local rubber industry and yet fulfils the demand of the Auto Industry	T R C
Butadiene Rubber	Technology & Capability; Supply Chain; Economies of Scale; Govt. Policy & Tariffs	**Phase 1** • Capacity augmentation by Indian tyre manufacturers for production of synthetic rubber • Plan for replacement of natural rubber by synthetic rubber to be explored	T R C

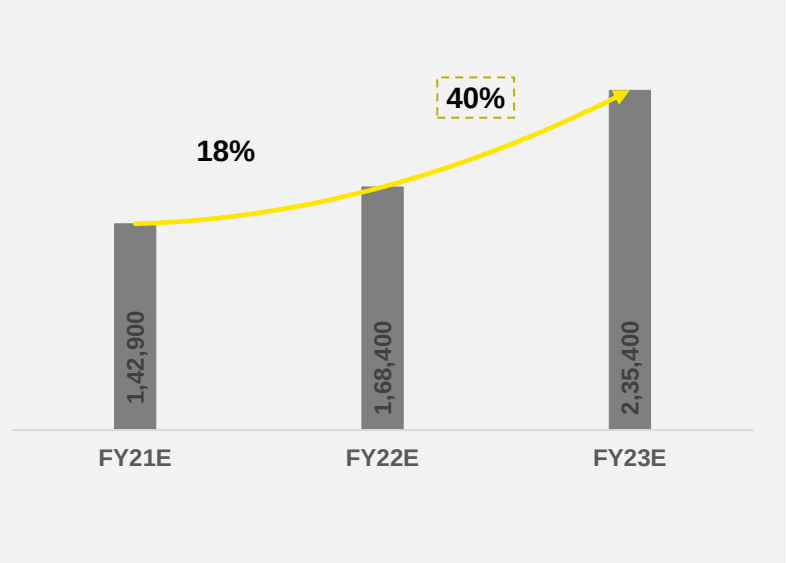
T R C

Ready · Can reach there · Infeasible

T : Technology, R : Regulatory, C : Customer / Consumer

Highly Favourable · Moderately favourable · Not favourable

Tyres : OEM Import Plan
By Segments & Tyre Sizes – 2W



Rim Diameters wise count of tyre sizes:

Rim Diameter	Count of Tyre Sizes	Estimated Import Volume FY21	Estimated Import Volume FY22	Estimated Import Volume FY23	Import Share over three years
17"	11	1,01,000	1,20,000	1,62,000	**70.1%**
18"	1	700	700	700	0.4%
19"	4	40,500	47,000	72,000	29.2%
21"	1	700	700	700	0.4%
Total	**17**	**1,42,900**	**1,68,400**	**2,35,400**	**100%**

Highest potential for localization lies in the 17" Rim Diameter segment contributing ~70% to total imports by volume in FY21/22/23

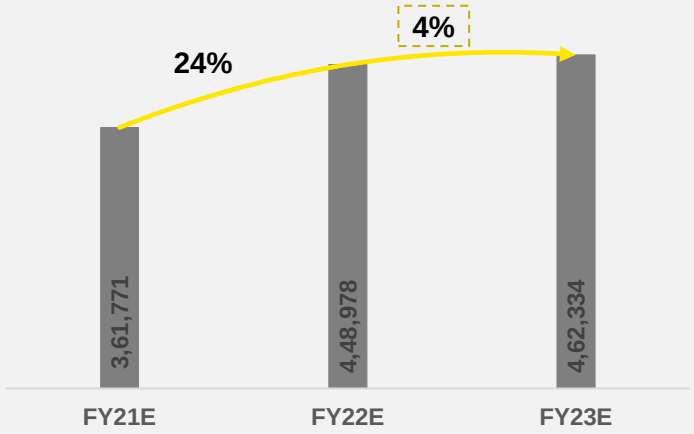
Tyre sizes contributing 40% of the total tyre imports for FY21 to FY23:

Tyre Size	Estimated Import Volume FY21	Estimated Import Volume FY22	Estimated Import Volume FY23	Import volume share of total import
100/90-19 57T	18,000	22,000	25,000	12%
110/80 R19 59H	15,000	15,000	15,000	8%
130/80-17 65T	18,000	22,000	25,000	12%
150/70 R17 69H	15,000	15,000	15,000	8%
Total	**66,000**	**74,000**	**80,000**	**40%**

Tyre sizes contributing to exponential growth of imports from FY21 to FY23 (6x):

Tyre Size	Estimated Import Volume FY21	Estimated Import Volume FY22	Estimated Import Volume FY23	Import Volume Growth from FY21 to FY23
100/90-19 57H	7,000	9,000	22,000	3x
100/90-19 57V	500	1,000	10,000	20x
140/80 R17 69H	500	1,000	10,000	20x
140/80 R17 69V	500	1,000	10,000	20x
Total	**8,500**	**12,000**	**52,000**	**6x**

Tyres : OEM Import Plan
By Segments & Tyre Sizes – PV



Rim Diameters wise count of tyre sizes:

Rim Diameter	Count of Tyre Sizes	Estimated Import Volume FY21	Estimated Import Volume FY22	Estimated Import Volume FY23	Import Share over three years
15"	5	28,305	39,221	46,072	9%
16"	13	1,52,623	2,36,032	2,50,649	**50%**
17"	22	1,09,253	1,18,770	1,19,314	**27%**
18"	46	49,242	34,579	24,270	8%
19"	59	10,022	12,127	13,358	3%
20"	53	5,839	6,137	6,446	1%
21"	31	6,027	1,617	1,687	1%
22"	10	321	352	404	0%
23"	3	140	143	135	0%
Total	**242**	**3,61,771**	**4,48,978**	**4,62,334**	**100%**

Highest potential for localization lies in the 16" & 17" Rim Diameter segment contributing >75% to total imports by volume in FY21/22/23*

Other Categories:

- **Run Flat Tyres** estimated import volume growth from 47,500 in FY21 to 75,000 in FY23 (58%)
- **Temporary Spare Wheel Donut Tyre** estimated import volume growth from 9,000 in FY21 to 16,000 in FY23 (78%)

Tyre sizes contributing 61% of the total tyre imports for FY21 to FY23:

Tyre Size	Estimated Import Volume FY21	Estimated Import Volume FY22	Estimated Import Volume FY23	Import volume share
6.5 x 16	1,32,023	1,76,030	1,76,030	38%
7 x 17	81,245	1,08,326	1,08,326	23%
Total	**2,13,268**	**2,84,357**	**2,84,357**	**61%**

Tyre sizes with sizeable contribution to total imports & increasing import volumes from FY21 to FY23:

Tyre Size	Estimated Import Volume FY21	Estimated Import Volume FY22	Estimated Import Volume FY23	Import Volume Growth from FY21 to FY23
185/55R16 87H(YH)	12,330	47,167	61,178	5x
T135/80D15 100M (MA)	4,080	14,578	18,604	5x
185/60R15 84H(MA)	4,950	13,843	16,368	3x
185/60R15 84H(MA) GULF	5,400	9,000	9,600	2x
Total	**26,760**	**84,588**	**1,05,750**	**4x**

Tyres : Localization Potential*
PV & 2W Tyres

Localization Potential PV Tyres:

Localization Details	15-18 Inch	19-20 Inch	20+Inch	Total
No. of sizes	79	110	44	233
Domestically manufactured	53	40	0	93
6-12 months	**23**	**6**	**0**	**35**
12-24 months	**2**	**18**	**0**	**20**
24-48 months	**1**	**46**	**44**	**91**

Segments (Rim Diameter)	% of import	Localization Targets		
		6-12 months	12-24 months	24-48 months
15-18 Inch	95%	96%	2.5%	1.5%
19-20 Inch	4%	42%	16%	42%
21-23 Inch	1%			100%

Localization Potential 2W/3W Tyres:

Localization Details	2W/3W
No. of sizes	17
Domestically manufactured	11
6-12 months	**6**

Segments (Rim Diameter)	% of import	Localization Targets
		6-12 months
17-21 Inch	100%	100%

*As received from ATMA

Natural Rubber : India Perspective

Natural Rubber Position : India

Ranking NR Producing Countries		
Country	Year 2010	Year 2020
Thailand	1	1
Indonesia	2	2
Vietnam	5	3
Core d'Ivoire	7	4
China	6	5
India	**4**	**6**
Malaysia	3	7
Cambodia	10	8
Myanmar	9	9
Brazil	8	10

Ranking NR Consuming Countries		
Country	Year 2010	Year 2020
China	1	1
India	2	2
U.S.A.	3	3
Thailand	5	4
Japan	4	5
Indonesia	7	6
Malaysia	6	7
Brazil	9	8
Korea	8	9
Vietnam	10	10

India is the second largest consumer of NR in the world however it stands much below as far a production is concerned i.e. 6th position (not able to cater to domestic demand). India's ranking for NR Production has slipped whereas on Consumption front, it has maintained the second ranking, therefore dependence on imports.

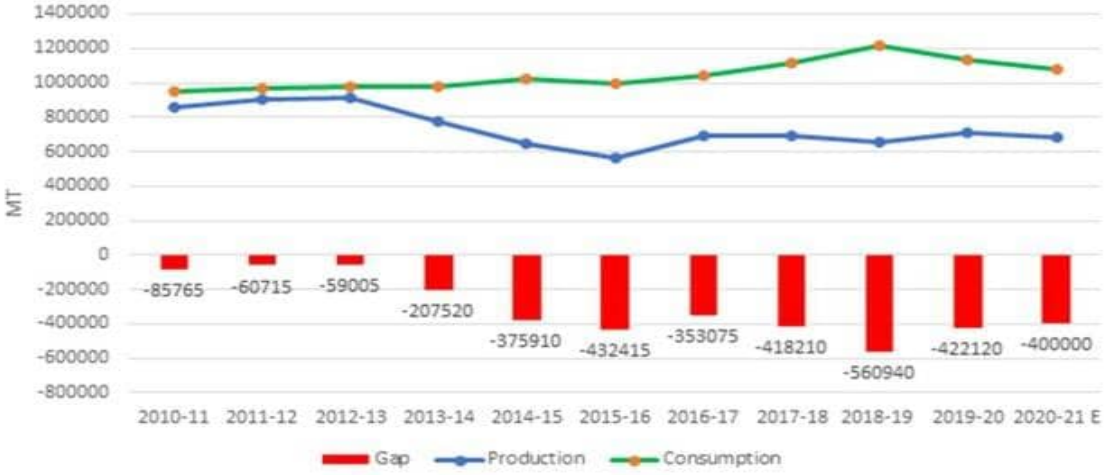
Medium/Long term NR Scenario is expected to remain same with NR consumption exceeding production and resultant gap to be bridged through imports.

For reducing the dependence on NR imports, it is in the interest of the govt and stakeholders that sustained growth and development of NR sector takes place domestically.

Price Trend for NR (Monthly Avg.) : Domestic vs International Trend

Indian Prices have remained invariably higher than the international prices

Natural Rubber : Demand Supply Gap



Source : ATMA

Tyres : Localization Targets
By Segments

Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact
PV (Mass)	291	-	45-50%	131 - 146 Cr.
PV (Low Volume)	15	-	-	-
PV (Niche)	86	-	-	-
PV/CV	5	-	-	-
CV	1	-	-	-
2W/3W	150		55-60%	83 - 90 Cr.
Suppliers	998	15-20%	40-50%	399 - 499 Cr.

- No significant reduction foreseen in the next 2 years
  - Product substitution & homologation cycles for Tyres are in the order of 18 to 24 months. (+)
  - Volumes in the Luxury car segment (CAGR of 6% over 2020-25) and specialty applications in the mass market have seen increasing trends and are expected to increase over the next few years (+)
  - CMVR – (new rule) Not giving the spare tyre and will provide a puncture kit instead – to reduce the dead weight. This could reduce the imports potentially by 15 to 20%. (-)

- Beyond that, localization could increase in the next 3 to 5 years as the volumes mature and the testing & homologation efforts of some of the OEMs start getting realized

Rubber Components : Localization Targets
By Key Component Categories

Component Category	Key Components with Localization Potential	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact
Gaskets, Washers & Seals		PV (Mass)	72	-	-	-
		PV (Low Volume)	8	-	-	-
		PV (Niche)	26	-	-	-
		PV/CV	3	-	-	-
		CV	20	-	-	-
		2W/3W	-	-	-	-
		Suppliers	724	-	20-25%	145 - 181 Cr.
Other Components		Others	2086	-	1.5%	30

Rubber as Raw Material : Localization Targets
By Segments

Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact
Natural Rubber	8,115	-	8-10%	649 - 812 Cr.
Synthetic Rubber	4,613	-	30-35%	1,357 – 1,600 Cr.
Others	616	-	13-21%	78 - 131

- **Black Cycle project -** European Tyre OEMs have build a consortium to enable a massive circular economy of tyres by designing world-first processes to produce new tyres from end-of-life tyres
- Many tyre manufacturers across the world are **exploring sustainable raw materials** for tyre manufacturing
- Rubber powder derived from used tyres - Tyre OEMs are incorporating micronized rubber powder derived from used tyres
- Rubber plantation drive from local tyre OEMs

Tyres & Rubber as Raw Material : Localization Targets
Overall

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Tyres	Tyres for PV (Mass)	291	-	45%-50%	131 – 146
	PV (Low Volume)	6	-	-	-
	PV (Niche)	86	-	-	-
	PV/CV	14	-	-	-
	CV	1		-	-
	2W/3W	150	-	55%-60%	83 – 90
	Supplier	998	15-20%	40%-50%	399 - 499
Rubber as Raw Material	Supplier	13,343	-	16-19%	2,083 – 2,543
Total		**14,890***	**1-1.5%**	**18-22%**	**2,718 – 3,304****

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Tyres	Tyres	1,546	10-13%	41-49%	634 - 761
Rubber as Raw Material	Natural Rubber	8,115	-	8-10%	649 - 812
	Synthetic Rubber	4,613	-	30-35%	1,357 – 1,600
	Others	616	-	13-21%	78 - 131
Total		**14,890***	**1-1.5%**	**18-22%**	**2,718 – 3,304**

**** A portion of the overall target for Tyres might come from the PV (Niche) segment to meet the overall PV (Niche) segment target of 1-2% localization of the overall automotive imports**

*** Import value for Aftermarket has been excluded**

Rubber Components : Localization Targets
Overall

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Rubber Components	PV (Mass)	176	-	-	-
	PV (Low Volume)	13	-	-	-
	PV (Niche)	39	-	-	-
	PV/CV	12	-	-	-
	CV	51			-
	2W/3W	9	-	-	-
	Supplier	2,639	-	7-8%	177-211
Total		**2,939***	**-**	**6-8%**	**177-211**

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Rubber Components	Gaskets, Washers & Seals	853	-	17-21%	145 - 181
	Others	2086	-	1.5%	30
Total		**2,939***	**-**	**6-8%**	**177-211**

*** Import value for Aftermarket has been excluded**

Tyres, Rubber Components and Rubber as Raw Material : Localization Roadmap

Components for localization

15”-18” PV Segments, 17”-21” 2W/3W Segments, Seals (especially inlet & exhaust)

19”-23” PV Segments, Technically Specified Natural Rubber, Synthetic Rubber, Rubber Gaskets, Washers

Localization Catalyst

Phase 1: 0-2 Years

- Duty structure on rubber as a raw material to be relooked into to support key imports while keeping in mind the interests of the local rubber industry as well as demand of the Auto industry
- Govt incentives in the form of CIT reduction, interest subsidies, concessions on utility overheads for setting up rubber plantation & tyre manufacturing ecosystem as per requirement from the OEMs / local Suppliers
- Rubber plantation drive from tyre OEMs : Increase Production capacities of Natural Rubber
- Plan for replacement of natural rubber by synthetic rubber to be explored
  - Synthetic rubber production plan basis forecasted volume requirements for tyres in the future
- Tariff Rate Quota (TRQ) based duty structure to be explored to the extent of gap between domestic production & consumption for Natural Rubber
- OEMs to identify concept / tyre solution technically feasible in India to match technologies like Sealant tyre, low resistance rolling tyres, etc.
- Technology & capability for special applications to be developed through global alliances, investment focus, training, etc. in collaboration with ATMA
- SIAM and ATMA to collaborate to optimize tuning requirements to reduce development and validation lead time for tyres
- ATMA along with Government support to work towards brand building for Indian tyre manufacturers for target markets
- Service support to be streamlined internationally for positioning India as a tyre export hub to achieve economies of scale

Phase 2: 2-5 Years

- Govt incentives in the form of CIT reduction, interest subsidies on setting up synthetic rubber production plants per requirement from the OEMs / Suppliers
  - Synthetic rubber production plan basis forecasted volume requirements for tyres in the future
- Localization for tyres to be taken up as the volumes mature and the testing & homologation efforts of the OEMs start getting realized
- Build a consortium to enable circular economy of tyres to produce new tyres from end-of-life tyres

FY19~20 Base — **1.5%** — **22%** >

Government led initiatives
Industry led initiatives
↕ Initiatives to be executed parallelly
↳ Initiatives to be executed sequentially
Expected Localization %

Categories Identification

5 6-digit HS Code details for Tyres

HS Code 6 Digit	HS Code 8 digit	Description
401110	40111010	New pneumatic rubber tyres used on motor cars (including station wagons and racing cars): Radials
401110	40111090	New pneumatic rubber tyres used on motor cars (including station wagons and racing cars) : Others
401120	40112010	New pneumatic rubber tyres used on buses or lorries : Radials
401120	40112090	New pneumatic rubber tyres used on buses or lorries: Others
401140	40114010	New pneumatic rubber tyres used on motor cycles
401140	40114020	New pneumatic rubber tyres used on motor scooters
401140	40114090	New pneumatic rubber tyres used on motor cycles: Other
401180	40118000	New pneumatic rubber tyres used on construction, mining or industrial handling vehicles
401290	40129010	Solid rubber tyres for motor vehicles
401290	40129020	Other: Solid Rubber tyres for other vehicles
401290	40129030	Other: Tyres with metal framework
401290	40129041	Tyre flaps: Of a kind used in two-wheeled and three- wheeled motor vehicles
401290	40129049	Tyre flaps: Other
401290	40129050	Tyre treads, interchangeable,
401290	40129090	Tyre flaps: Other

Categories Identification

8 6-digit HS Code details for Rubber (rubber components)

HS Code 6 Digit	HS Code 8 digit	Description	ACMA Description
400911	40091100	TUBES,PIPES AND HOSES OF VULCNSD RUBR NOT REINFORCED/OTHRWSE COMBINED WTH OTHR MATERIALS WITHOUT FITTINGS	
400922	40092200	TUBES,PIPES AND HOSES OF VULCNSD RUBR REINFORCED/OTHERWSE CMBND ONLY WITH METAL WITH FITTINGS	
401310	40131020	FOR LORRIES AND BUSES	
401693	40169350	WASHERS	Rubber Components
401693	40169390	OTHER ARTICLES OF GASKETS WASHERS AND OTHER SEAL	
401610	40161000	OTHR ARTCLS OF CELLULAR RUBBER	Rubber Components
401693	40169320	RUBBER RING(O-RING)	Rubber Components
401693	40169330	RUBBER SEALS(OIL SEALS,ETC)	Rubber Components
401693	40169340	GASKETS	Rubber Components
401695	40169590	OTHER ARTICLES OF VULCANISED RUBBER OTHER THAN HARD RUBBER: OTHER INFLATABLE ARTICLES: OTHER	
401699	40169960	RUBBER BUSH	
401699	40169990	OTHERS ARTICLES OF VULCANISED RUBBER EXCL. MATS/GASKETS AND OTHER INFLATABLE ARTICLES	Rubber Components
590210	59021010	IMPREGNATED RUBBER PRODUCTS	

Categories Identification

16 6-digit HS Code details for Rubber (raw material)

HS Code 6 Digit	HS Code 8 digit	Description	ACMA Description
381210	38121000	PREPARED RUBBER ACCELERATORS	
381239	38123930	VULCANIZING AGENTS FOR RUBBER	
381239	38123990	ANTIOXIDIZING PREPARATIONS AND OTHER COMPOUND STABILIZERS FOR RUBBER OR PLATICS, OTHERS	
400121	40012100	SMOKED SHEETS	
400122	40012200	TECHNICALLY SPECIFIED NATURAL RUBBER (TSNR)	
400219	40021910	STYRENE, BUTADIENE, RUBBER	
400219	40021930	STYRENE BUTADIENE STYRENE OIL BOUND COPOLYME	
400219	40021990	STYRENE, BUTADIENE, RUBBER	
400220	40022000	BUTADIENE, RUBBER, PRIMARY	
400231	40023100	ISOBUTENE-ISOPRENE (BUTYL) RUBBER (IIR)	
400239	40023900	HALO, ISOBUTENE, ISOPRENE	
400260	40026000	ISOPRENE RUBBER (IR)	
400270	40027000	ETHYLENE-PROPYLENE-NON-CONJUGATED DIENE RUBBER (EPDM)	
400510	40051000	RUBR COMPOUNDED WTH CRBN BLACKS/SILICA	
400591	40059190	COMPOUNDED RUBBER, UNVULCANISED, IN PRIMARY FORMS OR IN PLATES, SHEETS OR STRIP	
400811	40081190	PLTS,SHTS,STRP OF OTHER CELLULAR RUBR	Rubber Components
400819	40081990	OTHER FORM OF CELLULAR RUBR	Rubber Components
400829	40082990	OTHER FORM OF NON/CELLULAR RUBR	Rubber Components
590220	59022010	IMPREGNATED WITH RUBBER	

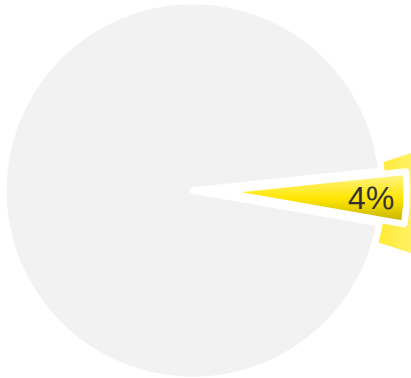
Tools, Dies & Moulds

Tools, Dies & Moulds : Category Snapshot FY19-20

Key Takeaways

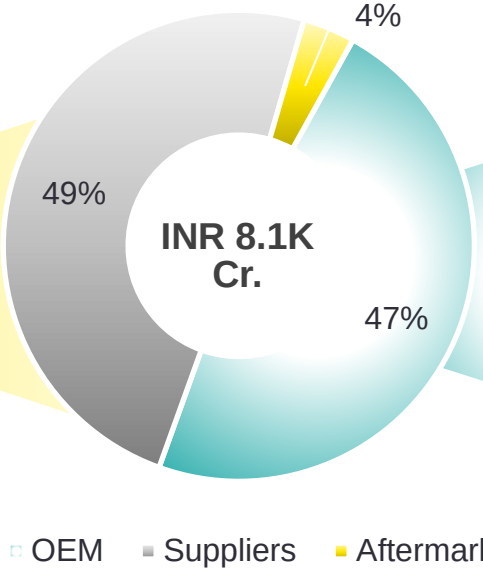
INR 1.83 Lakh Cr.

Total Automotive Imports (FY20)



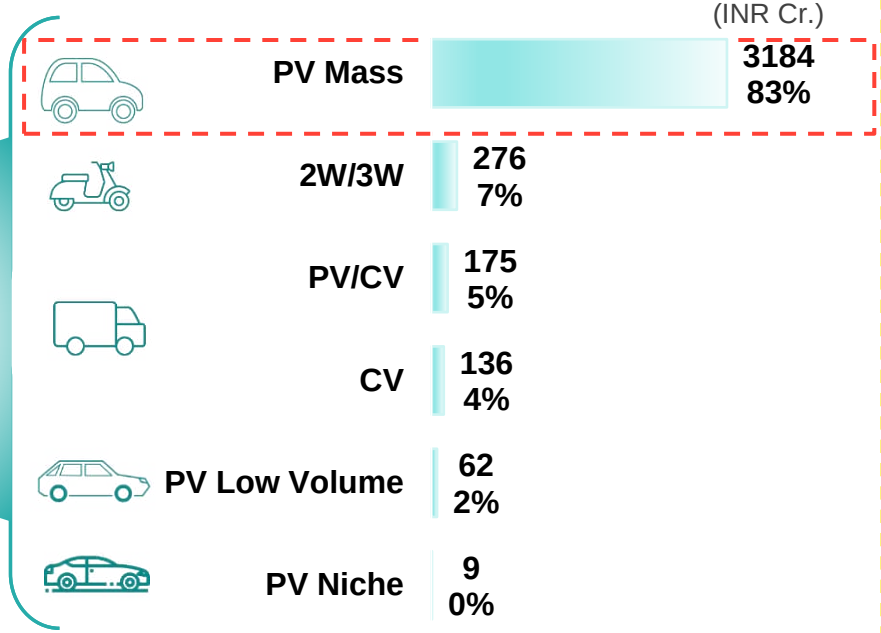
INR 8.1K Cr

Total Automotive Imports (FY20)



Imports by Vehicle Category

(INR Cr.)



Automotive Suppliers (49%) contribute to almost half the imports of Tools, Dies & Moulds

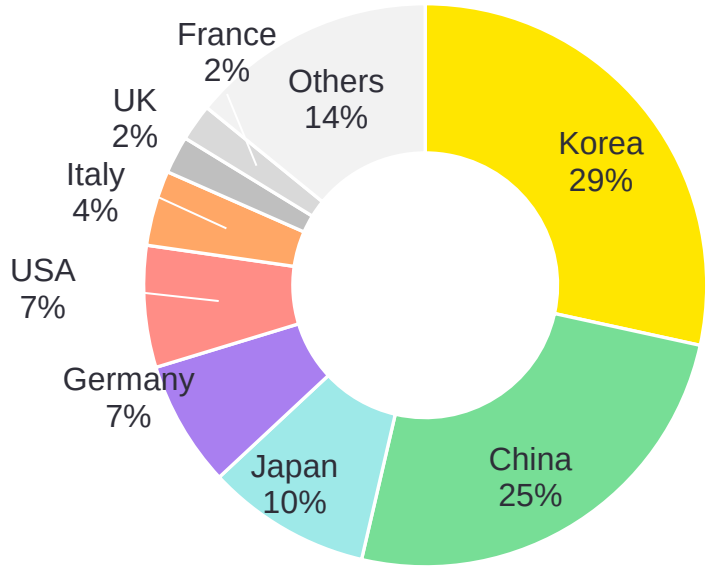
Among the OEMs, PV Mass alone contribute to 83% of the total imports

Tools, Dies & Moulds have seen a significant import in the automotive sector due to multiple reasons

8 6-digit HS codes were considered for analysis of Tools, Dies & Moulds category

Tools, Dies & Moulds : Category Snapshot FY19-20
Key Takeaways

Import by Country of Origin



Components of Import

(INR Cr.)

Tools for Plastics & Rubber Components	**2,395**	30%
Press (Stamping) Tools & Dies	**1,970**	24%
Parts & Accessories for Tools, Dies & Moulds	**1,880**	23%
Jigs and Fixtures	**1,508**	19%
Dies - Casting	**321**	4%

Import by Country of Origin : Top 3 Countries

China	Korea	Taiwan
39%	35%	4%

Korea	Japan	China
63%	14%	11%

China	USA	Germ.
22%	15%	14%

Korea	Japan	China
54%	22%	14%

China	Japan	Korea
50%	16%	12%

China and Korea account for a major share of the Tools, Dies & Moulds imports into India (54%)

Tools for Plastics & Rubber Components account for more than 30% of the total Tools, Dies & Moulds imports

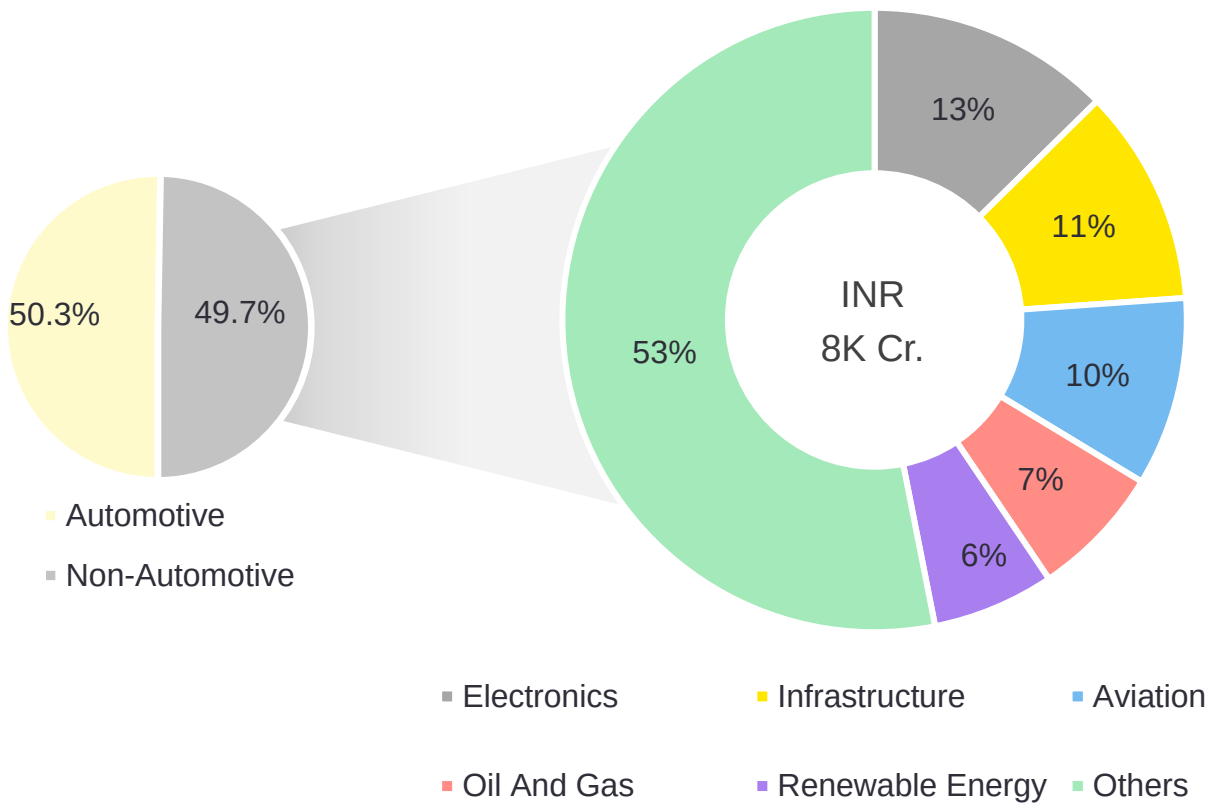
Component Categories	Key Components Considered
Tools for Plastics & Rubber Components	Injection Moulds & Compression Moulds
Press (Stamping) Tools & Dies	Tools & Dies
Parts & Accessories for Tools, Dies & Moulds	Taps, Valves, Connectors, Pins, Punches, etc.
Jigs and Fixtures	Machining, Assembly & Inspection jigs & fixtures
Dies - Casting	Dies

Tools, Dies & Moulds : Category Snapshot FY19-20

Key Takeaways : Non-Automotive (Adjacent) sectors

INR 16.1K Cr.

Total value of Tools, Dies & Moulds imports in FY20



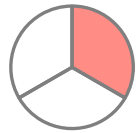
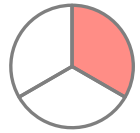
Key Insights

- Top 5 sectors contribute ~47% to the total import value of non-automotive segment in FY20
- Electronics holds the first spot in terms of contribution to import value at 13%

Top 5 Sectors	Value (INR Cr.)
Electronics	1013
Infrastructure	902
Aviation	785
Oil And Gas	554
Renewable Energy	507

Tools, Dies & Moulds : Demand Drivers

Additive Manufacturing & Electric Mobility pose a threat, however, not in the near term

Key Demand Drivers	Impending Impacts			Trend Source
	Short Term	Long Term	Insight & Components Impacted	
Emergence of Additive Manufacturing			• Could substitute the conventional manufacturing processes • Press Tools & Dies	T R C
Increasing adoption of Electric Mobility			• Will substitute parts like Engine & reduce the complexity & no. of components of the transmissions; • Jigs & Fixtures for machining, Forging & Casting dies	T R C
Increasing focus on Light-weighting for better fuel efficiencies			• Direct impact on the complexity of the dies; Requires design & manufacturing capabilities of a higher order • Press Tools & Dies	T R C
Increasing requirements on Process Control & emergence of Industry 4.0 / Smart Manufacturing			• Increases the complexity of the design & manufacturing of tooling to accommodate sensors of various types & their interactions • Jigs & Fixtures for machining, Forging & Casting dies	T R C

 High  Medium  Low Positive Negative

T : Technology, R : Regulatory, C : Customer / Consumer
Short-term: next 3 years; Long term: beyond 7-10 years & beyond

Denotes the impact of the trend on Tools, Dies & Moulds Commodity Category

Tools, Dies & Moulds : Reasons for Import

Key Components	Key Countries of Import	Key Import Reasons	
Tools, Dies & Moulds for Metal forming, Plastic & Composites	**China, Korea**	Technology & Capability  | Supply Chain  | Economies of Scale  | Govt. Policy & Tariffs 	► Developing ecosystem for tooling in India compared to other markets ► Turn around time in China is much lesser and at significantly lower costs as in India for tooling ► Capacity constraints with Indian tool makers in case of demand ramp up ► High investment requirement, long ROI period (10-15 years usually), limited availability of capital for the Tool makers – making it difficult for Indian manufacturers to invest ► Limited Indian suppliers providing end to end tooling solutions / consolidated products - no one-stop shop concept in India ► Limited supplier base for HSS stamping tools & hot stamping tools ► Unavailability of tooling steel (alloy steel) ► OEMs are importing tools under EPCG (at zero duty) from China & Korea in view of their exports from India (FY 20 value : ~ INR 2000 Cr.) ► Inverted duty structure - duty on finished tools is less than raw material (Import Duty for Moulds : 5~6%, Tool Steel : 7.5%, Hot Runner : 7.5%, Mould Base : 7.5%, Alloy Steel : 10%) ► Zero Duty on Moulds from select countries & FTAs with certain countries makes import an economically better option
Accessories & Components of Tools & Dies (valves, taps, cocks, etc.)	**China, Korea, Japan**	Technology & Capability  | Supply Chain  | Economies of Scale  | Govt. Policy & Tariffs 	► Better availability of Raw Materials and Economies of Scale globally
Jigs & Fixtures	**Korea, China, Japan**	Technology & Capability  | Supply Chain  | Economies of Scale  | Govt. Policy & Tariffs 	► Limited technical capability and long lead times of Indian manufacturers for complex jigs & fixtures ► Price advantage through sourcing from China / Korea

 No. of yellow bars indicates severity of that reason for import

Tools, Dies & Moulds : Assessment of Localization Potential

Key Components	Assessment of Localization Potential	Recommendations (Phase 1 : 0-2 yrs, Phase 2 : 2-5 yrs)	Supporting Factors
Injection Moulds for Plastics & Rubber Components	Technology & Capability; Supply Chain; Economies of Scale; Govt. Policy & Tariffs	**Phase 1** • Plastic Injection Moulds for parts like Bumpers & Dashboard Panels (on time availability of large steel blocks to be ensured at first), door trims, floor consoles, garnish cowls, etc. • Multi-material/multi-colour (2K) large size tools (e.g. Plenum panel, air deflector, end plates), lighting tools (Head lamp and Tail lamp), **Phase 2** • Hot runner manufacturing technology to be developed & localized • High gloss large tools like B Pillar outer, tail gate light panel should be localized	T R C Light-weighting to increase the plastics content in a vehicle
Press (Stamping) Tools & Dies	Technology & Capability; Supply Chain; Economies of Scale; Govt. Policy & Tariffs	**Phase 1** • Sheet Metal Press Tools for all mounting brackets and select Inner structural members, C Pillar, Rear Back Panel **Phase 2** • Sheet Metal Press Tools for parts like Floor members, rear cross-members, bonnet, tail gate, roof, sunroof frame, A & B Pillar, Dashboard Inner, front cross member and other high strength tools • Initiate localization of skin panels	T R C Emerging trends (EV, Additive Manufacturing) do not pose any threat to sheet metal components
Accessories & Components of Tools & Dies (valves, taps, cocks, etc.)	Technology & Capability; Supply Chain; Economies of Scale; Govt. Policy & Tariffs		
Jigs & Fixtures	Technology & Capability; Supply Chain; Economies of Scale; Govt. Policy & Tariffs	**Phase 1** • Fixtures for Machining – Boring, Drilling, Turning, Milling **Phase 2** • Fixtures for Assembly & Checking	T R C In the long term, EV and Additive Mfg. could pose a risk.

Ready; Can reach there; Infeasible

T R C

Highly Favourable; Moderately favourable; Not favourable

T : Technology, R : Regulatory, C : Customer / Consumer

Tools, Dies & Moulds : Localization Targets
By Key Component Categories

Component Category	Key Components with Localization Potential	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact
Tools for Plastics & Rubber Components	Plastic Injection Moulds for parts like Bumpers & Dashboard panels, door trims, floor consoles, garnish cowls, etc., Moulds for Lighting systems Multi-material/multi-colour (2K) large size tools Lighting Tools (Head lamp and Tail lamp), high gloss large tools	PV (Mass)	772	10 ~ 15%	30-35%	232 - 270 Cr.
		PV (Low Volume)	31	-	-	-
		PV (Niche)	-			-
		PV/CV	73	-	-	-
		CV	-			-
		2W/3W	37	-	-	-
		Suppliers	1,468	10 ~ 15%	30-35%	440 - 514 Cr.
Press (Stamping) Tools & Dies	Sheet Metal Press Tools for all mounting brackets and select Inner structural members, Floor members, rear cross-members, bonnet, tail gate, roof, sunroof frame, A & B Pillar, Dashboard Inner, front cross member and other high strength tools Skin Panels	PV (Mass)	1,160	5-10%	20-25%	232 - 290 Cr.
		PV (Low Volume)	15	-	-	
		PV (Niche)	1	-	-	
		PV/CV	95	-	-	
		CV	69	-	-	
		2W/3W	28	-	-	
		Suppliers	442	15-20%	20-25%	88 - 111 Cr.
Jigs & Fixtures	Fixtures for Machining – Boring, Drilling, Turning, Milling, Assembly & Inspection Fixtures for assembly & checking	PV (Mass)	684	5–10%	25-30%	171 - 205 Cr.
		PV (Low Volume)	1			
		PV (Niche)	2			
		PV/CV	4			
		CV	17			
		2W/3W	176	5–10%	25-30%	44 - 53 Cr.
		Suppliers	470	5–10%	25-30%	118 - 141 Cr.
Other Components		Others	2,241		2-3%	53 – 63 Cr.

Tools, Dies & Moulds : Localization Targets
Overall

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Tools, Dies and Moulds	PV (Mass)	3,184	5-10%	21-25%	654 – 789
	PV (Low Volume)	62	-	-	-
	PV (Niche)	9	-	-	-
	PV/CV	175	-	-	-
	CV	136	-	-	-
	2W/3W	276	3-7%	17-21%	48 – 58
	Suppliers	3,943	6-9%	17-20%	676 - 800
Total		**7,785***	**6-9%**	**18-21%**	**1,378 – 1,647**

Category	Sub Category	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Tools, Dies and Moulds	Tools for Plastic & Rubber Components	2,380	9-14%	28-33%	672 – 784
	Press (Stamping) Tools & Dies	1,810	7-11%	18-22%	320 – 401
	Jigs & Fixtures	1,354	5-10%	25-29%	333 – 399
	Others	2,241	-	2-3%	53 - 63
Total		**7,785***	**6-9%**	**18-21%**	**1,378 – 1,647**

*** Import value for Aftermarket has been excluded**

Tools, Dies & Moulds : Localization Roadmap

Components for localization

Injection Moulds for bumpers, dashboard panels, door trims, floor consoles, garnish cowls, lighting tools, 2 material/color (2K) large size tools also be localized - air deflector, end plates etc. C Pillar, Rear Back Panel and Plenum Panel, Sheet Metal Press Tools for all mounting brackets and select Inner structural members, Fixtures for Machining – Boring, Drilling, Turning, Milling

Hot runner & skin panel manufacturing, high gloss large tools like B Pillar outer, tail gate light panel, Sheet metal press tools for parts like floor members and rear cross member, tools for Bonner Inner, tail gate inner and Sun Roof frame; Tools for hot forming like B Pillar, Tunnel, Dash board inner, front cross member etc. and high strength tools, fixtures for assembly & checking tools

Localization Catalyst

Phase 1: 0-2 Years

- Incentivise Indian manufacturers for collaboration with global tool makers to facilitate technology transfer & further investments for R&D in tool & die making
- OEMs to empanel a group of Tooling suppliers for local sourcing across different commodity categories
- Standards for casting quality to be set by the government based on international standards
- Develop a strong ecosystem for Indian Tool Manufacturers by investing into dedicated R&D facilities and Training Institutes specific to Tool/ Die/ Mould Design and Manufacturing & create capacity for future requirements-can also explore a consortium with global tool makers
- Technical support from OEMs to Tool makers during the tooling development process (especially technical specifications, design feasibility & process engineering)
- R&D focus towards development of tools for HSS & Hot stamping, graining technology, etc. to achieve capability & product homogeneity
- OEMs to provide better visibility over long term to enable tooling suppliers to plan better & invest in capacities to meet the requirements
- Build expertise in simulation & ensure availability of skilled /expert toolmakers during part trials, knowledge transfer etc
- SIAM, ACMA & TAGMA should collaborate through a joint task force to enable faster localization of Tooling
- Strengthen the ecosystem for Tool makers by providing interest subsidies, ease of financing, concessions on infrastructure, utilities, etc. to local tool makers
- TAGMA to discuss with MSMEs & facilitate in creating tooling manufacturing clusters
- Industry specific tooling SEZ/ clusters for specific high value tooling (e.g. Class A sheet metal panels etc.)

Phase 2: 2-5 Years

- Reduce duties on Raw Materials (tool steel, etc.) and tooling machinery to make Indian toolmakers globally cost competitive & eventually levy higher duties on import of finished tools
- Govt Aid/ incentivisation for self-reliance in new & emerging advanced materials
- Develop self-reliance on Advanced Materials & Rare earths
- Laser graining facility for small, medium and large tools to be established
- Hot runner & skin panel manufacturing technology & capability to be established gradually

FY19~20 Base — **9%** — **21%**

Government led initiatives

Industry led initiatives

Initiatives to be executed parallelly

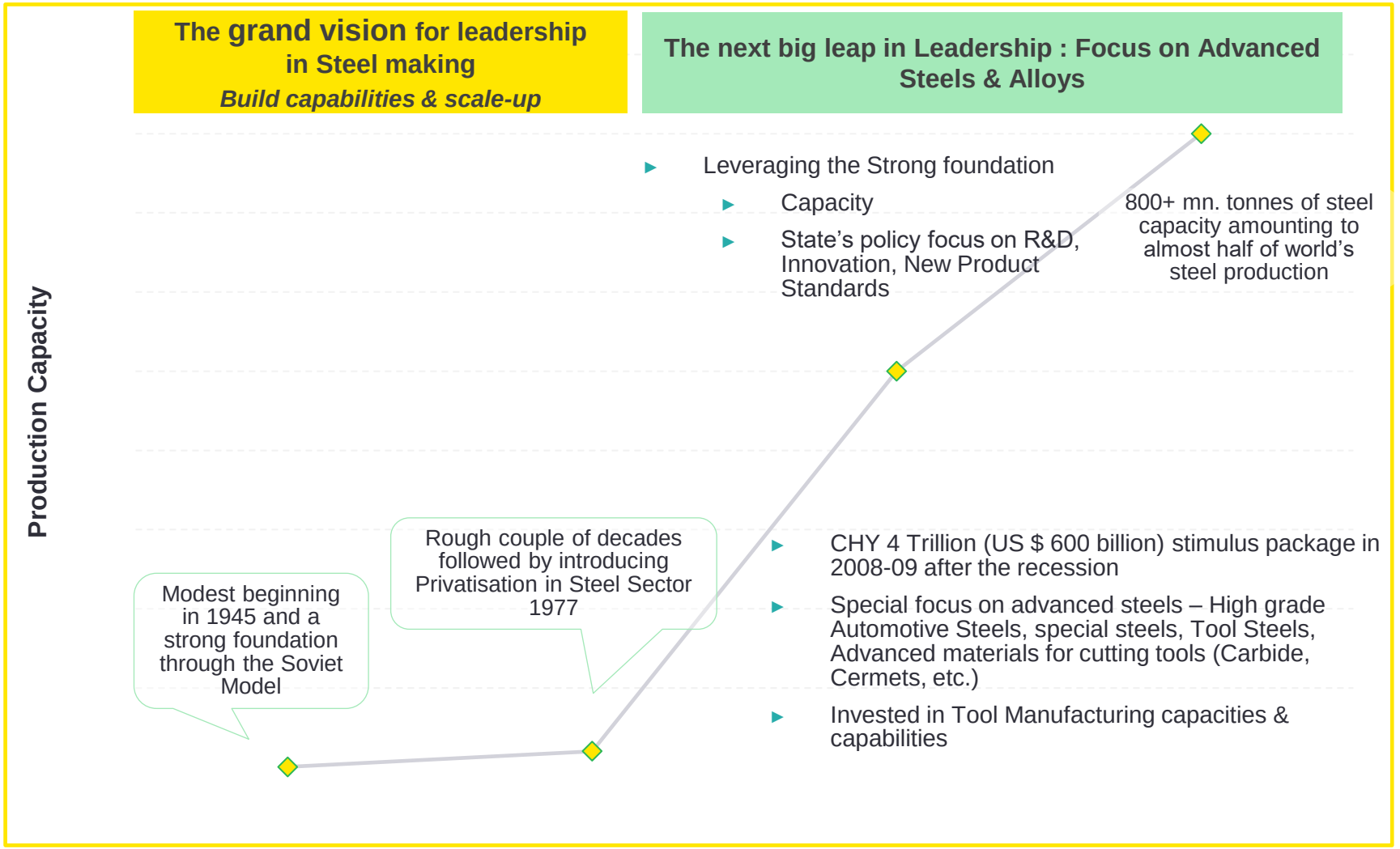
Initiatives to be executed sequentially

Expected Localization %

Tools, Dies & Moulds : Case Study
China's story of self reliance

Enablers

- **Massive governmental aids** after the 2008-09 recession in China
- East Coast provinces developed as **Tooling Clusters,** accounting to almost 70%+ of China's Production
- **Low cost & availability** of raw materials for tooling
- China has **control over the raw material supplies** of rare earths for tool materials as well as coating materials
- "**Made in China 2025**" focusing on self-reliance on new & emerging advanced materials as well.



Categories Identification

8 6-Digit HS Code details for Tools, Dies & Moulds

HS Code 6 Digit	HS Code 8 digit	Description	ACMA Description
820720	82072000	DIES FOR DRAWNG OR EXTRUDNG METAL	
820730	82073000	TOOLS FOR PRESING STAMPING OR PUNCHING	
846630	84663020	JIGS AND FIXTURES FR MACHINE-TOOLS	
848041	84804100	INJCTN/CMPRSN TYPE MOULDS FR MTL/MTL CRBD	
848049	84804900	OTHR MOULDS FR METAL/METAL CARBIDES	
848071	84807100	INJCTN/CMPRSN TYPE MOULDS FR RUBBR/PLSTCS	
848079	84807900	OTHR MOULDS FOR RUBBER/PLASTICS	
848180	84818090	OTHERS	

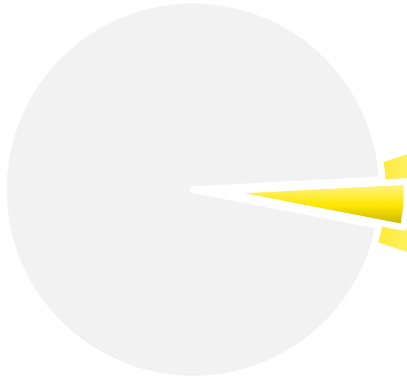
Body Chassis

Body Chassis : Category Snapshot FY19-20

Key Takeaways

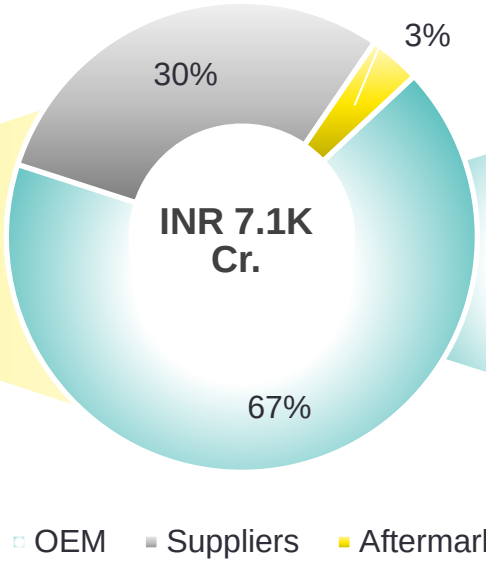
INR 1.83 Lakh Cr.

Total Automotive Imports (FY20)



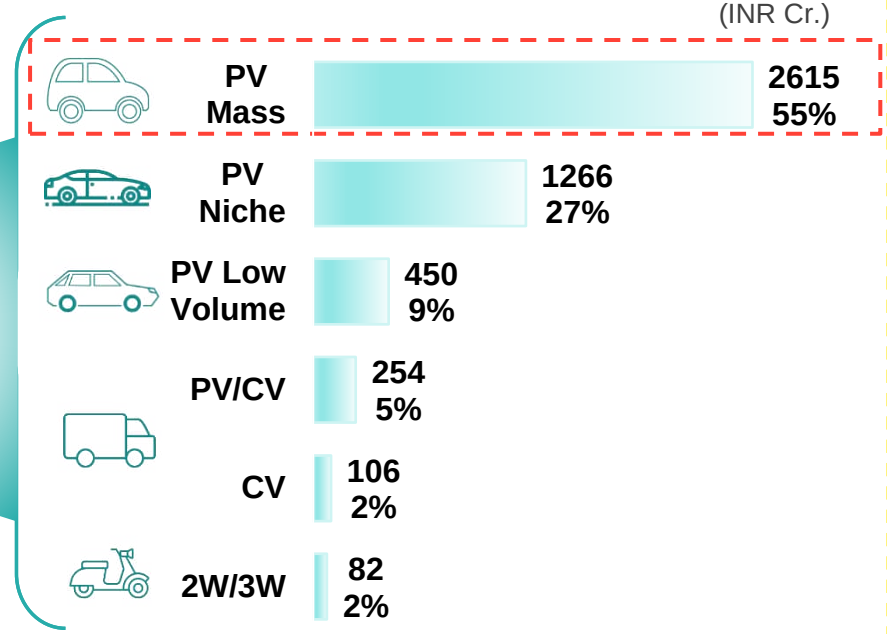
INR 7.1K Cr

Total Automotive Imports (FY20)



Imports by Vehicle Category

(INR Cr.)



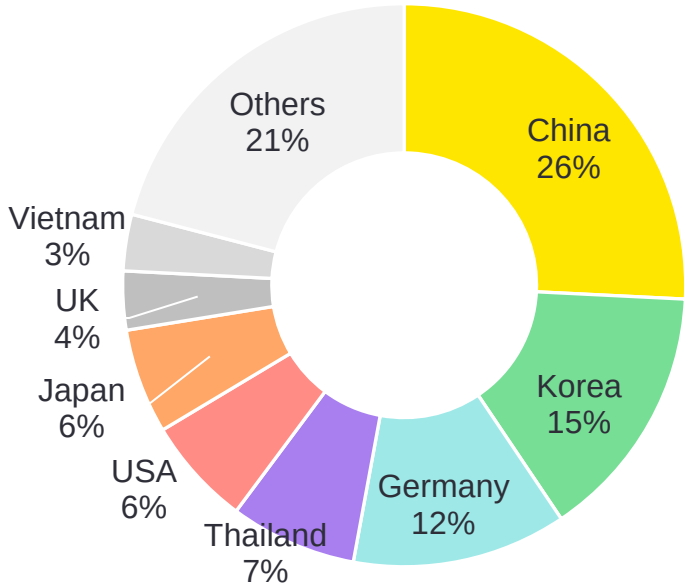
OEM's contribute (67%) to substantial imports of Body Chassis Components

Among the OEMs, PV Mass alone contribute to 55% of the total imports.

15 6-digit HS codes were considered for analysis of Body Chassis category

Body Chassis : Category Snapshot FY19-20
Key Takeaways

Import by Country of Origin



Components of Import

(INR Cr.)

BiW and Sub Assy	**4,876**	68%
Packaging material	**1,560**	22%
Others	**410**	6%
BiW Fittings	**288**	4%

Import by Country of Origin : Top 3 Countries

China	Korea	Germ.
25%	22%	20%

China	Japan	Vietnam
26%	9%	7%

China	Korea	Germ.
29%	19%	10%

Korea	China	Germ.
28%	22%	14%

China, Korea and Germany are the key importers in this category contributing 53% share of imports into India

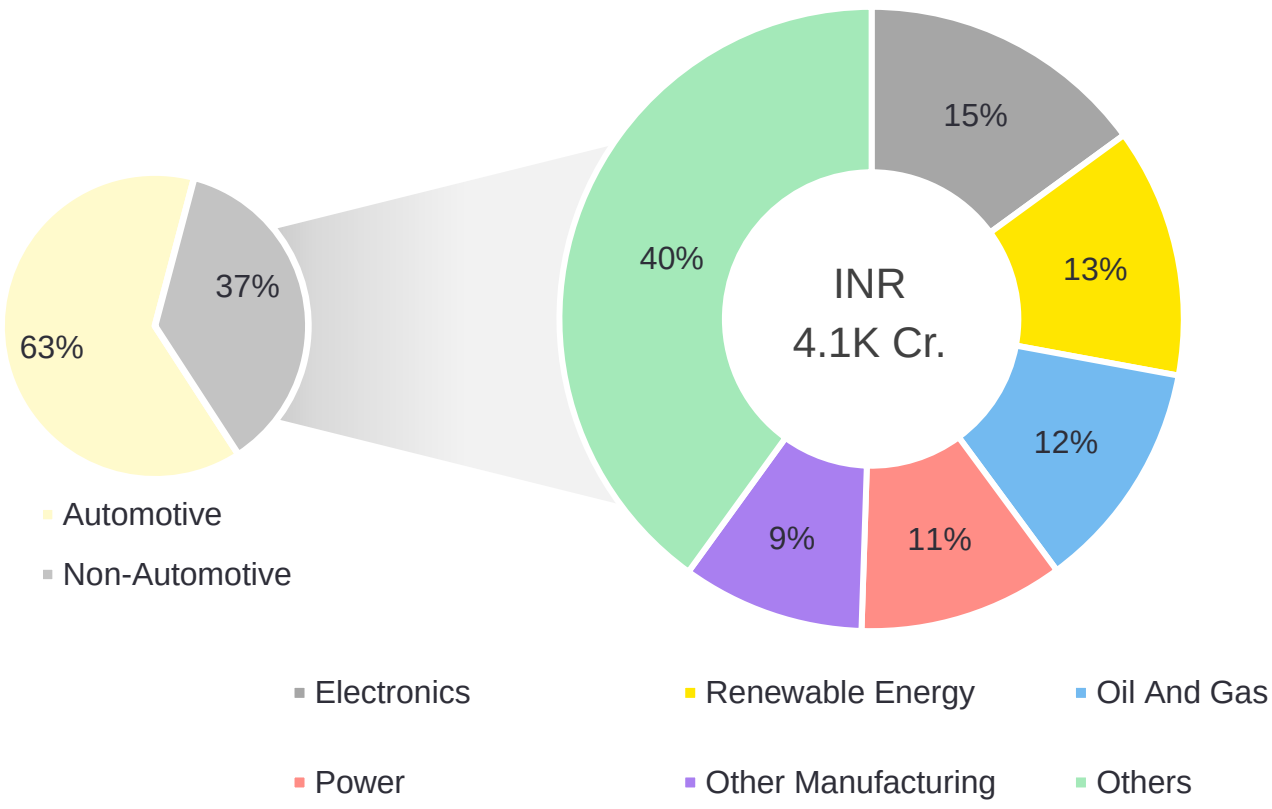
BiW and Sub Assy account for more than 68% of the total Body Chassis Imports

Body Chassis : Category Snapshot FY19-20

Key Takeaways : Non-Automotive (Adjacent) sectors

INR 11.2K Cr.

Total value of Body Chassis imports in FY20



Key Insights

- Top 5 sectors contribute ~60% to the total import value of non-automotive segment in FY20
- Electronics holds the first spot in terms of contribution to import value at 15%

Top 5 Sectors	Value (INR Cr.)
Electronics	**619**
Renewable Energy	**535**
Oil And Gas	**496**
Power	**439**
Other Manufacturing	**391**

Body Chassis : Reasons for Import

Key Reasons for Import

Localization Targets

Key Components	Key Countries of Import	Technology & Capability	Supply Chain	Economies of Scale	Govt. Policy & Tariffs	Key Import Reasons
BiW & Sub-Assy.	China, Korea, Germany					• Unavailability of Advanced materials and lack of capability on advanced processes, especially for Premium vehicles • Low volumes and therefore, lack of economies of scale, esp. for components like door locks, mounting brackets, etc.

No. of yellow bars indicates severity of that reason for import

Body Chassis : Localization Targets
By Key Component Categories

Component Category	Key Components with Localization Potential	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact
BiW & Sub Assemblies	BIW Parts & Sub Assemblies, Chassis, Sunroof assembly Tubular & fabricated parts, Door Locks, Latches, Tubular & fabricated parts	PV (Mass)	1,639	5-10%	25-30%	410 - 492 Cr.
		PV (Low Volume)	403	-	-	-
		PV (Niche)	1,207	-	-	-
		PV/CV	217	-	-	-
		CV	73	-	-	-
		2W/3W	35	-	-	-
		Suppliers	865	5-10%	25-30%	216 - 260 Cr.
Other Components		Others	2,443	1-2%	5–6%	116 - 139

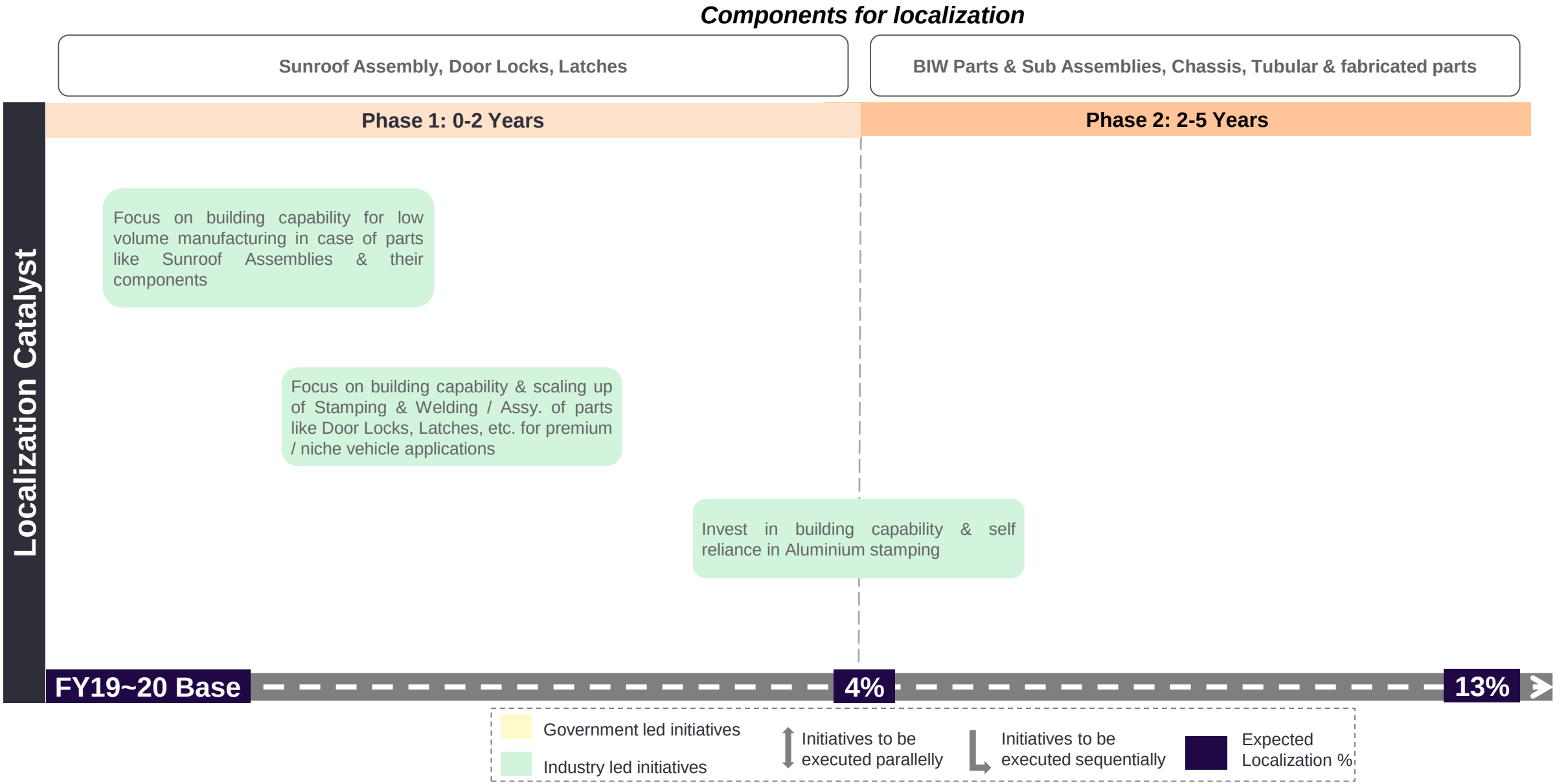
Body Chassis : Localization Targets
Overall

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Body / Chassis / BiW	**PV (Mass)**	2,615	3-7%	17-21%	454 – 545
	PV (Low Volume)	450	-	-	-
	PV (Niche)	1,266	-	-	-
	PV/CV	254	-	-	-
	CV	106	-	-	-
	2W/3W	82	-	-	-
	Suppliers	2,109	3-5%	14-16%	288 – 345
Total		**6,882***	**2-4%**	**11-13%**	**742 – 890**

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Body / Chassis / BiW	**BIW & Sub-Assemblies**	4,439	3-6%	14-17%	626 – 751
	Others	2,443	1-2%	5–6%	116 - 139
Total		**6,882***	**2-4%**	**11-13%**	**742 – 890**

*** Import value for Aftermarket has been excluded**

Body, Chassis, BiW : Localization Roadmap



Categories Identification

15 6-digit HS Code details for Body/Chassis

HS Code 6 Digit	HS Code 8 digit	Description	ACMA Description
730721	73072100	FLANGES OF STAINLESS STEEL	Body / Chassis / BiW
731511	73151100	ROLLER CHAIN	Body / Chassis / BiW
732619	73261990	OTHERS OF OTHER ARTICLES OF FORGED OR STAMPED BUT NOT FURTHER WORKED	Body / Chassis / BiW
732690	73269099	ALL OTHER ARTICLES OF IRON/STEEL NES OTHER STEERING OR RUDDER EQUIPMENT FOR SHIPS AND BOATS, N.E.S.	Body / Chassis / BiW
830120	83012000	LOCKS OF A KIND USED FOR MOTOR VEHICLS	Body / Chassis / BiW
830230	83023010	CURVE DRIVE STAKES	Body / Chassis / BiW
830230	83023090	OTHERS	Body / Chassis / BiW
870600	87060011	FOR THE TRACTORS OF HEADING 8701: OF ENGINE CAPACITY NOT EXCEEDING 1800 CC	Body / Chassis / BiW
870600	87060019	FOR THE TRACTORS OF HEADING 8701: OTHER	Body / Chassis / BiW
870600	87060021	FOR THE VEHICLES OF HEADING 8702: FOR TRANSPORT OF NOT MORE THAN THIRTEEN PERSONS, INCLUDING THE DRIVER	Body / Chassis / BiW
870600	87060029	CHASSIS FR VHCLS HDNG 8702 (>13 PERSONS)	Body / Chassis / BiW
870600	87060031	CHASSIS FITTED WITH ENGINES, FOR THE MOTOR VEHICLES OF HEADINGS 8701 TO 8705 - FOR THREE WHEELED VEHICLES	Body / Chassis / BiW
870600	87060039	FOR THE MOTOR VEHICLES OF HEADING 8703: OTHER	Body / Chassis / BiW
870600	87060041	FOR THE MOTOR VEHICLES OF HEADING 8704: FOR THREE-WHEELED MOTOR VEHICLE	Body / Chassis / BiW
870600	87060042	FOR VEHICLES, OTHER THAN PETROL DRIVEN	Body / Chassis / BiW

HS Code 6 Digit	HS Code 8 digit	Description	ACMA Description
870600	87060043	FOR THE MOTOR VEHICLES OF HEADING 8704: FOR DUMPERS COVERED IN THE HEADING 8704	Body / Chassis / BiW
870600	87060049	FOR THE MOTOR VEHICLES OF HEADING 8704: OTHER	Body / Chassis / BiW
870600	87060050	FOR THE MOTOR VEHICLES OF HEADING 8704: FOR THE MOTOR VEHICLES OF HEADING 8705	Body / Chassis / BiW
870710	87071000	BODIES FOR VEHICLS OF HDG NO 8703	Body / Chassis / BiW
870790	87079000	OTHER BODIES	Body / Chassis / BiW
870810	87081010	BUMPERS ETC FOR TRACTORS	Body / Chassis / BiW
870810	87081090	BUMPERS ETC FOR OTHR VHCLS	Body / Chassis / BiW
870821	87082100	SAFETY SEAT BELTS	Body / Chassis / BiW
870829	87082900	OTHR PRTS AND ACCSSRS OF BODIES(INCL CABS)	Body / Chassis / BiW
871491	87149100	FRAMES,FORKS AND PRTS THEREOF	Body / Chassis / BiW
871492	87149290	OTHERS	Body / Chassis / BiW
871690	87169010	PARTS AND ACCESSORIES OF TRAILERS	Body / Chassis / BiW
871690	87169090	PRTS AND ACSRS OF OTHR VHCL NT MCHNCLY PRPLD	Body / Chassis / BiW

Interiors (non-electronic)

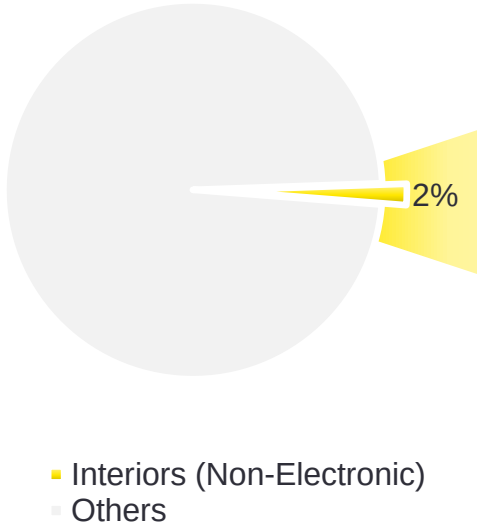
Interiors (Non-electronic) : Category Snapshot FY19-20

Key Takeaways

Category Snapshot

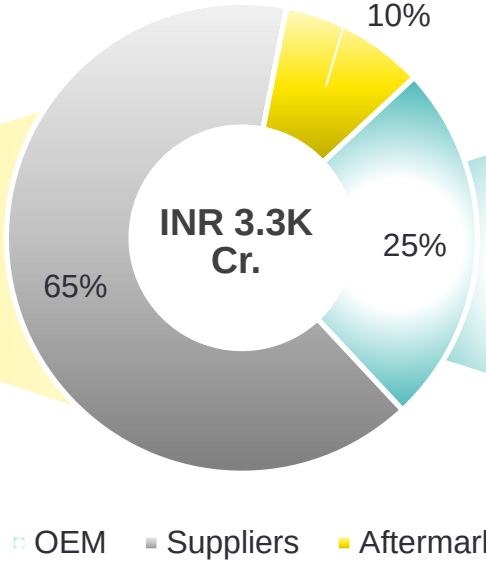
INR 1.83 Lakh Cr.

Total Automotive Imports (FY20)



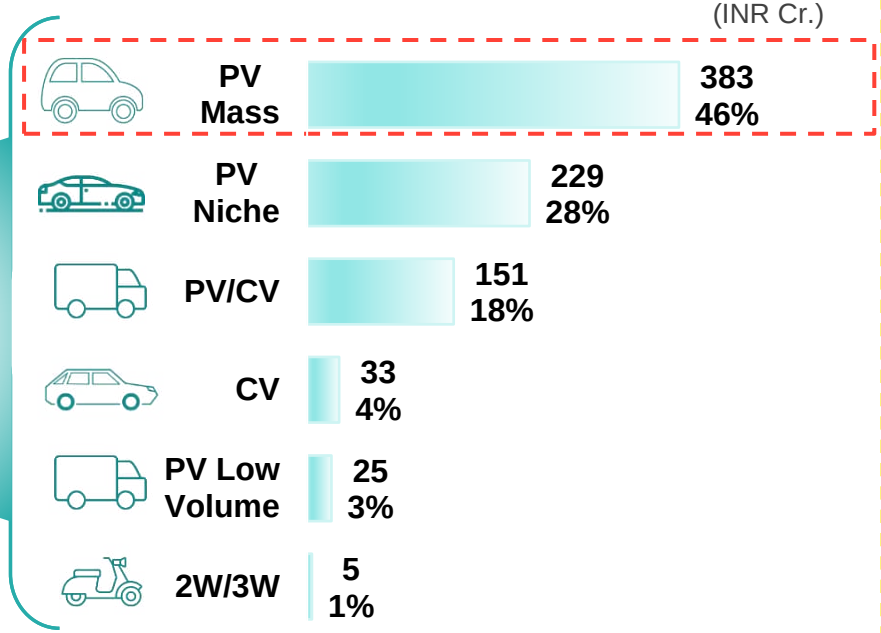
INR 3.3K Cr

Total Automotive Imports (FY20)



Imports by Vehicle Category

(INR Cr.)



Suppliers contribute (65%) to substantial imports of Interiors (Non-Electronic)

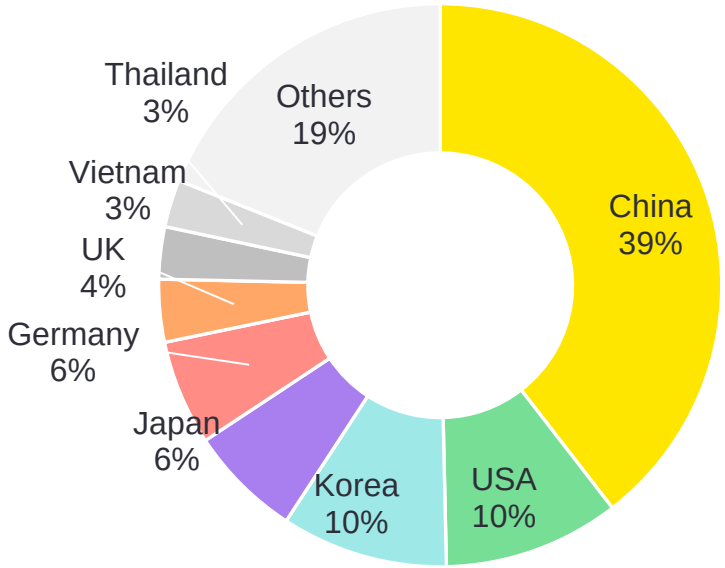
Among the OEMs, PV Mass alone contribute to 46% of the total imports

11 6-digit HS codes were considered for analysis of Non-Electronic category

Interiors (Non-electronic) : Category Snapshot FY19-20

Key Takeaways

Import by Country of Origin



Components of Import

(INR Cr.)

Plastic Parts	**2,131**	65%
Mirror/Glass	**524**	16%
Seating	**394**	12%
Others	**207**	6%

Import by Country of Origin : Top 3 Countries

China	USA	Korea
42%	10%	10%

China	Ger.	USA
37%	15%	13%

UK	China	Thai.
30%	23%	10%

Denm.	Japan	China
27%	21%	16%

China alone contributes a significant share of Interiors (Non-Electronic) imports into India (39%)

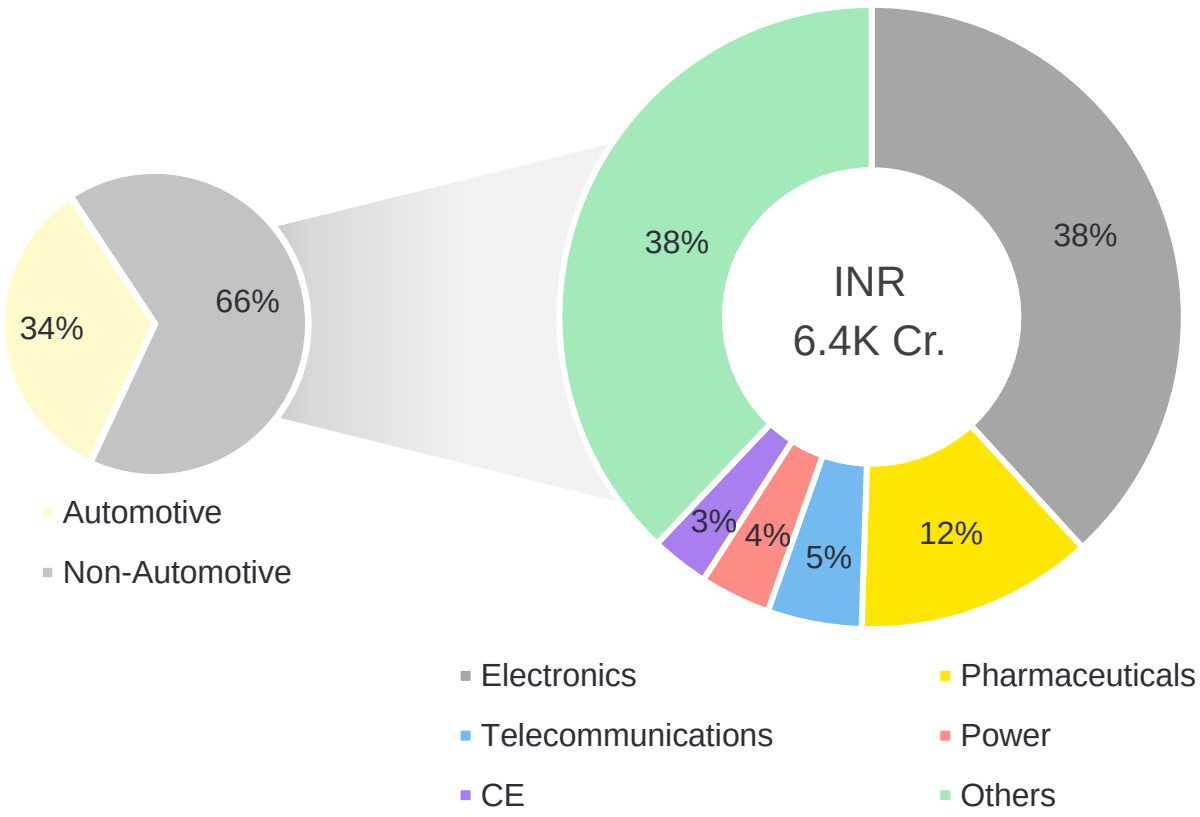
Plastic parts account for 65% of the total Interiors (Non-Electronic) imports

Interiors (Non-electronic) : Category Snapshot FY19-20

Key Takeaways : Non-Automotive (Adjacent) sectors

INR 9.6K Cr.

Total value of Interiors (Non-Electronic) imports in FY20



Key Insights

- Top 5 sectors contribute ~62% to the total import value of non-automotive segment in FY20
- Electronics holds the first spot in terms of contribution to import value at 38%

Top 5 Sectors	Value (INR Cr.)
Electronics	**2442**
Pharmaceuticals	**787**
Telecommunications	**312**
Power	**234**
CE	**219**

Interiors (Non-electronic) : Reasons for Import

Key gaps / barriers / reasons for import

Interiors (non-electronic)	• Lack of manufacturing competence: mainly in plastics, acrylics. • Capacity constraints and quality issues lead to zero or minimum production • Volume constraints and high variance of product types leading to high investments and fast obsolescence of the components • Low cost competitiveness with further threat from imports due to low import restrictions • No compounding resins companies in India

Interiors (Non-electronic) : Localization Targets
By Key Component Categories

Component Category	Key Components with Localization Potential	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact
Plastic Parts	Interior Plastic components, Raw Material for Plastics	PV (Mass)	183	-	-	-
		PV (Low Volume)	8	-	-	-
		PV (Niche)	11	-	-	-
		PV/CV	2	-	-	-
		CV	20	-	-	-
		2W/3W	2	-	-	-
		Suppliers	1,735	5-10%	20-25%	347 - 434 Cr.
Other Components		Others	979	1-3%	6-7%	59 - 73

Interiors (Non-electronic) : Localization Targets
Overall

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Interiors (non-electronic)	PV (Mass)	383	-	-	-
	PV (Low Volume)	25	-	-	-
	PV (Niche)	229	-	-	-
	PV/CV	151	-	-	-
	CV	33	-	-	-
	2W/3W	6	-	-	-
	Suppliers	2,114	5-10%	19-24%	406 – 507
Total		**2,940***	**3-7%**	**14-17%**	**406 – 507**

Category	Sub Category	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Interiors (non-electronic)	Plastic Parts	1,961	4-9%	18-22%	347 – 434
	Others	979	1-3%	6-7%	59 - 73
Total		**2,940***	**3-7%**	**14-17%**	**406 – 507**

*** Import value for Aftermarket has been excluded**

Interiors (Non-electronic) : Localization Roadmap

Components for localization

Interior Plastic components	Raw Material for Plastics

Localization Catalyst

Phase 1: 0-2 Years

PLI - PMP integration required and a focus on net exports, rather than just reducing volume of imports.

Recalibration of the duty structure for top category components that can be easily localized to create cost competitiveness

As the concept of Light-weighting is increasing across vehicle segment, the usage of plastics is also increasing consequently. Plastic manufacturers (polypropylene, polyurethane and PVC) to be provided incentives to enhance the local production

Alliances with global partners for localization and technology transfer support

Demand aggregation & product standardization at the ends of the OEMs to enable MOQ to attain economies of scale for production

Focus on leveraging the existing competitive advantage of domestic markets (eg 2W market)

Set up R&D centres & testing facilities to ensure technology upgradation & shorter turn around time for the components

Phase 2: 2-5 Years

Localization of raw materials such as compounding resins to meet the component production requirement

FY19~20 Base — **7%** — **17%**

Government led initiatives

Industry led initiatives

Initiatives to be executed parallelly

Initiatives to be executed sequentially

Expected Localization %

Categories Identification

11 6-digit HS Code details for Interiors (non-electronic)

HS Code 6 Digit	HS Code 8 digit	Description	ACMA Description
391910	39191000	SELF-ADHSV PLTS ETC IN RLS,WDTH < = 20CM	
391990	39199090	OTHER SELF-ADHSV PLTS ETC NES	
392690	39269099	OTHR ARTICLE OF PLASTIC NES	
700711	70071100	TOUGHENED(TEMPERED)SAFETY GLASS OF SIZE AND SHAPE SUITABLE FOR INCORPORATION IN VEHICLES AIRCRAFT,SPACECRAFT OR VESS	Interiors (non-electronic)
700721	70072110	BULLET PROOF GLASS	Interiors (non-electronic)
700729	70072900	OTHER LAMINATED SAFETY GLASS	Interiors (non-electronic)
700910	70091010	PRSMTIC REAR VEW MIROR FOR VEHICLE	Interiors (non-electronic)
700910	70091090	OTHR REAR VEW MIROR FOR VEHCLE	Interiors (non-electronic)
700992	70099200	OTHR GLASS MIRRORS, FRAMED	Interiors (non-electronic)

HS Code 6 Digit	HS Code 8 digit	Description	ACMA Description
721250	72125090	FLAT, ROLLED, PRODUCTS	Interiors (non-electronic)
902920	90292010	TACHOMETERS,NON-ELECTRICAL	Interiors (non-electronic)
902920	90292020	SPEEDOMETERS,NON-ELECTRICAL(EXCL AIR/SEA)	Interiors (non-electronic)
940120	94012000	SEATS OF A KIND USED FOR MOTOR VEHICLES	Interiors (non-electronic)

Fasteners

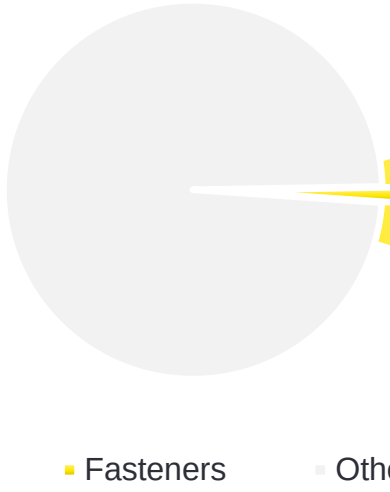
(Nuts, Bolts, Washers & Rivets)

Fasteners : Category Snapshot FY19-20

Key Takeaways

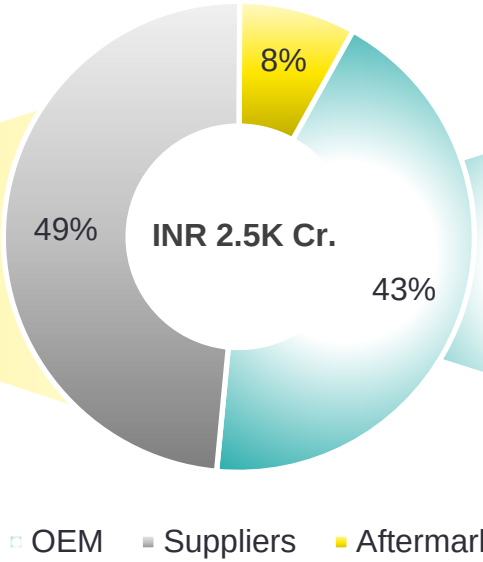
INR 1.83 Lakh Cr.

Total Automotive Imports (FY20)



INR 2.5K Cr

Total Automotive Imports (FY20)



Imports by Vehicle Category

(INR Cr.)

PV Mass	911	84%
CV	69	6%
PV Low Volume	36	3%
2W/3W	31	3%
PV Niche	23	2%
PV/CV	19	2%

Suppliers (49%) contribute to substantial imports of Fasteners

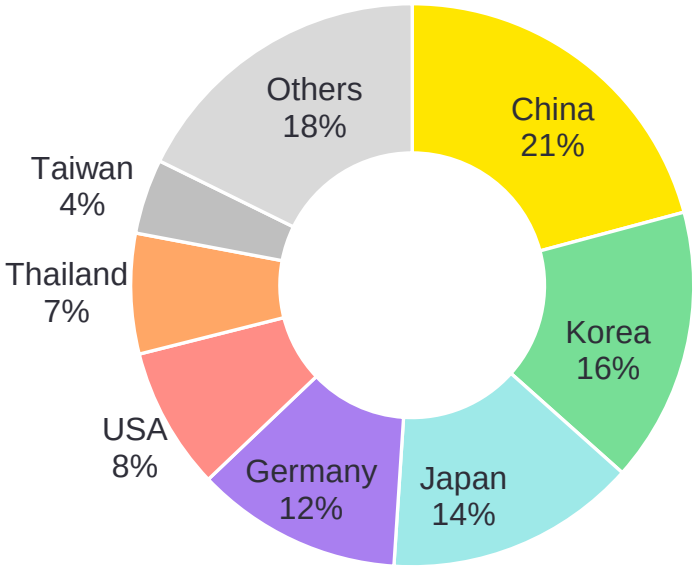
Among the OEMs, PV Mass alone contribute to 84% of the total imports.

Bolts for engine components like cylinder head bearing cap crank pulley connecting rod are being imported from Thailand and Japan
Import of Fasteners has been primarily on account of low value addition and high testing & lead cycle time

4 6-digit HS codes were considered for analysis of Fasteners category

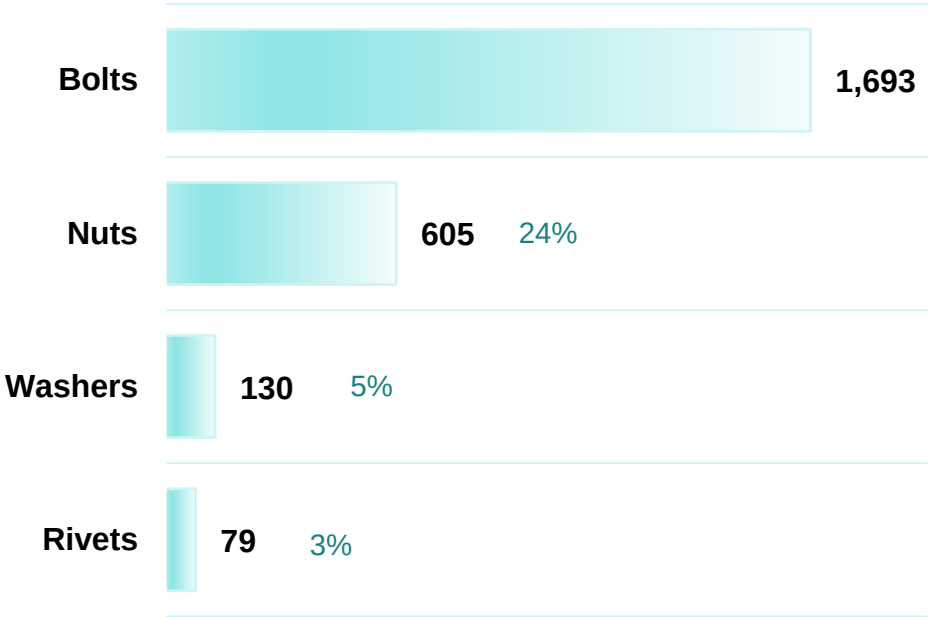
Fasteners : Category Snapshot FY19-20
Key Takeaways

Import by Country of Origin



Components of Import

(INR Cr.)



Import by Country of Origin : Top 3 Countries

China	Korea	Japan
20%	15%	14%

China	Korea	Japan
22%	21%	16%

Japan	China	Korea
19%	13%	12%

China	Germ.	Japan
42%	12%	10%

China, Korea & Japan contribute a significant share of the Fasteners imports into India (51%)

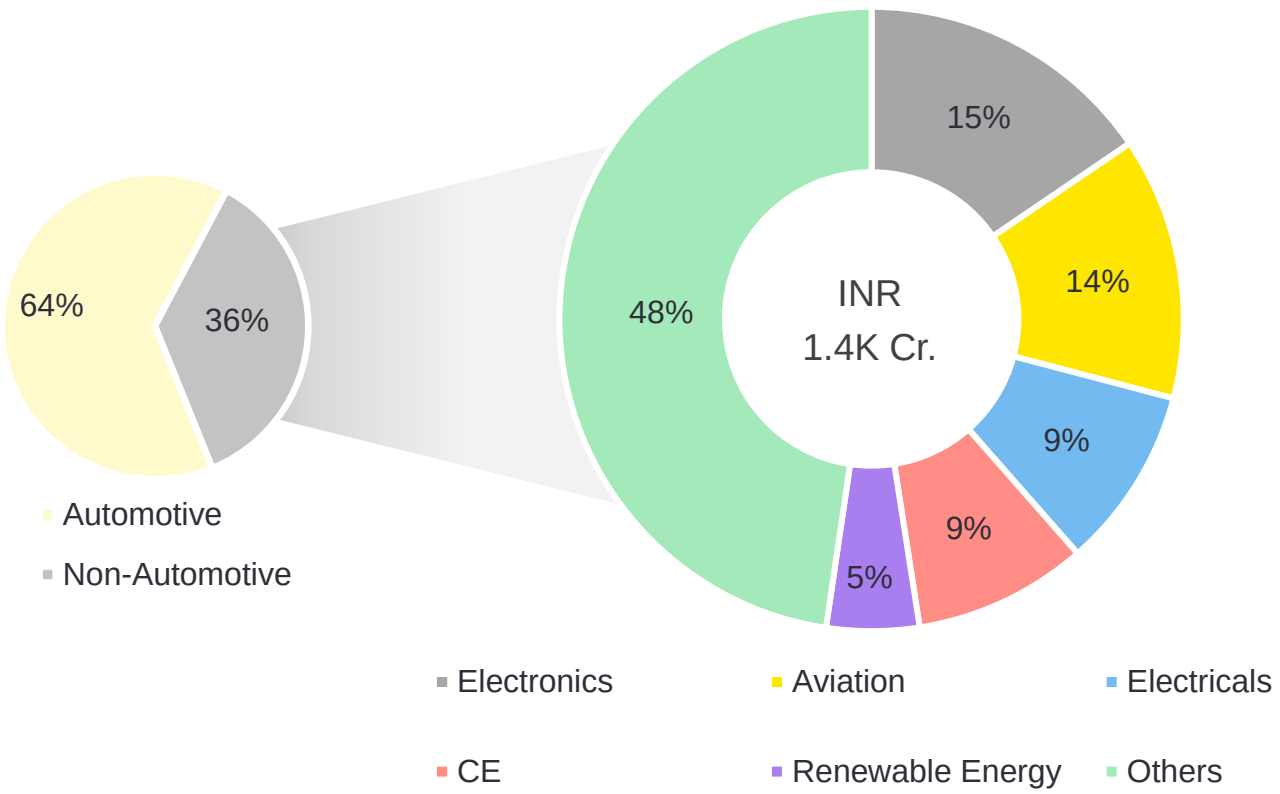
- **Bolts (68%) contribute to maximum imports in the fasteners category followed by Nuts (24%)**
- **Bolts for engine components like cylinder head bearing cap crank pulley connecting rod are being imported from China, Thailand and Japan**

Fasteners : Category Snapshot FY19-20

Key Takeaways : Non-Automotive (Adjacent) sectors

INR 3.9K Cr.

Total value of Fasteners imports in FY20



Key Insights

- Top 5 sectors contribute ~53% to the total import value of non-automotive segment in FY20
- Electronics holds the first spot in terms of contribution to import value at 15%

Top 5 Sectors	Value (INR Cr.)
Electronics	**220**
Aviation	**193**
Electricals	**134**
CE	**128**
Renewable Energy	**82**

Fasteners : Reasons for Import

Key Components	Key Countrie of Import
Bolts	Thailand, Japan
Nuts	Korea , Germany
Washers	Germany, China
Rivets	China

Technology & Capability	Supply Chain	Economies of Scale	Govt. Policy & Tariffs
			

Key Import Reasons

- Due to low value add and High testing & validation lead times, OEMs prefer to import rather than localize
- Due to economies of scale importing of fasteners is proving cost effective for Suppliers and OEMs
- Domestic raw material prices are not globally competitive and thus significantly affect over all cost of local production
- Pre-assembled engines/ kits often come inclusive of fasteners – need for local options don't come into play
- Suppliers face the challenge of IP issues when trying to meet design demands locally
- Bolts for critical application (suspension, engine) OEMs refrain from taking any risk of localization
- 52% of bolts used for critical engine components(head, connecting rod, bearing, etc) are being imported by Japanese OEM's followed by 17% by Korean manufacturer
- Even though supplier has the capability and capacity still OEM's prefer to import majority of the fasteners are used in critical applications of the vehicle
- Nuts for wheel bolt and wheel kit are also being imported from Korea, Germany & USA
- Tier 1 supplier are also importing components like washers (bearing & friction washers)

 No. of yellow bars indicates severity of that reason for import

Fasteners : Assessment of Localization Potential

Key Components	Assessment of Localization Potential	Recommendations (Phase 1 : 0 to 2 yrs., Phase 2 : 2-5 yrs)	Supporting Factors
Bolts Nuts Washers Rivets	Technology & Capability Supply Chain Economies of Scale Govt. Policy & Tariffs	• Phase 1 : All the fasteners for future models to be localized even if the engine is imported • Non-safety critical parts can be localized to begin with • Phase 2 : All the existing models fasteners to be locally sourced – particularly engine and transmission related fasteners While localization is initiated in Phase-1, the reduction in import will happen only beyond 2 year time frame considering the long testing & validation lead time	T R C

Ready Can reach there Infeasible

T R C

Highly Favourable Moderately favourable Not favourable

T : Technology, R : Regulatory, C : Customer / Consumer

Fasteners : Localization Targets
By Key Component Categories

Component Category	Key Components with Localization Potential	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target localization 2-5 years	Net Impact
Bolts	• Suspension Bolts • Engine Bolts • Engine Accessories Bolts	PV (Mass)	695	-	25-30%	174 - 209 Cr.
		PV (Low Volume)	30	-	-	-
		PV (Niche)	18	-	-	-
		PV/CV	11	-	-	-
		CV	44	-	-	-
		2W/3W	23	-	-	-
		Suppliers	717	-	25-30%	179 - 215 Cr.
Nuts	Wheel Nuts	PV (Mass)	183	-	25-30%	46 - 55 Cr.
		PV (Low Volume)	5	-	-	-
		PV (Niche)	3	-	-	-
		PV/CV	3	-	-	-
		CV	12	-	-	-
		2W/3W	3	-	-	-
		Suppliers	332	-	25-30%	83 - 100 Cr.
Other Components		Others	225	-	-	-

The Import of Fasteners is directly linked to import of Engines, as OEMs prefer importing the bolts from the same source

Even a basic components like wheel nut are being imported by mass vehicle manufacture (32% Japanese mfg) and 32% by Korean

Introduction of Phased Localization Plan by Government for fasteners enabling OEMs and Suppliers to import then if required initially but localize gradually

Predominantly nuts are being sourced from Korea, USA & Germany washers are being procured by suppliers

Fasteners : Localization Targets
Overall

Category	Segment	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Fasteners	PV (Mass)	911	-	24-29%	220 – 264
	PV (Low Volume)	36	-	-	-
	PV (Niche)	23	-	-	-
	PV/CV	19	-	-	-
	CV	69	-	-	-
	2W/3W	31	-	-	-
	Suppliers	1,215	-	22-26%	263 - 316
Total		**2,304***	**-**	**21-25%**	**484 – 580**

Category	Sub Category	FY 20 Import Value (INR Cr.)	Target Localization 0-2 years	Target Localization 2-5 years	Net Impact (INR Cr.)
Fasteners	Bolts	1,538	-	23-28%	353 – 424
	Nuts	541	-	24-29%	129 – 155
	Others	225	-	-	-
Total		**2,304***	**-**	**21-25%**	**484 – 580**

*** Import value for Aftermarket has been excluded**

Fasteners : Localization Roadmap

Components for localization

All Fasteners for new models, Non-Safety critical fasteners	Fasteners for all the running models of engine & transmissions, wheel nuts

Localization Catalyst

Phase 1: 0-2 Years	Phase 2: 2-5 Years
Min quality standard creation by government to localize safety critical fasteners, making them competitive for global markets as well	Localization for all the existing model fasteners, particularly engine and transmission related fasteners and wheel nuts
All fasteners to be localized even in cases where the engines are imported, especially, with priority to non-safety critical parts	
Demand aggregation at the ends of the OEMs to enable MOQ to attain economies of scale for production across categories	

FY19~20 Base — **0%** — **25%**

Government led initiatives

Industry led initiatives

Initiatives to be executed parallelly

Initiatives to be executed sequentially

Expected Localization %

Categories Identification

4 6-digit HS Code details for Fasteners

HS Code 6 Digit	HS Code 8 digit	Description	ACMA Description
731815	73181500	OTHR SCREWS AND BOLTS W/N WTH NUTS OR WASHERS THREADED	Consumables & Misc.
731816	73181600	THREADED NUTS	
731822	73182200	OTHER WASHERS,NON-THREADED	Consumables & Misc.
731823	73182300	RIVETS,NON-THREADED	Consumables & Misc.

Country Benchmarking

Global Benchmarking of Growth enablers
Executive Summary

Country	Government/Regulatory Stimuli	Attractiveness for Auto Manufacturing	Future of Automotive
 **Thailand**	► BOI promotes SEZs and Clusters ► Up to **13 years Corporate Tax exemption** ► **Import duty exemption** for raw material ► **Land ownership rights** to foreigners ► **Eastern Economic Corridor** for manufacturing infrastructure	► Automotive R&D : **8 years' Corporate Income Tax (CIT) exemption** ► Rubber tyres for vehicles: **5 years' CIT exemption** ► Engine Assembly: **3 years' CIT exemption** ► **Import duty exemption** ► **BOI Unit for Industrial Linkage Development (BUILD)** to connect manufacturers with parts and component suppliers	► **1.2m EVs** and **690 charging stations** by **2036** ► **10 EV components eligible for 8-year CIT holidays** ► **90% reduction in import duties** for 2 years for battery raw materials ► **Only 2% Excise tax** for full EVs production ► **3-year corporate tax holiday for PHEV projects** worth **at least 5 billion baht**

 **Indonesia**	► **Tax Holiday:** Up to 100% CIT exemption
	► **Import duty and VAT exemption**
	► **IDR22.9 trillion Covid Stimulus Package**: Import tax exemption; **30% corporate tax discount** for **6 months**
	► **Simplified licensing: One-stop Service-centre**
	  ► **Business permit within 3 hours** for firms **investing IDR100b+**
	► **SNI (Indonesian National Standard) Certification:** Mandatory certification for products sold in Indonesian market
	  ► **Auto components** SNI certification scope covers tyres, safety glass, helmets, wheels, batteries, mirrors, brake pads, lubricants
		► **Making Indonesia 4.0**: Priority: Automotive
		► **IDR10b guaranteed working capital loan to** corporates in **automotive industry**
		► **Tax holiday & allowance** for Steel, Plastic, Synthetic, Rubber, Crude oil and metal
		► **Super-deduction tax** for **domestic R&D activities**
		► **Sales tax discount** up to 5% on **domestically produced vehicles**
		► **Compulsory 85% Indonesian parts** for LCGC. Up to 300% **Deductible tax incentives for R&D**
		► **Simplified administrative rules** for **CBU car exports**
			► **EV production** to begin by **2022**; **export 200,000 electric cars by 2025**; **install 180 charging stations** nationwide
			► **40% Indonesian parts for 2W EVs & 35% for 4W EVs compulsory**
			► **Export of nickel ore banned** for local production of **EV batteries**

Global Benchmarking of Growth enablers
Executive Summary

Country	Government/Regulatory Stimuli	Attractiveness for Auto Manufacturing	Future of Automotive

 **Germany**	► Up to **40% Cash incentive** for **production facility set-up costs**
	► **Interest-reduced loans**
	  ► **National Public Loans: up to 100% of eligible costs (max €25m)**
	  ► **Federal State Public Loans: up to €10m to SMEs**
	► **Public guarantees up to 80% of loan amount (max €1.25m)**
	► **Up to 100% subsidy on training**
	► Grant of up to **70% of the employee's salary** for up to 8 years
		► **~€5 billion annual grants for R&D projects (up to 50%)**
		► **€77 billion+ EU grants** covering **100% R&D project expenditure**s plus a 25% flat rate for indirect project cost
		► **Up to €500,000 R&D Tax Credit**
			► **~€250m annual government support** for EV R&D
			► **€2.2b subsidies** for EVs; **€2b R&D aid** to EV suppliers
			► **€2.5b** to be spent on **battery cell production**
			► **10 million EVs and 1 million charging stations** by **2030**
			► **At least 25% fuel stations with fast-charge points** by the end of **2022**, 50% by 2024 and 75% by 2026
			► **€1.2b funds** to bus and truck operators to switch to electric buses & trucks in 2021

 **Taiwan**	► **Government led institutions** like ARTC, ITRI and TARC support industry with changing regulations and landscape ► **Lowest corporate tax of 17% in the region**, lower than the region average of 22% ► **Tax exemption** on all transactions between off-shore suppliers & overseas market	► **~3000 component manufacturers**, including about 300 OEMs ► **Over 80% of Taiwanese auto parts manufacturers export**, with export destinations being US (40%), Japan, China & UK ► **World leader in multiple auto component** segments in the region	► **EV National Promotion Program and Clean Zone Policy** promote EV ► **Smart Electric Vehicle Industry Development Strategy and Action Plan** ► **Multiple OEMs – Honda, Toyota, magna** etc have projects operationalizing in 2021 ► **Tipped as next China in the region**, specially for auto electricals

Global Benchmarking of Growth enablers
Executive Summary

Country	Government/Regulatory Stimuli	Attractiveness for Auto Manufacturing	Future of Automotive
 **China**	► Stimulus package of **US$394 billion** of local government special bonds to boost economy ► Corporate Tax is **25%,** VAT 9%, Sales Tax 5% ► **Reduced tariffs** from 25% to 15% of their wholesale value ► Subsidised imports for technical products and equipment to encourage development ► Relaxed limits on foreign capital shareholding for financial institutions ► Reduction in VAT mfg. companies to 9% or 13%	► **Made in China 2025** is national strategic plan to further develop the manufacturing sector including automotive ► Develop into a more technology-intensive powerhouse driven by domestic content of core materials ► Market of 300+ Auto OEMs + Assemblers contributing to 28% of global vehicle production ► Specific cases of up to 30% investment in new industries in smaller provinces by govt.	► **Automobile Mid and Long-Term Development Plan**", to achieve a high efficiency and low carbon vehicle fleet ► **Dual credit regulatory system** to promote NEV mfg. ► **Min. 30% EV purchase** for all central & local govt fleets ► 1 million New Energy Vehicles (NEV) by 2020 with minimum 70% contribution from domestic players ► Developed ecosystem of NEVs with over 500+ EV OEMs
 **Mexico**	► **IMMEX Decree** to give the holders an opportunity to **import goods exempted of tax and VAT (16%)** ► **Pro-private investment schemes** and increased technology investment ► Strong reputation for protecting intellectual property ► **Refund of import duty paid on definitive imports (12 months)**	► Investments by established automakers and OEMs have attracted strong Tier 1 & Tier 2 supplier bases ► 89 out of 100 global auto part makers setting up factories in the country ► USMCA changed the rules of origin for the automotive sector, min 75% of automotive content must originate from US, Canada or Mexico	► Mexican legislation, federal and local, provides for diverse incentives or supports for the use of EVs ► Mexico's climate legislation targets emissions cuts of 50% by 2050 and 35% renewable energy by 2024 ► **25% deduction in NEV car prices to facilitate purchases** ► **Tax credit of 30%** of the investment made in public power supply facilities for Evs

Global Benchmarking of Growth enablers
Executive Summary

Country	Government/Regulatory Stimuli	Attractiveness for Auto Manufacturing	Future of Automotive
 Vietnam	► For **high-tech industry**, **up to 4-years tax exemption**, 5% tax rate for next 9 years, 10% tax for next 2 years, and 20% after that + additional tax holidays based on negotiations ► **Up to 4 years of tax exemption** and up to 9 years of reduced CIT (5% or 10%) for **businesses set-up in economically disadvantaged locations** ► **Auto registration fee reduced by 50%** for **domestically produced cars** ► **0% import tariff** on **imported component inputs for automotive manufacturing** ► **Up to 10% tax deduction against R&D Fund** ► **320+ industrial and export promoting zones** within **key economic zones: Reduced CIT @10% for up to 15 years**; **5 years tax holiday** for import of raw material for manufacturing; **Exemption from VAT and excise tax** for goods imported, processed or manufactured within the IZs; **Exemption from land rental fees for up to 15 years** ► **12 major Free Trade Agreements – China, Japan, South Korea, ASEAN & EVFTA**	Government is considering favourable policies for the auto manufacturers: ► **Reduction/waiver of consumption tax on domestically made car components** ► **Lower corporate tax for auto industry and its supporting industries** ► **Raise in tax on imported cars** to make them expensive ► **Waiver of land rentals and usage fees, financial aid for technology transfer and access to low-interest loans** ► **Lower loan interest rates for buying domestically produced car**	► **No tariff on EVs imported from ASEAN, South-Korea and China**; imports from **Japan taxed @4%**, from **other countries @70%** ► **Special consumption tax rates 15-70% on EVs shipped to Vietnam; 18-20% import tax on CKD EVs** ► **Tough regulations on EV imports** have led to an **almost complete freeze of EV imports:** all imported car batches need to be inspected upon strict safety and emission standards together with the building of workshops or service centers ► **Government supports hybrid and PHEV buses via grants,** through its low-carbon bus fund for **up to 30% of the cost of the vehicle** ► **EV production complex to be built in Hanoi** ► **Government has proposed reducing the luxury tax on local electric cars to 0% and refund the 10% VAT** for equipment and machines imported to create fixed assets for firms in the supporting industries

Global Benchmarking of Growth enablers
Executive Summary

Country	Government/Regulatory Stimuli	Attractiveness for Auto Manufacturing	Future of Automotive

 India	► **NATRIP** set up at a **~US$573m** to adopt and implement **global performance standards in automotive**
	  ► Up to **200% deduction on R&D expenditure**
	  ► 7 test facilities – iCAT, GARC, NATRAX, ARAI, VRDE, NIAIMT, NCVRS
	► Main area of focus: **low-cost manufacturing and product development**
	► **Emergency Credit Line Guarantee Scheme:** Govt. guarantee for loans to MSMEs
	► **Capital subsidy up to 30%** in different states, **Power subsidy up to 100%**
	► **Rebate on land cost in Andhra Pradesh, UP and Telangana**
	► **RoDTEP is a new scheme to replace the existing MEIS scheme for exports of goods, this aims to reimburse the taxes and duties incurred by exporters**
		► **Automotive Mission Plan (AMP)** recognises the importance of **auto clusters** and **promotes exports**
		► **Electronics Manufacturing Clusters scheme** provides financial assistance **up to 75% of the project cost** (max INR 50 Crores per 100 acres of land) **+ up to 25% additional support** by some **state governments**
		► **100% FDI** with full delicensing
		► **Atmanirbhar Bharat:** PLI schemes for automotive
		► **Make in India:** Improve ease of doing business – new process & new infra; up to 100% deduction of profits for start-ups
		► **Draft National Automotive Policy 2018: Differential taxation** method based on criteria such as CO2 emissions and length
		► **5-year phased manufacturing programme (PMP) until 2024** with central as well as state level tax benefits
		► **Modified Special Incentive Package Scheme (M-SIPS)** provided capital subsidy of up to 25% for up to 10 years for units engaged in electronics manufacturing, along with reimbursement of central taxes and duties
			► **FAME-II scheme** for EV and EV infrastructure with a fund of US$1.39b for FY20-22
			► **NEMMP 2020:** US$2.15b budget; 6m electric & hybrid vehicles per year on the road by 2020
			► **Green Urban Transport Scheme (GUTS 2017):** 7-year mission with a total cost of US$10.76b for adoption of eco-friendly vehicles for public transport
			► **Samarth Udyog:** 'Demo cum experience' centers for promoting smart and advanced manufacturing serving SMEs to implement Industry 4.0
			► **State-specific EV-adoption incentives:** Karnataka, Kerala, Delhi, Bihar

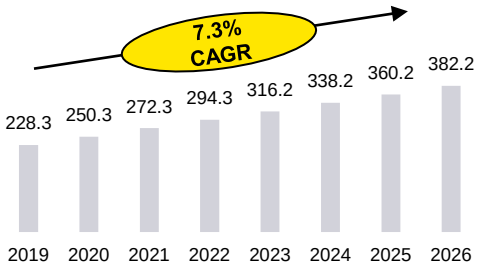
Case Study (1/2): Government of India Schemes for Electronics Manufacturing
Scope for the Automotive Sector

To promote/boost domestic manufacturing of electronic components and semiconductors in order to strengthen the electronics manufacturing ecosystem in the country

	Target Segment	Budget	Investment	Scheme Tenure	Incentives
PLI for electronics manufacturing	Mobile Phones and Electronic Components	INR 40,951 Cr	Domestic INR 200 Cr & Foreign Co, INR 1000 Cr	Valid for 5 Years	Incentive of 4% to 6% on incremental sales
SPECS	Active & Passive Components, Semiconductors, ATMP	INR 3,285 Cr	INR 5 - 1000 Cr	3 Years for Filing Applications, 5 Years for Investment	Upto 25% of Capital Expenditure
Electronics Manufacturing Clusters	Infrastructure and Common Facilities	INR 3,672 Cr	INR 300 Cr	Valid for 8 Years	Upto 50% of project cost for setting up of EMCs and CFCs

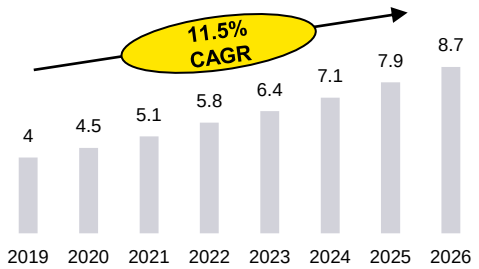
Why is it important for the Indian Automotive Sector?

Global Automotive Electronics Market (US$b)



Export opportunity

Indian Automotive Electronics Market (US$b)



Electrical and electronics constitute 15% of auto component imports as of 2020

Rising adoption of infotainment systems

Global in-car infotainment market projected to reach **US$21.53b by 2026**, **@8.3% CAGR** over 2019-26

Indian in-car infotainment market projected to reach **US$661.8m by 2026**, **@7.7% CAGR** over 2019-26

Increasing adoption of Electric Mobility

Global EV market projected to reach **US$802.8b by 2027**, **@22.6% CAGR** over 2020-27

Indian semiconductor market for EVs expected to reach **US$17.9m by 2027**, **@61.7% CAGR** over 2019-27

Growing demand for advanced automotive lighting

APAC automotive lighting market projected to reach **US$23.31b by 2027**, **@3.9% CAGR** over 2019-27

Indian automotive lighting market projected to reach **US$2.2b by 2027**, **@3.4% CAGR** over 2019-27

Case Study (2/2): Global Benchmarking of Growth enablers

China vis-à-vis India at a policy standpoint

Government Initiatives

China	**US$ 29 bn** National Semiconductor Phase – II Fund **2019**	**2014-2025** A 10-15 year plan of govt. support & incentives
India	**US$ 6.5 bn** PLI + SPECS + EMC 2.0 **2019**	**2019-2025** A 5 year plan of govt. support & incentives

28% of Global Automotive Mfg. comes from China

Government support to the private sector players is crucial to set up high technology manufacturing like fabs, as has been the case in some countries like the USA, Taiwan, South Korea, Japan and China.

Example : to start a fab in India

Initial investment of US$ 8 bn and upwards ✚ Heavy running costs ✚ Technology upgrades every 3-4 years

Aggressive & Consistent fiscal support package Is needed

02 units
No. of FABs in India
Both under DRDO

VS

200+ units
No. of FABs in China
Capability to produce 7nm as well

India's Policies must now become a "**facilitator**" instead of a "**regulator**"

Key Differences

- No size-specific benefits from GOI
  (China has nanometre based tax exemption structure)
- Shorter Duration of Promotional Plans from GOI – 5to 8 years
  (China has 15+ years of plan laid out since this is a capital intensive sector)
- Spend mostly on incentives/benefits for manufacturing and not R&D
  (China has major portion allocated for new tech development to win new future markets)
- 1K-10K-100K (1K products start-ups, 10K IPs created and 100K crore of business value) approach from IESA
  (China has target of 70% localization for domestic market fulfilment)

Industry Opinion to beat China

- Independent National Electronics Commission directly reporting to PM
- $2 billion spend per year for the next 15 years – (70:20:10 for Mfg.: Design: R&D)
- $1 billion spend to create a dedicated national research institute

Country-wise Deep Dive

01
Thailand

Global Benchmarking of Growth enablers
Country 1: Thailand – Manufacturing Promotion / Automotive Hub Building

	Thailand's Initiatives	Where does India Stand?

Promotion of Clusters and SEZs	► Office of the **Board of Investments (BOI)** promotes investment that helps enhance **national competitiveness**
	  ► **Promotes** clusters to create investment concentration and strengthen value chains
	  ► **Promotes SEZs** to create economic connectivity with neighbouring countries
	► **Thailand Plus** - **Short-term special measure (2019-2020)** to **accelerate investment in large-scale projects** with focus on high-technology industries
	Additional 50% corporate income tax reduction for 5 years
		► **The Automotive Mission Plan (AMP) 2006-2016** recognised the importance of the **automotive clusters**
		► India has **5 automotive clusters:** Chakan; Oragadam; NCR; Sanand and Pithampur
		► **Incentives for units in SEZ/NIMZ** or setting up of projects in special areas like the North-east, Jammu & Kashmir, Himachal Pradesh and Uttarakhand

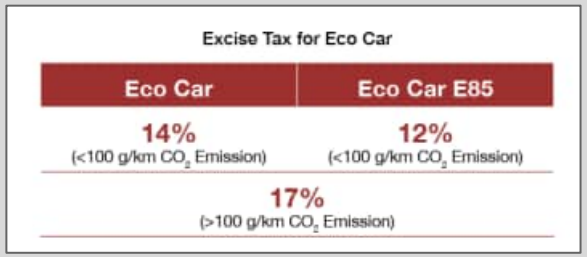
Tax Incentives	► **8 years' Corporate Income Tax (CIT) exemption and import duty exemption for raw material** **Automotive R&D** / **Auto transmission** / **CVT** Traction Motors / Regenerative braking System / ESC ► **5 years' Corporate Income Tax (CIT) exemption and import duty exemption for raw material** Automobile Engines / Fuel System Parts / Turbocharger Rubber tyre for vehicles / Transmission system parts / Motorcycles (>248cc) ► **3 years' Corporate Income Tax (CIT) exemption and import duty exemption for raw material** Engine assembly / Fuel pipe/tube / Engine system parts / Ball bearing for vehicles Steering system parts / Colling system parts / Exhaust system part / AC system parts	► **Weighted deduction of 200%** for any sums paid to a national laboratory, university or technological institute; **150% on in-house R&D** ► **SEZs: Deduction of 100% of profits and gains derived from export business** for first 5 years of commencement, 50% for next 5 years, 50% of ploughed-back profits and gains from export business for next 5 years ► **Jharkhand: 100% electricity duty exemption for 10 years** ► **CIT Rate stands at 25%. Exemptions are needed to boost manufacturing**

Global Benchmarking of Growth enablers
Country 1: Thailand – Manufacturing Promotion / Automotive Hub Building

	Thailand's Initiatives	Where does India Stand?
Non-tax Incentives	► Permit to bring in **expatriates. Smart Visas for highly skilled foreigners** ► BOI grants **land ownership rights** to foreign investors ► **No restriction on bringing in foreign currency** for investment/manufacturing	► **Rebate on land cost in Andhra Pradesh, UP and Telangana** ► **100% FDI** permitted along with full delicensing ► **More such incentives needed at National level**
Infrastructure / Networking	► **Eastern Economic Corridor** : Economic Zone for industrial, infrastructure, and urban development spanning **over 13,000 sq. km.** ► **Prioritizes the improvement of existing infrastructure** as well as the **construction of numerous new projects** in airports, seaports, roads, rail systems and ICT infrastructure ► **BUILD (BOI Unit for Industrial Linkage Development (BUILD)** : Offers channels to connect competitive Thai small and medium enterprises (SMEs) and large manufacturers with parts and component suppliers	► **Capital Subsidy: Andhra Pradesh 50%, UP 15%, Tamil Nadu 25%, Karnataka 10%** ► **Jharkhand: Financial assistance of 50% (max US$3.07m)** for investments in building and common infrastructure ► **Current infra and technology is not yet matured, needs strong govt. backing to mature at a faster pace** ► **Power subsidy: up to 100% in Telangana, Jharkhand**

Sourcing	Business matching	Online database	Subcontracting
Seminars	JV assistance	International exhibitions	

Global Benchmarking of Growth enablers
Country 1: Thailand – Future of Automotive

	Thailand's Initiatives	Where does India Stand?
Green Mobility	► **Eco Car Promotion Policy:** Excise tax measures to lower the CO2 emissions in conjunction with the engine size  ► **PHEV projects** worth at least **5 billion baht** are eligible to receive a **three-year corporate tax holiday**	► **Green Urban Transport Scheme (GUTS 2017):** 7-year mission with a total cost of **US$10.76b for adoption of eco-friendly vehicles for public transport** ► **Draft National Automotive Policy 2018:** Adoption of a **differential taxation method** based on a composite criterion, including parameters such as CO2 emissions and length
Electric Mobility	► **Target: 1.2m EVs and 690 charging stations by 2036** ► **10 components eligible for 8-year CIT holidays** – batteries, EV smart charging systems, DC/DC converters, etc. ► **90% reduction in import duties for 2 years** for raw materials used in the production of battery modules and battery cells ► **Excise tax reduced from 8% to 2%** for qualified OEMs planning to establish full EVs production. OEMs are required to commence manufacturing of full EVs **within 3 years** of receiving such tax privileges	► **FAME-II scheme** for EV and EV infrastructure with a fund of **US$1.39b** for FY20-22 ► **NEMMP 2020: US$2.15b budget;** 6m electric & hybrid vehicles per year on the road by 2020 ► **Charging stations do not need a separate licence** under the Electricity Act of 2003 ► **Tariff rates for AC & DC chargers, engines & engine controllers, power controllers and other EV manufacturing components to be increased to 15% in April 2021** ► **Tax rate for the lithium-ion cells for EVs to be doubled to 10% in 2021** ► **Basic import tax rate for EV battery modules to increase to 15% in April 2021** ► **Basic import tariff rate for electric buses & trucks to be doubled to 50% in April 2020**

Global Benchmarking of Growth enablers
Country 1: Thailand – Government/Regulatory Stimuli

The Office of the Board of Investments (BOI) + Thailand Plus

5 Pillars of Thai Government's Investment Promotion

Promote investment	Promote clusters	Promote SEZs	Tax Incentives	Non-tax Incentives
Enhance national competitiveness Encourage R&D, innovation, value creation, fair competition and inclusive growth	Create investment concentration in accordance with regional potential Strengthen value chains	Create economic connectivity with neighbouring countries Prepare for entry into the ASEAN Economic Community (AEC)	Exemption of corporate income tax (CIT) for **up to 13 years** Up to **50% additional reduction** in CIT for **5 years** **Exemption of import duties** on machinery, raw or essential materials used in production for export or R&D	100% foreign ownership Permit to own land Permit to bring in skilled workers and experts to work into the Kingdom

Unique approach to granting investment incentives

Activity-based Incentives

A1 (8 years CIT exemption with cap)	**A2 (5 years CIT exemption with cap)**
Automatic transmission, CVT, Traction motors for automobiles, Regenerative braking system, ESC	Rubber tyres for vehicles
A3 (3 years CIT exemption with cap)	**B1 (Non-CIT exemptions)**
Assembly of engines for automobiles	Manufacturing of automobiles

Merit-based Incentives

1. Competitiveness Enhancement
2. Decentralization
3. Industrial Area Development

Grant additional incentives to encourage more investment/expenditures that benefit the country or overall industry

Infrastructure

BUILD (BOI Unit for Industrial Linkage Development (BUILD)

- BUILD services offer channels to **connect competitive Thai small and medium enterprises (SMEs) and large manufacturers with parts and component suppliers**:
  - Sourcing; Business matching; Online database; Subcontracting; International exhibitions; Seminars and JV assistance

Eastern Economic Corridor

Thai government is developing the Eastern Economic Corridor (EEC), for industrial, infrastructure, and urban development **spanning over 13,000 sq. km.**

It **prioritizes the improvement of existing infrastructure as well as the construction of numerous new projects** in airports, seaports, roads, rail systems and ICT infrastructure

Source: BOI

Global Benchmarking of Growth enablers
Country 1: Thailand – Automotive Hub of Asia

1 Constant Government Support

Ministry of Industry	Administer and manage the country's policies and promote and support industry, investment and entrepreneur
Thailand Automotive Institute	Support and coordinate with private and government sectors and provide necessary services for the automotive industry
The Thai Automotive Industry Association	Promote the automotive industry including increased competitiveness of automotive manufacturer and assembler
Electric Vehicle Association of Thailand	Support knowledge exchange and technology on EV and consult on related regulation, standardization and research

2 Eastern Economic Corridor (EEC)

Automotive production is reinforced and developed by supporting facilities and special investment policies.

This will help strengthen the position of Thailand as world automotive manufacturing hub

3 BOI Incentives

Tax Incentives

- **8 years' corporate tax exemption and import duty exemption** for R&D in automotive industry and automotive training centers; manufacture of vehicle parts using high technology; auto parts for safety and energy-saving parts; parts for hybrid, EV and PHEV automobiles; rubber tyres; fuel cells
- **5 years' corporate tax exemption and import duty exemption** for manufacture of automobile engines; fuel system parts; transmission system parts; turbocharger; motorcycles (>248cc)
- **3 years' corporate tax exemption and import duty exemption** for engine assembly; manufacture of fuel pipe/tube; engine system parts; steering system parts; cooling system parts; exhaust system parts; AC system parts; ultimate tensile strength steel; ball bearing for vehicles

Non-tax Incentives

- Permit to bring in expatriates
- Permit to own land
- No restriction on foreign currency

Source: BOI

Global Benchmarking of Growth enablers
Country 1: Thailand – Next Generation Automotive

- Eco car is Thailand's product champion since the country embarked to the eco car promotion policy in 2007
- Government introduced excise tax measures to lower the CO2 emissions in conjunction with the engine size

Excise Tax for Eco Car

Eco Car	Eco Car E85
14% (<100 g/km CO_2 Emission)	12% (<100 g/km CO_2 Emission)
17% (>100 g/km CO_2 Emission)	

Eco Car

- PHEV projects worth at least 5 billion baht are eligible to receive a three-year corporate tax holiday
- Locally assembled HEV models were introduced by Toyota, Nissan and Honda, while BMW introduced cars by PHEV assembly and Mercedes-Benz initially started assembling its Blue-TEC hybrid engines to later produce 4 EV models

PHEV

- By 2036, Thailand aims to boost 1.2m EVs and 690 charging stations
- Recognized 10 components eligible for 8-year CIT holidays – batteries, EV smart charging systems, DC/DC converters, etc.
- 90% reduction in import duties for 2 years for raw materials used in the production of battery modules and battery cells
- Excise tax reduced from 8% to 2% for qualified OEMs planning to establish full EVs production
- OEMs are required to commence manufacturing of full EVs within 3 years of receiving such tax privileges

EV

Source: BOI

02
Indonesia

Global Benchmarking of Growth enablers
Country 2: Indonesia – Manufacturing Promotion / Automotive Hub Building

	Indonesia's Initiatives	Where does India Stand?
Tax / Financial Incentives	► **Tax Holiday:** Up to **100% CIT exemption** for 5 – 20 years ► **Tax Allowance: 30% reduction of net income** from capital investment, accelerated depreciation, reduced dividend withholding tax rate and **extended tax loss carry forward up to 10 years** ► **SEZ: Discretionary tax holidays** of **up to 25 years** ► **Import duty and VAT exemption** ► **IDR22.9 trillion Covid Stimulus Package** : **19 manufacturing sectors exempted from import taxes**, with **30% corporate tax discount for 6 months** ► **IDR10b guaranteed working capital loan** to corporates in **automotive industry** under National Economic Recovery Plan	► **Weighted deduction of 200%** for any sums paid to a national laboratory, university or technological institute; **150% on in-house R&D** ► **SEZs:** Deduction of 100% of profits and gains derived from export business for first 5 years of commencement, 50% for next 5 years, 50% of ploughed-back profits and gains from export business for next 5 years ► **Jharkhand: 100% electricity duty exemption for 10 years** ► **CIT Rate stands at 25%. Exemptions are needed to boost manufacturing**

Non-tax Incentives	► **One-stop Service-centre (PTSP Pusat)** at the Indonesia Investment Coordinating Board (BKPM)
	  ► **Firms investing IDR100 billion** can obtain a business **permit/license within 3 hours**
	  ► **Operations Support System (OSS) for business licensing through an integrated electronic system**
	► **No foreign ownership restriction**
	► **SNI (Indonesian National Standard) Certification: Mandatory certification** for **imported** products to be sold in Indonesian market. **Automotive components SNI certification scope** covers tyres, safety glass, helmets, wheels, batteries, mirrors, brake pads, lubricants, etc.
	  ► The products need to **fulfil SNI Standards**
	  ► **Quality management system** of the factory needs to conform to **SNI product certification**
	  ► **Lengthy and costly process acts as a barrier to imports,** giving better business opportunity to domestic manufacturers
		► **Rebate on land cost in Andhra Pradesh, UP and Telangana**
		► **AIS and BIS standards on safety critical parts**
		► **More such incentives needed at National level**

Global Benchmarking of Growth enablers
Country 2: Indonesia – Manufacturing Promotion / Automotive Hub Building

	Indonesia's Initiatives	Where does India Stand?

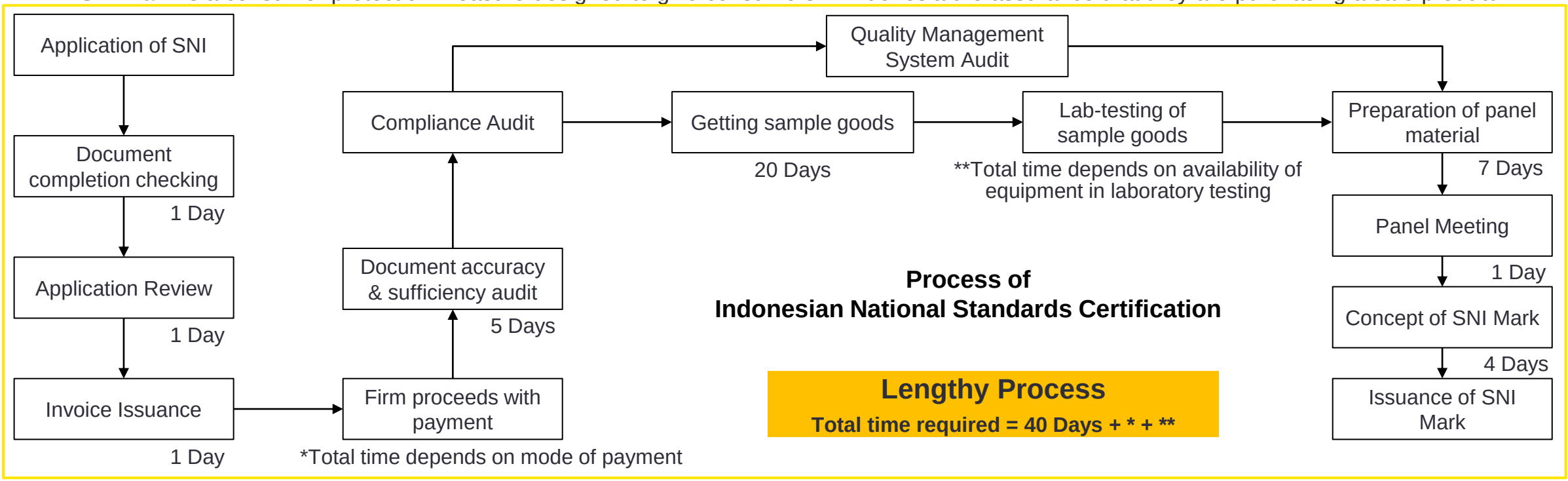
Domestic Mfg. Promotion	► **Making Indonesia 4.0** : **Automotive** one of the **5 priority manufacturing industries**
	  ► **Raw material & key component productions**
	  ► **Adopt technology and build infrastructure**
	  ► **Boost support for specific vehicle types**
	  ► **Build EV industry ecosystem**
	► **Tax holiday, mini tax holiday as well as tax allowance** for upstream industries such as Steel, Plastic, Synthetic, Rubber, Crude oil and metal, to, in turn, support automotive industry by reducing the raw materials or final goods transportation cost
	► **Super-deduction tax** for **automotive companies** engaging in **domestic R&D activities under Presidential Regulation 45/2019**
	► **Government considering a sales tax discount up to 5% on domestically produced vehicles**
	► **Low Cost Green Car (LCGC)** : **Regulated by the government**; aims to **reduce carbon emission** due to transportation by 26%
	  ► **85% of LCGC parts must be domestically manufactured**
	  ► **Deductible tax** incentives of **up to 300% for R&D**
		► **Atmanirbhar Bharat: PLI schemes in automobile and auto component sector with financial outlay of INR 57,042 crores**
		► **The Public Procurement Order 2017 (revision)** issued in 2020 to **promote manufacturing of Automobile and Automobile Components**
		► **50% capital subsidy (up to US$3.07m) for common infrastructure in auto clusters** in Andhra Pradesh
		► **100% FDI allowed** for automotive and automotive component sectors
		► **Auto Policy 2002: Domestic manufacturing of auto components** and import of raw materials are **exempted from licensing and approvals**
		► **Basic customs duty** on CBUs, SKDs, CKDs, Lithium ion cells, battery pack and other EV parts has been **increased under PMP by DHI to discourage imports**
		► **More such initiatives needed at National level**

Export Promotion	► **Free Trade Zones :** Goods imported and exported from **free trade zone** on Batam Island, free trade facility near Tanjung Priok, a bonded warehouse in Cakung, and other export processing zones, are **exempt from all import and export taxes**
	► **Simplified administrative rules** for **CBU car exports**
	  ► **Exporters** can send **CBU products** to **customs area before applying for export declaration**
	  ► **Changes** in the documents can be made up to **3 days prior to shipping date**
		► **INR 300 crore to be released to EXIM Bank** for **promotion of project exports** through Lines of Credit under IDEAS scheme **(Atmanirbhar Bharat 3.0)**
		► **AMP 2016-26 aims to increase exports of vehicles by five times**
		► Under **Remission of Duties and Taxes on Exported Products (RoDTEP) scheme,** the embedded central, state and local duties or taxes will get refunded and credited in an exporter's ledger account with customs
		► **DHI has provided export benefits to intermediate suppliers of auto components** against the Duty-Free Replenishment Certificate (DFRC)
		► **Import duty on raw material is exempted if the final good is exported (Bonded manufacturing)**

Global Benchmarking of Growth enablers
Country 2: Indonesia – SNI Certification: Import Barrier

SNI (Indonesian National Standard) : Nation-wide **mandatory product certification** for **imported goods**, regulated by the **Ministry of Industry of Indonesia**

SNI Mark is a consumer protection measure designed to give consumers in Indonesia the assurance that they are purchasing a safe product



- The products need to fulfil **SNI Standards**
- **Quality management system** of the **factory** needs to **conform to SNI product certification**
- **After expiration** of the certificate a **new certification** is required
- **Annual factory audits** are carried out to maintain certification

Source: : Industrial Research and Development Agency, Ministry of Industry – Indonesia, sni-certification.com

Global Benchmarking of Growth enablers

Country 2: Indonesia – SNI Certification: Import Barrier

Requirements to apply for SNI Certification

- **Local Business Representative** / Importer in Indonesia
- **Trademark Certificate** issued by Indonesian Authority or a proof of Trademark Registration
- **Product Catalogue**/Brochure + Technical Specifications
- **Production's and QA/QC flowchart process**
- **Quality Manual** and/or equivalent procedures
- Valid **ISO 9001 certificate** or equivalent
- Company **legal notary act & business license**

Costly and Complex Process

Too many documents and partnership with local agency adds to the cost and complexity

Relevance for Automotive Industry

SNI certification scope covers automotive components such as tyres, safety glass, helmets, wheels, batteries, mirrors, brake pads, and lubricants

Opportunity for Domestic Manufacturing

Lengthy and costly process acts as a **barrier to imports**, giving better **business opportunity** to **domestic manufacturers**

Scope for India

With institutes such as **ISI** and **ARAI** present in India, a **similar mandatory certification** should be introduced to **deter automotive component imports**

Source: : Industrial Research and Development Agency, Ministry of Industry – Indonesia, sni-certification.com

Global Benchmarking of Growth enablers
Country 2: Indonesia – Future of Automotive

	Indonesia's Initiatives	Where does India Stand?
Electric Mobility	► **Presidential decree 55/2019:** Target: **EV production to begin by 2022**; **export 200,000 electric cars by 2025** (20% of overall car export target); install **180 charging stations nationwide**	► Government of India, in 2019, approved the **FAME-II scheme with a fund requirement of US$1.39b** for FY20-22 for adoption of EVs and EV infrastructure ► **NEMMP 2020: US$2.15b budget;** 6m electric & hybrid vehicles per year on the road by 2020 ► **Charging stations do not need a separate licence under the Electricity Act of 2003**
	► Central and regional **tax exemption** for R&D, infrastructure development funding and security assurance	► **Weighted deduction of 200%** for any sums paid to a national laboratory, university or technological institute; **150% on in-house R&D**
	► **2W EVs must have at least 40% Indonesian parts** to qualify for subsidy from 2023 onwards and at least 80% from 2026 ► **4W vehicles must be at least 35% made in Indonesia** by 2021 and 80% by 2030	► **Tariff rates for AC & DC chargers, engines & engine controllers, power controllers and other EV manufacturing components to be increased to 15% in April 2021** ► **Tax rate for the lithium-ion cells for EVs to be doubled to 10% in 2021** ► **Basic import tax rate for EV battery modules to increase to 15% in April 2021** ► **Basic import tariff rate for electric buses & trucks to be doubled to 50% in April 2020**
	► The government has **banned the export of nickel ore**, which is abundant in Indonesia, and intends to **develop the local industry** to process nickel ore and produce chemicals to be used **for EV batteries**	► **INR 3 lakh crore collateral-free automatic loans for MSMEs** to buy raw material, meet operational liabilities and restart businesses
	► **Delegation of production rights of technology related to battery-based EV manufacturer** whose patent license has been held by the central government and / or local government	► Government is planning set up **at least one electric vehicle charging kiosk at around 69 thousand Petrol Pumps across the country** to induce people to go for electric mobility ► **Charging stations do not need a separate licence under the Electricity Act of 2003**

Global Benchmarking of Growth enablers
Country 2: Indonesia – Government/Regulatory Stimuli

Tax Incentives

- **Tax Holiday: 50% or 100% CIT exemption** for **5 – 20 years**
- **Tax Allowance: 30% reduction of net income** from capital investment, accelerated depreciation, reduced dividend withholding tax rate and extended tax loss carry forward up to 10 years
- **SEZ: Discretionary tax holidays** of up to **25 years**
- **Import duty** and **VAT exemption**

Non-tax Incentives

- **Permit** and **licensing simplification**
  - **Operations Support System (OSS)** for business licensing through an integrated electronic system that synchronizes various licensing permits in the country
- Generally **no foreign ownership restriction**
- **Approval** of **expatriate** positions

One-stop licensing service

- **One-stop Service-centre (PTSP Pusat)** at the **Indonesia Investment Coordinating Board (BKPM)** to make business registration and licensing more efficient and accessible to businesses
- Firms investing rupiah (Rp) 100 billion can obtain a business permit/license within 3 hours

Making Indonesia 4.0

- **5 priority manufacturing industries:** F&B, textiles, electronics, chemicals and **automotive**
  - Raw material & key component productions
  - Adopt technology and build infrastructure
  - Boost support for specific vehicle types
  - Build EV industry ecosystem

Free Trade Zones

- **Goods imported and exported** from **free trade zone** on Batam Island, free trade facility near Tanjung Priok, a bonded warehouse in Cakung, and other export processing zones, are **exempt from all import and export taxes**

COVID Stimulus Package

- **22.9 trillion rupiah Covid Stimulus Package**
- **Exempting** companies in **19 manufacturing sectors** from having to pay **import taxes**, while giving them a **30% corporate tax discount** for **six months**

Source: Presidential Regulations Number 55 of 2019, Reuters, Economic Times

Global Benchmarking of Growth enablers

Country 2: Indonesia – Key Reasons why Automakers are manufacturing here

1 Low Cost Green Car (LCGC)

- Production regulated by the government **since 2013**
- Aims to reduce carbon emission due to transportation by 26% - required fuel consumption minimum of 20 km per liter
- **85% of LCGC parts must be domestically manufactured**
- **Deductible tax incentives** of up to **300% for R&D** and **200%** for engaging in **vocational activities**

2 Relaxed rules to boost exports

- **Simplified administrative rules** for **CBU car exports** as part of the efforts to improve efficiency and boost exports
- Allow companies to **reduce administrative costs by 19% a year**
- CBU exporters can send their products to customs area **before applying for export declaration documents**
- **Changes in the documents** can be made up to **3 days prior to shipping date**

3 ICE (Internal Combustion Engine) Vehicles

- **Tax holiday, mini tax holiday** as well as **tax allowance** for upstream industries such as Steel, Plastic, Synthetic, Rubber, Crude oil and metal in order to improve the competitiveness of these industries to, in turn, **support automotive industry** by reducing the raw materials or final goods transportation cost
- Companies in automotive industry could benefit from **super-deduction tax** by engaging in domestic R&D activities under Presidential Regulation number 45 of 2019
- Through **National Economic Recovery Plan**, the government will grant **IDR10b guaranteed working capital loan** to corporates in automotive industry
- Government considering a **sales tax discount** up to **5% on domestically produced vehicles**

Source: Presidential Regulations Number 55 of 2019

Global Benchmarking of Growth enablers

Country 2: Indonesia – Future of Automotive: Electric Mobility

Presidential Decree 55/2019

- **Target: EV production** to begin by **2022**
- **Export 200,000 electric cars** by **2025** (20% of overall car export target)

EV Production

- Central and regional tax exemption or reduction for R&D, infrastructure development funding and security assurance
- Export financing incentives
- October 2021 onwards, effective tax rate on LCGCs to be increased from 0% to 3%, and effective tax rate on PHVs, EVs, and FCVs 0%, to shift preference to Evs
- Lower luxury goods sales tax rates from the current average rate of 40% to a minimum of 15%

Fiscal Incentives

- Delegation of production rights to technology related to battery based EV whose patent license has been held by the central government and / or local government
- Exceptions from restrictions on the use of certain roads (i.e. restrictions on odd-even traffic restrictions in Jakarta)

Non-fiscal Incentives

- 2W EVs must have at least 40% Indonesian parts to qualify for subsidy from 2023 onwards and at least 80% from 2026
- 4W vehicles must be at least 35% made in Indonesia by 2021 and 80% by 2030

Local Content Requirement

- **Target:** install **180 charging stations** nationwide
- Support for financing the development of EV charging station infrastructure
- Incentive for the manufacture of EV Charging Station equipment
- Reduction of electricity charging costs at the EV charging station
- The government has banned the export of nickel ore, which is abundant in Indonesia, and intends to develop the local industry to process nickel ore and produce chemicals to be used for EV batteries

Batteries & Infrastructure

Source: Reuters, Economic Times

03
Germany

Global Benchmarking of Growth enablers
Country 3: Germany – Manufacturing Promotion/Automotive Hub Building

	Germany's Initiatives	Where does India Stand?
 **Labour-related Incentives**	► **Free vacancy advertising, pre-selection of candidates and provision of facilities to conduct job interview** ► **Up to 100% government subsidy** on **pre-hiring training** cost ► **Up to 50% government subsidy** on **on-the-job training** cost ► Grant of **up to 50% of the employee's salary** for up to 12 months, on hiring an **unemployed person** ► Grant of **up to 70% of the employee's salary** for up to 8 years on hiring a **disabled or aged person**	► **AMP 2016-26: Skill development to add 65m people to the labour force (direct & indirect)** ► **150% tax deduction for the fees paid towards employee skill development**

 **R&D Incentives**	► **High-Tech Strategy (HTS 2025)**
	  ► **~€5 billion** annually reserved for R&D projects in the form of non-repayable project grants
	  ► Grants **up to 50% of eligible project costs**
	► **Horizon 2020 (EU)**
	  ► Over **€77 billion** budget
	  ► Grants covering **100% of R&D project expenditures plus a 25% flat rate** for indirect project cost
	► **R&D Tax Credit**
	  ► Companies performing R&D activities are eligible for a **tax credit of up to €500,000** annually
		► **NATRIP set up at a ~US$573m to adopt and implement global performance standards**
		► **Weighted deduction of 200%** for any sums paid to a national laboratory, university or technological institute; **150% on in-house R&D**
		► **Andhra Pradesh: Up to 75% financial assistance (max US$38,461) for obtaining patent registration**

Global Benchmarking of Growth enablers
Country 3: Germany – Manufacturing Promotion/Automotive Hub Building

	Germany's Initiatives	Where does India Stand?
Cash Incentives	► **Cash Incentives Programme** by Federal Ministry for Economic Affairs and Energy: **GRW** ► Cash incentive in the form of **grants for production facility set-up costs** (**up to 40%** depending on the region and enterprise size)	► **50% capital subsidy (up to US$3.07m) for common infrastructure in auto clusters** in Andhra Pradesh ► Jharkhand: Financial assistance of 50% (max US$3.07m) for investments in building and common infrastructure
Interest-reduced Loans	► **National Public Loans** ► The **Entrepreneur Loan** finances **up to 100% of eligible costs**, up to a **maximum of €25 million** ► **Federal State Public Loans** ► **Federal states** provide loans of **up to €10 million to SMEs**	► **US$200m invested by Department of Heavy Industries (DHI)** to modernize the auto component industry in India, by providing an **interest subsidy on loans and investment in new plants and equipment** ► **INR 3 lakh crore collateral-free automatic loans for MSMEs** to buy raw material, meet operational liabilities and restart businesses ► Schemes such as **MUDRA loan, PSB Loans**, etc. also exist
Public Guarantees	► **Public guarantee banks** act as **guarantors** for those who have **insufficient collateral for loans** ► Public guarantees can **cover up to 80% of the loan amount**, **up to €1.25 million**, over **15 years**	► **Emergency Credit Line Guarantee Scheme: Government acts as guarantor to small businesses** with turnover up to INR100 crore to avail additional 20% of their outstanding loans up to INR25 crore

Global Benchmarking of Growth enablers
Country 3: Germany – Future of Automotive

	Germany's Initiatives	Where does India Stand?

Electric Mobility	► The government supports **e-mobility R&D activities with ~€250 million annually**
	► **€2.5 billion** to be spent on **battery cell production** and **expansion of charging infrastructure**
	  ► **10 million EVs** and 1 million charging stations on German roads by 2030
	► Aim to **equip at least 25% fuel stations with fast-charge points** by the end of 2022, 50% by 2024 and 75% by 2026
	► **EV incentive to be doubled to €6,000** for new cars costing less than €40,000
	► **EV tax exemption applicable till 2030**
	► **€130b COVID EV stimulus package** for infrastructure development, tax cuts and further subsidies
	  ► **€2.2 billion subsidies** for electric cars
	  ► **€2 billion to EV suppliers to aid R&D**
	  ► **€1.2 billion** funds to bus and truck operators as an incentive to **switch to electric buses & trucks by end of 2021**
		► Government of India, in 2019, approved **the FAME-II scheme with a fund requirement of US$1.39b** for FY20-22 for adoption of EVs and EV infrastructure
		► **NEMMP 2020: US$2.15b budget; 6m electric & hybrid vehicles per year on the road by 2020**
		► **INR 8,596 Cr. demand incentive for EVs**
		► Government is planning set up **at least one electric vehicle charging kiosk at around 69 thousand Petrol Pumps across the country** to induce people to go for electric mobility
		► **Charging stations do not need a separate licence under the Electricity Act of 2003**
		► **Kerala: e-Scooters with 50km range to be launched,** with provision for additional battery (swappable at public stations); **creation of EV cluster**
		► **Delhi: Up to INR30,000 incentive** on purchase of electric 2W
		► **Bihar: EV manufacturing cluster to be created,** including common facilities and R&D Center; **25% (max INR10 lacs) capital subsidy** on commercial public charging stations
		► **Andhra Pradesh: EV Park; financial support to manufacturers; and INR500 Crore R&D grant**

Global Benchmarking of Growth enablers
Country 3: Germany – Government/Regulatory Stimuli

Investment Incentives Package

Cash Incentives

- **Cash Incentives Programme** by **Federal Ministry for Economic Affairs and Energy**: "Joint Task for Improving Regional Economic Structures" **(GRW)**
- **Cash incentive** in the form of grants for **production facility set-up costs** (**up to 40%** depending on the region and enterprise size)

Interest-reduced Loans

- **National Public Loans**
  - **The Entrepreneur Loan** finances up to **100% of eligible costs,** up to a maximum of **€25 million**
- **Federal State Public Loans**
  - Federal states provide loans of **up to €10 million** to SMEs

Public Guarantees

- **Public guarantee banks** act as **guarantors** for those who have **insufficient collateral** for loans
- Public guarantees can cover **up to 80% of the loan amount, up to €1.25 million, over 15 years**

Operational Incentives Package

Labour-related Incentives

- **Recruitment Support**
  - **Free** vacancy advertising, pre-selection of candidates and provision of facilities to conduct job interview
- **Training Support**
  - Up to **100% government subsidy** on **pre-hiring training cost**
  - Up to **50% government subsidy** on **on-the-job training cost**
- **Wage Subsidies**
  - Grant of up to 50% of the employee's salary for up to 12 months, on hiring an unemployed person
  - Grant of up to 70% of the employee's salary for up to 8 years on hiring a disabled or aged person

R&D Incentives

- **High-Tech Strategy (HTS 2025)**
  - **~€5 billion** annually reserved for R&D projects in the form of non-repayable project grants
  - Grants **up to 50%** of eligible project costs
- **Horizon 2020 (EU)**
  - **Over €77 billion budget**
  - Grants covering **100% of R&D project expenditures** plus a **25% flat rate for indirect project cost**
- **R&D Tax Credit**
  - Companies performing R&D activities are eligible for a **tax credit** of **up to €500,000** annually

Source: GTAI

Global Benchmarking of Growth enablers
Country 3: Germany – Global Automotive Hub

1 Leading Auto R&D Nation

Auto industry accounts for **more than one-third** of Germany's total R&D expenditure (more than **€25.5 billion** in 2018 alone)

German auto sector spends **~ €10 billion** annually on **external R&D** (**~50%** of the nation's total)

2 Supporting Institutions

German Auto Parts Distributor Association (GVA)

The main objective of GVA is to ensure a **free market for auto parts and vehicle repair services** in Germany. It attempts to maintain equal opportunities in the sale and distribution of auto parts and services by supporting a **smooth market entrance for suppliers**

German Association of the Automotive Industry (VDA)

VDA promotes the interests of the German automotive industry worldwide. VDA consists of **more than 620 companies involved in production for the automotive industry** in Germany

3 Competitive Tax System

Reformed tax system to make the country a more attractive business location

German tax system allows for **differing tax rates in German municipalities** (as low as **22.83%**)

On average, corporate companies face a tax burden of **less than 30%**

4 Auto Industry Clusters

Strong R&D business network due to **decentralised automotive industry**

250+ non-university research institutes, universities & companies work together in **clusters manufacturing processes, automotive networks, infotainment and driver assistance**

5 Financial Support

€4 billion stimulus package for the automotive industry as **COVID-19 recovery measure** and transition to **electrically-chargeable vehicles (EVs)**

€2.2 billion stimulus package for the purchase of **electric cars**

Source: GTAI

Global Benchmarking of Growth enablers
Country 3: Germany – Future of Automotive: Electric Mobility

- The government supports e-mobility R&D activities with **~€250 million annually**

Government R&D Support

- **10 million EVs** and **1 million charging stations** on German roads **by 2030**

2030 Climate Action Programme

- **€130b COVID EV stimulus package** for infrastructure development, tax cuts and further subsidies

COVID Stimulus Package

- **€2.2 billion** subsidies for electric cars
- **€2 billion** to EV suppliers to aid **R&D**

EV Subsidies

- **EV incentive** to be **doubled to €6,000** for new cars costing less than €40,000
- **EV tax exemption** till **2030**

EV Incentive

- **€2.5 billion** to be spent on **battery cell production** and expansion of charging infrastructure **- 1m charging stations** by **2030**

Batteries & Infrastructure

- Aim to equip **at least 25% fuel stations** with **fast-charge points** by the end of **2022**, **50% by 2024** and **75%** by **2026**

Electrify Fuel Stations

- **€1.2 billion funds** to bus and truck operators as an incentive to switch to **electric buses & trucks** by end of **2021**

Bus & Truck Funds

Source: GTAI, Wallbox CNN Business

04
Taiwan

Global Benchmarking of Growth enablers
Country 4: Taiwan

		Taiwan's Initiatives	Where does India stand?
Mfg. Promotion (1/2)	Tax Incentives	Corporate Tax is **17%,** lower than ASEAN average of 22% Rebate of **15%** on R&D expenses in the year, tax credit on machinery ▪ Imported machinery that local-manufacturers cannot produce is eligible for duty-free treatment. ▪ The business tax rate is 0% for exporters of goods	Corporate Tax is **25%, higher** than ASEAN average of 22% No Rebate on R&D expenses, phased down the previous exemption in April 2020 ▪ No such exemption on Imported machinery (BCD = 10%) but investment based incentives by central and states ▪ Effective tax rates in India is **17.16**% for new manufacturers ▪ One GST provides uniform transparent tax code
	Non-Tax Benefits	▪ Geographical location, educated workforce, excellent infrastructure, sound legal environment and strong IT cluster Preferential Loans & Technology Mgt. Assistance **ARTC TARC ITRI** Government led institutions to support industry	▪ Huge domestic market, global connectivity, cheap labour force, central and state incentives linked to production, strong IP protection, digitally fast evolving market waivers or permissions related to registration fees, stamp duties, property taxes, incentives for new manufacturers
	Free Trade Zones	**07 FTZs** with specific goals and focus sector **Duty Free** imported machinery and **export exemption** ▪ Tax exemption on all transactions between off-shore suppliers & overseas market ▪ 72-hour landing visas for foreign persons engaging in business activities within the FTZ ▪ Exemption from customs administration and customs clearance procedures ▪ Companies are allowed to have 40% foreign workers ▪ No restrictions on investment activities, reduced tariffs for importation to the home market	**08 FTZs** with specific goals and focus sector **238 Exporting SEZs** at central and state levels ▪ GST exemption (earlier Central and State sales tax, Service Tax) rated under IGST Act, 2017 ▪ 100% Deduction of a manufacturer's export profits for the first 5 years of participation, 50% for next 10 years ▪ 150% deduction on on-premises research and development ▪ Single window clearance for Central & State level approvals

Global Benchmarking of Growth enablers
Country 4: Taiwan

		Taiwan's Initiatives	Where does India stand?
Mfg. Promotion (2/2)	Trade Agreements & Partners	FTAs with more than 20 countries/regions ➡ **40%** Exports to EU and US ▪ 80% of Taiwanese auto parts manufacturers export, with export destinations being US (40%), Japan, China & UK	FTAs with 3 countries/regions ➡ Preferential access and economic cooperation with 54 countries ▪ 15 top trading partners (China, US, HK, UAE) contribute to 60% of trade for India – diamonds & pharma, chemicals ▪ E.U. - India's largest trading partner and investor (11% of India's global trade) – discussions in progress
Auto Industry	Export Promotions	▪ Export oriented economy with 62% of GDP from trade ▪ Shift from labour intensive to high technology in 80s, before China building reserves ▪ Majority trade with Developed countries approx. 65%	▪ **Make In India Initiative (25 sectors)** ▪ Improve ease of doing business – new process & new infra ▪ 100% FDI in greenfield & 74% in brownfield projects ▪ 100% deduction of profits for 3 out of 5 years for start-ups ▪ Production linked schemes (4%-6%) for incentives to incremental sales of goods manufactured in India
	Global Supply Chain	▪ Centre of regional high-technology supply chains, from manufacturing chipsets to those that are building the future internet of things, AI, and 5G networks. ▪ Global importance in the semiconductor sector, and as a hub for cutting-edge semiconductor production	▪ Diverse business landscape, skilled workforce, and domestic market of 1.3 billion people with growing disposable incomes ▪ Auto-components in India is expected to grow at 27% CAGR (US$48 bn). The Automotive Mission Plan 2016-26 targets 3X growth & establish India as manufacturing base & export hub ▪ Pharmacy, Chemicals, Telecom are other major global shapers
	Future of Mobility	▪ EV National Promotion Program and Clean Zone Policy promote EV ▪ Intelligent EV Scheme aims to promote the technology development of critical parts and the enhancement of product performance	▪ National Electric Mobility Mission Plan 2020+ FAME II ▪ GST on EVs to 5% versus 28% for combustion engines ▪ INR 1.5 lakh tax exemption on loans to buy electric vehicles ▪ INR 10K Cr allocated to FAME II to push EV ▪ 5-year phased manufacturing programme (PMP) until 2024 with central as well as state level benefits ▪ Pilot EV corridors, import exempt zones for EV manufacturers

Global Benchmarking of Growth enablers
Country 4: Taiwan – Business Landscape

Rank 15 Globally — **World Bank's Ease of Doing Business 2020**

Rank 6 in ASEAN — **World Bank's Ease of Doing Business 2020**

Rank 28 Globally — **World Bank's Logistics Performance Index 2018**

International Trade Agreements

06 active FTAs till 2019 apart from RCEP

Cross-Strait Economic Cooperation Framework Agreement (ECFA) with China

04 Economic Cooperation Agreements (ECA)

Competitive Business Advantage

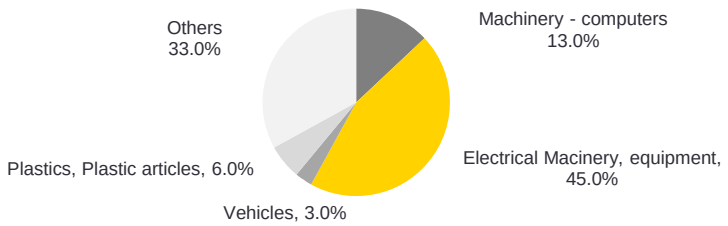
Taiwan is very suitable for business through exporting, manufacturing units, or subsidiaries

Disadvantage
- Language and cultural barriers

Advantages
- Business friendly Government policies
- Economic Hub
- + trend in FDI
- Innovation Culture

Advantages outweigh the disadvantages by so much that they don't even matter, such is the market of Taiwan

Top Exports in 2019



IC & micro assemblies remain the most valuable (30.5% of total)

Ideal Hub Location for Global Supply Chain

Located at the heart of APAC, this is tipped as an ideal hub location for businesses looking to establish presence in developing markets on its periphery

Growth Enablers

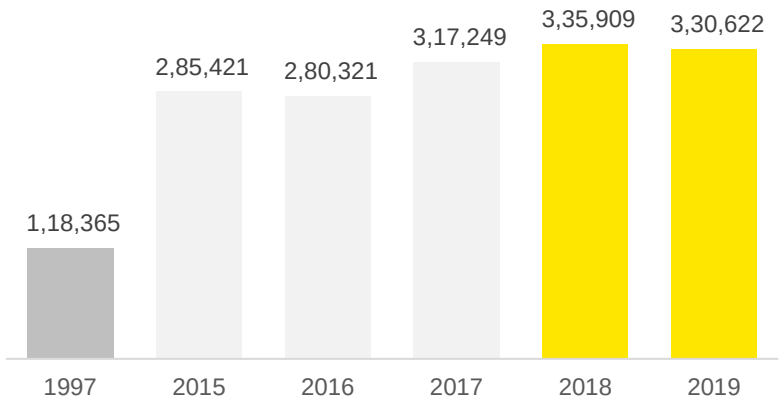
- Government Policies
- Government Initiatives
- Tax Structure & Benefits
- Free Trade Agreement
- Investments (OEM/OES)
- Competitive Advantage
- Ease of doing business

Source : worldstopexports.com report 2020

Global Benchmarking of Growth enablers
Country 4: Taiwan – The Economic "electronics" Miracle

Taiwan Economic Miracle refers to the rapid industrialization and economic growth of Taiwan during the latter half of the twentieth century. As it developed alongside Singapore, South Korea and Hong Kong, Taiwan became known as one of the "**Four Asian Tigers**"

Source : worldstopexports.com report 2020



Exports in millions USD

Electricals	Machinery	Plastics
45%	13%	6%

Top Exports in 2019

Trade represents **62.7%** of their **GDP**
of which electricals forms a major component

- Strategic focus on niche products with high expertise and margins
- Majority trade with Developed countries approx. 65%
- Land reforms, structural changes, and a policy of export promotion
- Early mover advantage against China who started this in late 90's
- Focus on skilled labour & english language

1950s : import substitution industrialization

1960s – 90s : export promotion & liberalisation

2000s onwards : new presidential regime

Government Initiatives

- An idea of "star industries" was adopted by the government in 1989
- Policy of export promotion rather than import substitution
- Significant tax breaks to companies investing in export-processing zones and trained labour with spin-off enterprises growth
- 2 preferential measures to subsidize the strategic industries
  - preferential loans and technology and management assistance

40%
Of Taiwan's manufacturing sector

23%
YoY growth electronics industry

Taiwan has become

4th largest global manufacturer

of electronic products

Major global brands

HTC ASUS tsmc Quanta Computer acer

Global Benchmarking of Growth enablers
Country 4: Taiwan – Auto and Components Industry Landscape

With quiet diligence, the tiny island – which officially still calls itself the Republic of China – builds on its industrial success and wisely chooses the areas in which it wants to excel, including automotive components industry.

23.5 million	445,000 new cars (CY19)	42% import	Highly Competitive

Taiwanese auto parts manufacturers excel in automation, prototyping and have the flexibility to produce small-batch orders on short notice.

Auto parts makers rely on exports for 75% of their business.

The country's highly successful manufacturing industry has specialised in R&D, designing and producing components rather than finished products

- Approx. 3000 component manufacturers, including about 300 OEMs with reducing dependence on China-based manufacturing facilities
- Over 80% of Taiwanese auto parts manufacturers export, with export destinations being US (40%), Japan, China & UK
- Multiple government-backed research institutes support the industry:
  - Automotive Research and Testing Centre (ARTC)
  - Taiwan Auto Research Consortium (TARC) and Industrial Technology Research Institute (ITRI)

Taiwan despite having a **small domestic auto market,** is a **Major Global Player** in Auto Parts positioning itself as a **critical supply chain partner**

Taipei International Auto Parts & Accessories Show ('Taipei AMPA' for short).

TAIPEI AMPA
AUTO TRONICS TAIPEI
MOTORCYCLE TAIWAN

This platform highlights products from OEMs, OES , Re-sellers and Tech Innovations

More than 37 editions of this have been completed till 2020

Auto and components manufacturers & retailers

TOYOTA, NISSAN, TONG YANG GROUP, DEPO, Hotai 和泰汽車, RENAULT, MITSUBISHI MOTORS, MACAUTO, CMC, DaimlerChrysler, HAITEC, tsmc, YULON

3000 + players contributing to 3% of Taiwan's economy

Strengths of Taiwan's auto parts firms

60-70%
Aftermarket share in Auto Lamps globally

90%
Aftermarket share in collision parts globally

1st Rank
Quantity & Manufacturing of molds

SMEs
auto parts industry supply chain

Convenient geographical location gives it an advantage as an order-taking hub.

Global Benchmarking of Growth enablers
Country 4: Taiwan – Emulating the Miracle Story for Automotive (1/2)

Business Drivers | Government Policies & Initiatives | Tax Structure & Benefits | Free Trade Agreement | Investments (OEM/OES) | Competitive Advantage | Ease of doing business

Government driven at a national level

Govt Policies & Initiatives

- The "**Smart Electric Vehicle Industry Development Strategy and Action Plan**" re-defined strategic development towards EV future
- "**Four emerging intellectual industries**" listing EV vehicles as a major project
- Promotion of demonstrative travel by electric cars by govt.
- Specific promotion strategies include the commissioning of the **Taiwan CAR Lab in 2019**

- India's current capabilities in the EV ecosystem prompted "**Automotive Mission Plan 2026**" and **NEMMP – 20**
- Current infra and technology is not yet matured, needs strong govt. backing to mature at a faster pace

Tax Structure & benefits

- The corporate income tax rate of Taiwan is **17%.**
- Up to **15%** of the company's R&D expenditures may be deducted from its corporate income tax that year.
- Imported machinery that local-manufacturers cannot produce is eligible for **duty-free treatment**.
- The **business tax rate is 0%** for exporters of goods
- Companies that move into export processing zones and free trade zones are **exempted from import tariffs**

- India's corporate tax rate is **25%**
- Provision for low tax rate **17%** basis eligibility for new manufacturers
- Huge blow by **removing 100% tax** exemption on R&D exemptions
- **Phased benefits** to taxes on exports income in SEZs only

Free Trade Agreements

- Taiwan actively seeks bilateral free trade agreements, though it is hampered in this effort by its status vis-a-vis China 2019
- Cross-Strait Economic Cooperation Framework Agreement (ECFA) with China
- Multiple FTA talks are in progress – India, Canada, USA

- India has bilateral agreements with ASEAN, EFTA, Japan etc
- Competing countries in automotive field need to be omitted for FTAs
- Current proposition for CBUs exclusion from negative list in India – EU FTA will impact localization

Global Benchmarking of Growth enablers

Country 4: Taiwan – Emulating the Miracle Story for Automotive (2/2)

Business Drivers	Government Policies & Initiatives	Tax Structure & Benefits	Free Trade Agreement	Investments (OEM/OES)	Competitive Advantage	Ease of doing business

Industry driven at a localized level

Investments (OEM/OES)

- Isuzu to build its first overseas eco-friendly car factory in Taiwan's Taichung – operations estimated to begin in 2021
- Honda Taiwan plans to invest an additional NT$4 billion over five years starting from 2019.
- Toyota acquired stake in Fukuta and is planning to engage in technical cooperation in EV motors & plug-in hybrids
- Magna from Canada has established R&D centre to develop automotive ultrasonic sensors, camera modules etc

- India's automotive FDI policy allows 100% FDI under the automatic route
- FDI inflow in Automobile industry amounted to $17.9 bn between April 2000 and September 2017

Competitive Advantage

- Cost, innovation culture and expansion capacity
- Capability for rapid integration of superior resources
- Strong pool of expertise on motor drives, energy storage systems, power modules & other technologies used by EV
- Exceptional R&D and product innovation capability
- Strategic location of Taiwan to be the base for strategic alliance between multi-national companies

- India's cost and expansion capabilities are strong, however lacks in innovation culture at a grassroot level

Ease of doing business

- Globally ranked and 15th and 6th in Asia for ease of doing business
- Getting electricity for new business takes an average of 24 days
- Construction permits has seen substantial improvement over the past year in terms of red tape and bureaucracy
- Long insolvency resolution timelines (1.9 years avg.)

- India ranked 63rd in Ease of Doing Business 2020 from 142nd in 2014
- Getting electricity takes 53 days
- Fast-track Corporate Insolvency Resolution Process in 90+45 days

05
China

Global Benchmarking of Growth enablers
Country 5: China

		China's Initiatives	Where does India stand?
Mfg. Promotion (1/2)	**Tax Incentives**	Corporate Tax is **25%,** VAT to 9%, Sales Tax 5% Reduced tariffs on imported car parts to 6% ▪ Loss carry forward period extended to 8 years from 5 ▪ Reduced tariffs from 25% to 15% of their wholesale value ▪ Reduction in customs duties (MFN duty rates, conventional duty rates) in 2020	Corporate Tax is **25%, higher** than ASEAN average of 22% No Rebate on R&D expenses, phased down the previous exemption in April 2020 ▪ No such exemption on Imported machinery (BCD = 10%) but investment based incentives by central and states ▪ Effective tax rates in India is **17.16**% for new manufacturers ▪ One GST provides uniform transparent tax code
	Non-Tax Benefits	▪ Reduction in fees, particularly in manufacturing ▪ Reduction in charges on roads, railways, ports, banking and intermediary services	▪ Huge domestic market, global connectivity, cheap labour force, central and state incentives linked to production, strong IP protection, digitally fast evolving market waivers or permissions related to registration fees, stamp duties, property taxes, incentives for new manufacturers
	Free Trade Zones	**21 F**TZs with specific goals and focus sector → Shanghai = finance, Guangdong = Mfg., Henan = Auto ▪ For e.g. Hainan FTZ = supply-side structural reforms to develop into a free trade port ▪ Sector focus FTZs enable industry clusters ▪ Relaxed Foreign Exchange Controls w/o SAFE ▪ Relaxed limits on foreign capital shareholding for financial institutions ▪ 3-1 Intellectual Property Office, which carries out both administrative and law-enforcement functions	**08 F**TZs with specific goals and focus sector **238 Exporting SEZs** at central and state levels ▪ GST exemption (earlier Central and State sales tax, Service Tax) rated under IGST Act, 2017 ▪ 100% Deduction of a manufacturer's export profits for the first 5 years of participation, 50% for next 10 years ▪ 150% deduction on on-premises research and development ▪ Single window clearance for Central & State level approvals

Global Benchmarking of Growth enablers
Country 5: China

		China's Initiatives	Where does India stand?
Mfg. Promotion (2/2)	Trade Agreements & Partners	FTAs with more than 20 countries/regions → 40% Exports to EU and US ▪ FIE's can operate in China only through JV partnerships, with foreign equity capped at 50%	FTAs with 3 countries/regions → Preferential access and economic cooperation with 54 countries ▪ 15 top trading partners (China, US, HK, UAE) contribute to 60% of trade for India – diamonds & pharma, chemicals ▪ No capping on FDI except selective sectors/industries
Auto Industry	Export Promotions	▪ **Made in China 2025** **-** to upgrade manufacturing capabilities - labour-intensive to technology-intensive - Domestic content of core materials to 70% by 2025 ▪ 13th 5Y Plan and Mid and Long-Term Development Plan focussing on increasing export	▪ **Make In India Initiative (25 sectors)** ▪ Improve ease of doing business – new process & new infra ▪ 100% FDI in greenfield & 74% in brownfield projects ▪ 100% deduction of profits for 3 out of 5 years for start-ups ▪ Production linked schemes (4%-6%) for incentives to incremental sales of goods manufactured in India
	Global Supply Chain	▪ Dependence of major economies on China's supply chain 14.9% USA · 21.2% Japan · 25.8% India · 14.7% Aus ▪ 300+ Auto OEMs & Assemblers with 28% of Global share	▪ Diverse business landscape, skilled workforce, and domestic market of 1.3 billion people with growing disposable incomes ▪ Auto-components in India is expected to grow at 27% CAGR (US$48 bn). The Automotive Mission Plan 2016-26 targets 3X growth & establish India as manufacturing base & export hub ▪ Pharmacy, Chemicals, Telecom are other major global shapers
	Future of Mobility	▪ Automobile Mid and Long-Term Development Plan", to achieve a high efficiency and low carbon vehicle fleet ▪ Dual credit regulatory system to promote NEV mfg. ▪ Min. 30% EV purchase for all central & local govt fleets ▪ Up to US$ 15,000 per vehicle subsidy, 0% vehicle and vessel tax on NEVs ▪ Preferential vehicle registration policies – free vs auction ▪ Developed ecosystem of NEVs with over 500+ EV OEMs	▪ National Electric Mobility Mission Plan 2020+ FAME II ▪ GST on EVs to 5% versus 28% for combustion engines ▪ INR 1.5 lakh tax exemption on loans to buy electric vehicles ▪ INR 10K Cr allocated to FAME II to push electric mobility through standardisation ▪ 5-year phased manufacturing programme (PMP) until 2024 with central as well as state level benefits ▪ Pilot EV corridors, import exempt zones for EV manufacturers

Global Benchmarking
Country 5: China – Manufacturing Growth Story

Manufacturing Business Landscape

Global Rankings

- **1st in** Steel Prod.
- **1st in** Coal Prod.
- **1st in** Solar Cells Prod.
- **1st in** Cement Prod.
- **1st in** Mobile Mfg.
- **1st in** Ship Mfg.

Global Share

- **68%** Smartphone
- **53%** Steel
- **40%** AC Mfg.
- **60%** Cement
- **28%** Global Mfg.

28% of Global Manufacturing comes from China

1970s : low-income economy → 1997 : low-middle-income economy → 2010 : upper-middle-income economy

large-scale capital investment (financed by large domestic savings and foreign investment) + rapid productivity growth

- Reallocation of resources, decentralization of key sectors, higher exposure to competitive forces
- $586 billion economic stimulus package in 2008 aimed largely to fund infra & increase lending
- Aims shift from fast growth at any cost to smart growth increasing reliance on high tech, green energy

Made in China 2025 is national strategic plan to further develop the manufacturing sector

- To upgrade and modernize China's manufacturing in 10 key sectors through extensive government assistance in order to make China a major global player
- Develop into a more technology-intensive powerhouse driven by domestic content of core materials

China's gross valued added manufacturing is 28.7% of its GDP, compared to 11.6% for the United States

Taxes and Benefits

China has reduced import-export taxes and duties to promote openness and domestic consumption

- Reduced import-export taxes and duties to promote openness and domestic consumption
- Reduction in VAT mfg. companies to 9% or 13%
- Reduction in fees, particularly in manufacturing
- Reduction in customs duties in 2020
- Refund of up to 15% refund on sales tax
- Simplified processes for local unit setup
- Reduction in charges on roads, railways, ports, banking and intermediary services
- Cheaper raw materials vis-à-vis India (aluminium 12% cheaper, silicon 20-25% cheaper, etc.)

Industrial Policies and State-owned-Enterprise (SoE)

- SoEs dominate most of the sectors shielding them from competition
- Extensive support through low-cost credit & subsidies to grow and invest

150,000 SoEs at Central And Local

50% of top 500 Large Mfg. companies are SoEs

Foreign Direct Investment (FDI)

- Trade and investment reforms and incentives led to a surge in FDI beginning in the early 1990s and "go global" strategy in 2000s

2% to 36% Business share of FIEs (1990 to 2000s)

40%+ FIEs contribution to exports & imports

US$ 139 bn FDI inflow in 2018 (2nd only to USA)

Global brands with manufacturing footprint in China

Global Benchmarking
Country 5: China – Initiation and Evolution of Semiconductor Policies (1/2)

National Semiconductor Fund Phase I (2014)

Why ?

Global Leader Electronics Exports

80%+ Import dependency for semiconductors

Doubled Trade Deficits from 2005 to 2014

What ?

- private equity investment rather than subsidy as the tool of industrial policy without intervening in management
- to identify pathways to innovation- led development
- to provide incentives and remove regulatory constraints to empower the private companies
- Investments in more than 77 projects, 55 IC enterprises by 2018, capital expenditure more than doubled in 2014-17

A fund of CNY120 billion (US$19 billion) in Phase I

How different is Phase II from Phase I at an approach level ?

National Semiconductor Phase I vs National Semiconductor Phase II

- More diverse source of shareholder funds along with multiple domestic IC groups, Yangtze River Economic Belt, major telecom operators etc.
- Incorporation of local funds unlike Phase 1 which treated local governments' funds separately

National Semiconductor Fund Phase II (Oct - 2019)

From "Catching up" to "Forging Ahead' . . .

Investment Doubled By "Big Fund"

CNY 204.15 Approx. US$ 29 bn

To make Industry

Independent	Self-sufficient
"Controllable" industrial supply chain	

The Government has laid out several benefits for the participating companies

Source : Multiple references, publications

a) Additional favourable tax policy as a catalyst ahead

- IC Projects are given tax exempts basis their employed processor nodes

< 28 nanometre	< 65 nanometre	< 130 nanometre
10 yr tax exempt	5 yr tax exempt + 5 yr half rate	2 yr tax exempt + 3 yr half rate

- Key SC fabless and software companies can enjoy 5yr tax exemption + 10% tax rate (instead of 25%)

b) Easier financing options to boost growth & consolidation

Encouragement to consolidate with full support from government funds

Risk Compensation mechanisms by local governments for easy access to IP pledge financing

Global Benchmarking of Growth enablers

Country 5: China – Initiation and Evolution of Semiconductor Policies (2/2)

1 Thousand Talents Program

- While 29% of Global AI researchers are Chinese, only 11% work in China
- Aims to attract Chinese diaspora in high technology areas, including AI and semiconductors
- Chinese Communist Party (CCP) uses overseas "talent-recruitment" stations to gain access to technology, more than 600 stations globally

2 Upcoming 14th Five Year Plan (2021-2025)

- Aims to include the third-generation semiconductor industry in line with their aim to evolve technologically instead of just growth pace
- Further support policies for target industries like semiconductors to build resilience against changing trade US-China trade dynamics

" To build an IC industrial supply chain, each link must be organically integrated with users of domestic equipment and materials. Only in this way can we achieve independence, making the supply chain controllable "

- Ding Wenwu, President of the Big Fund

The Road Ahead

Source: ICS Research.org-2020

16%
Domestic Demand through localization
in 2018

Target State

40%
Domestic Demand through localization
in 2021

70%
Domestic Demand through localization
in 2025

Global Benchmarking
Country 5: China – Automotive Growth Story

Automotive Business Landscape

Global Rankings

- **1st in** Vehicle Mfg.
- **1st in** NEV Sales
- **1st in** NEV Mfg.
- **1st in** EV exports

Global Share

- **28%** Automotive
- **75+** Auto OEMs
- **200+** Auto Assemblers
- **30mn** Vehicles in 2020
- **US$ 188bn** Aftermarket in 2020
- **4.5mn+** NEV in 2019

28% of Global Automotive Mfg. comes from China

1950s-80s : Soviet origins | 1980s-2001 : growth of PV segment | 2001 onwards : auto boom

Made in China 2025 + 13th 5Y Plan + Mid and Long-Term Development Plan

- Liberalisation, accession into WTO alongside growth in JV opportunities enabled fast growth
- Aggressive government support at central and provincial level with easy loan policy and subsidies for car purchase boosted internal demand
- "Automobile Mid and Long-Term Development Plan", to achieve a high efficiency and low carbon vehicle fleet in the next few years

Made in China 2025 is national strategic plan to further develop the manufacturing sector

- 1 million New Energy Vehicles (NEV) by 2020 with minimum 70% contribution from domestic players
- Develop into a more technology-intensive powerhouse driven by domestic content of core materials
- Dual credit regulatory system to promote NEV manufacturing against fossil-fuels

Every major global player in the world has a major stake in the country

Source : Multiple references, publications

Taxes and benefits

China has reduced import-export taxes and duties to promote openness and domestic consumption

- Sales tax on cars with engines of 1.6 lt. or below was cut to 5% (from 10%) boosting
- Reduced tariffs from 25% to 15% of their wholesale value
- Strong monetary incentives on NEV buying
- Reduced tariffs on 218 categories of imported car parts, reducing them to a standardized 6%
- Vehicle purchase tax scrapped for all NEVs
- Required to manufacture or import a minimum percentage of NEVs relative to their total manufacturing or importing (12% in 2020)

Industrial Policies and State-owned-Enterprise (SoE)

- 13th 5YP impact for Chinese Automotive industry focussing on innovation, green cars, globalization and collaborations
- Reduced share of SoEs to develop innovative research and competition
- The green development by 2020 to reduce emissions per unit of GDP by 40, to 45% and decrease share of non-fossil fuel energy to 15% by 2020

Joint Ventures (JVs)

- Only allowed to operate in China's automobile market through JV partnerships, with foreign equity capped at 50%

HONDA – GAC GROUP, DONGFENG

HYUNDAI – 长城汽车 Great Wall Motors, BAIC MOTOR 北京汽车

Global brands with manufacturing footprint in China

VW, BMW, FIAT, Ford, GM, Honda, Hyundai, Jaguar, Mercedes, Renault, Peugeot

Global Benchmarking
Country 5: Why China and not India ?

vis-à-vis comparison of business dynamics across economies

Supply Chain dependence on China

- China is the most important hub of global value chains
- Supply chains of the 'Quad' nations (US, Japan, India, Aus) are a lot more dependent on China than on one another to enforce dominance in Indo-pacific region

14.9%	21.2%	25.8%	14.7%
USA	**Japan**	**India**	**Aus**

% share of each nation in foreign value add of Quad countries' exports (in 2018)

India has initiated discussions but "Quad" still lacks credibility of a formal alliance

Cost & Availability of skilled labour

Manufacturing Wages :

- China Min. Wage is US$ 140-346, however for India this is US$66-202 set at provincial levels for both
- Mounting U.S. tariffs have strengthened India's case

Labour force size and skill level :

China :783	India :519
Labour Force (in millions)	

China : 34th	India : 116th
Human Capital Report	

- India's labour participation is 67% against China's 88%

India is at a favourable position however tough competition from S-E Asia (Thailand, Indonesia)

Logistics & Infrastructure

Has a crucial impact on operational costs

Development of logistics :

China : 26th	India : 44th
Logistics Performance Index	

- National highways make up less than three percent of total roads, compared to 40 percent in China
- Freight train speeds in China is 250 km/he compared to India's 25Km/hr

India spent US$1 trillion in last decade, plans to invest US$1.4 trillion more in next 5 years

Ease of Doing Business

China : 31st	India : 63rd
World Bank's Doing Business	

Starting business :

- Firm registration requires 10 procedures in India against 4 in China and double the time

Enforcing contracts :

- 4 years in India compared to 9 months in China
- Cost in India is almost double to that of China

India is on an improvement path and matches China in most of the other parameters

Corporate Tax structure & Subsidies

China : 25%	India : 22%
Corporate Income Tax (CIT)	

- Global avg. CIT is 23.79% and the Asian avg. is 21.09%, India recently reduced from 30%
- Tax subsidies are competing for both, majorly higher for India

India's government is adapting into an assisting force from a current regulating force

The New Future

Dominance over NEV :

- Additional IT exemption of Rs 1.5 lakh for buying EV on loan in India, upfront discount in China.
- Scrappage of vehicle purchase tax for NEVs in China
- Matured R&D ecosystem for NEVs in China compared to India

Global Factory :

- China's move towards smart growth due to rising labour costs opens up opportunities for other markets

India competes with other S-E Asian countries on the NEV opportunity

06
Mexico

Global Benchmarking of Growth enablers
Country 6: Mexico

		Mexico's Initiatives	Where does India stand?
Mfg. Promotion (1/2)	**Tax Incentives**	Corporate Tax is 30% Import Duty refund definitive imports (12 months) ▪ IMMEX Decree to give the holders an opportunity to import goods exempted of tax and VAT (16%) ▪ Pro-private investment schemes and increased technology investment	Corporate Tax is **25%, higher** than ASEAN average of 22% No Rebate on R&D expenses, phased down the previous exemption in April 2020 ▪ No such exemption on Imported machinery (BCD = 10%) but investment based incentives by central and states ▪ Effective tax rates in India is **17.16**% for new manufacturers ▪ One GST provides uniform transparent tax code ▪ No import duty refund policy
	Non-Tax Benefits	▪ Strong reputation for protecting intellectual property ▪ Use of a custom broker's services made optional ▪ New certified companies programme (NEEC) to move goods in and out of Mexico with less paperwork ▪ Low wage growth w.r.t China, India	▪ Huge domestic market, global connectivity, cheap labour force, central and state incentives linked to production, strong IP protection, digitally fast evolving market waivers or permissions related to registration fees, stamp duties, property taxes, incentives for new manufacturers
	Free Trade Zones	**01 F**TZ, revamping old practice of maquiladora basis WTO norms → Border FTZ in 2018 in El Paso ▪ Reduced Mexican income tax rate of 20% (from 30%) ▪ VAT rate reduced to 8% from 16% ▪ Gasoline, natural gas and electricity at reduced rates ▪ Tax exemption of inventory held in active zone ▪ Strategically located on the U.S.- Mexico border ▪ **Manufacturing Business Incentive** : helps manufacturing companies expand their markets, no application and activation fees, annual fees waived for Year 1	**08 F**TZs with specific goals and focus sector **238 Exporting SEZs** at central and state levels ▪ GST exemption (earlier Central and State sales tax, Service Tax) rated under IGST Act, 2017 ▪ 100% Deduction of a manufacturer's export profits for the first 5 years of participation, 50% for next 10 years ▪ 150% deduction on on-premises research and development ▪ Single window clearance for Central & State level approvals

Global Benchmarking of Growth enablers
Country 6: Mexico

		Mexico's Initiatives	Where does India stand?
Mfg. Promotion (2/2)	Trade Agreements & Partners	FTAs with more than 50 countries/regions ➡ **40%** Exports to EU and US ▪ NAFTA allows tariff-free shipping between Mexico and other N.A countries ▪ USMCA directs min. 75% of auto content origin has to be from US, Canada or Mexico	FTAs with 3 countries/regions ➡ Preferential access and economic cooperation with 54 countries ▪ 15 top trading partners (China, US, HK, UAE) contribute to 60% of trade for India – diamonds & pharma, chemicals ▪ E.U. - India's largest trading partner and investor (11% of India's global trade) – discussions in progress
Auto Industry	Export Promotions	▪ IMMEX Decree gives opportunity to import goods exempted of tax and VAT (16%) ▪ "Digital Windows" for clearing customs procedures ▪ New Energy reforms making power very cheap (mainly renewable) w.r.t to major economies like China, India	▪ **Make In India Initiative (25 sectors)** ▪ Improve ease of doing business – new process & new infra ▪ 100% FDI in greenfield & 74% in brownfield projects ▪ 100% deduction of profits for 3 out of 5 years for start-ups ▪ Production linked schemes (4%-6%) for incentives
	Global Supply Chain	▪ Geographically diverse top suppliers compared to other emerging markets like Vietnam, Taiwan ▪ 86/top 100 brands have manufacturing base ▪ USMCA has pushed development of Tier 1,2,3 suppliers in the region becoming a fully sustainable ecosystem ▪ Logistic Performance Index rank of 51	▪ Diverse business landscape, skilled workforce, and domestic market of 1.3 billion people with growing disposable incomes ▪ Auto-components in India is expected to grow at 27% CAGR (US$48 bn). The Automotive Mission Plan 2016-26 targets 3X growth & establish India as manufacturing base & export hub ▪ Pharmacy, Chemicals, Telecom are other major global shapers
	Future of Mobility	▪ Mexico's climate legislation targets emissions cuts of 50% by 2050 and 35% renewable energy by 2024 ▪ NEV Car parc of 18000+ & 1000+ charging stations ▪ Up to 25% deduction EV prices driven by government ▪ Inter country EV developmental programs (Dutch, US) ▪ Tax credit of 30% on investment made in public power supply facilities for EVs	▪ National Electric Mobility Mission Plan 2020+ FAME II ▪ GST on EVs to 5% versus 28% for combustion engines ▪ INR 1.5 lakh tax exemption on loans to buy electric vehicles ▪ INR 10K Cr allocated to FAME II to push EV ▪ 5-year PMP till 2024 with central and state benefits ▪ Pilot EV corridors, import exempt zones for EV manufacturers

Global Benchmarking
Country 6: Mexico – Manufacturing Growth Story

Manufacturing Business Landscape

Global Rankings

- **9th** Largest Economy
- **10th in** Global Mfg.
- **14th in** Aerospace Supplier
- **17th in** Textile Mfg.
- **11th in** Food Processing

Global Share

- **1.5%** Manufacturing
- **US$ 28 bn** Medical Device
- **60%** Cement
- **Top** Flat –screen TV exporter

10th in Global Manufacturing Output

1970s : low-income economy → 1990s : Export promotion Policies → 2010 : upper-middle-income economy

Concept of maquiladoras + Trade Agreements + Higher incremental Wage rate of China (30%)

- Benefited from North American Free Trade Agreement which allows virtually tariff-free shipping between Mexico and the other two North American countries
- Strong reputation for protecting intellectual property, a valuable advantage over China
- Mexico possesses 13 free trade agreements covering 50 countries, making it a prime location
- Stable currency exchange rate, advantageous regulatory conditions for trading, and highway and rail accessibility with over 150 international harbours
- Lower energy costs due to new reforms
- Mexico's demographic dividend is also expected to keep wage growth in control and cost-effective

The recent policy changes have boosted manufacturing in the country

Taxes and Benefits

- IMMEX Decree to give the holders an opportunity to import goods exempted of tax and VAT (16%)
- Pro-private investment schemes and increased technology investment
- Special Economic Zones (SEZs) with incentives, trade facilities, duty-free customs and easier regulatory processes
- Refund of import duty paid on definitive imports (12 months)
- New certified companies programme (NEEC) to move goods in and out of Mexico with less paperwork
- Real estate investment funds (REITs)

Industrial Policies

- "Digital Windows" for clearing customs procedures as a significant new development
- Use of a custom broker's services made optional
- Inter country EV developmental programs (Dutch, US)

Foreign Direct Investment (FDI)

- Foreign Investment Law provides national treatment, eliminates performance needs and liberalizes automatic approval of foreign investment

15th Largest FDI recipient globally

40%+ FDI inflow from the US

95% Foreign transactions don't need govt approval

Global brands with manufacturing footprint in Mexico

Global Benchmarking
Country 6: Mexico – Automotive Growth Story

Automotive Business Landscape

Global Rankings

- **6th in** PV Mfg.
- **7th in** Automotive
- **1st in** Tractor Truck export
- **5th in** Auto Parts Mfg.

Global Share

- **1+ mn** Employment
- **300+** R&D centres
- **50+** Auto Brands
- **US$ 99bn** Aftermarket in 2020

10th in Global Manufacturing – Highest share from Auto

1903-60 : Early years | 1961-1993 : Decline | 1993 onwards : Re-birth & boom

Trade Policies + USMCA + Mid and Long-Term Development Plan

- Investments by established automakers and OEMs have attracted strong Tier 1 & Tier 2 supplier bases
- 89 out of 100 global auto part makers setting up factories in the country
- USMCA changed the rules of origin for the automotive sector, min 75% of automotive content must originate from US, Canada or Mexico
- Mexico's climate legislation targets emissions cuts of 50% by 2050 and 35% renewable energy by 2024
- NEV Car parc of 18000+ & 1000+ charging stations
- CFE, the energy regulator board over the last couple of years has invested three million dollars to install 100 more charging stations

The recent policy changes have boosted manufacturing in the country

Taxes and benefits

Driven by multiple factors, several relaxations and benefits have been released by government

- Exemption on local taxes and emission verification controls
- 25% deduction in NEV car prices to facilitate purchases
- Tax credit of 30% of the investment made in public power supply facilities for EVs
- Exemption of sales/import tax under Federal Law on New Automobiles Taxation for vehicles and EV batteries
- 20% discount on regular fees through EcoTAG for transit on city's urban highways

Industrial Policies & Government Agents

- Mexican legislation, federal and local, provides for diverse incentives or supports for the use of EVs
- Comisión Federal de Electricidad (CFE), promotes the use of EVs through the installation of an independent light meter

Foreign Investments

- Chrysler made plans to build $1.3 billion worth of manufacturing plants
- Audi has also invested over $1 billion to build its luxury line of cars in Chiapa
- 86 out of 100 major brands present in Mexico and growing their bases alongside Tier-1,2,3 auto component manufacturers

Global brands with manufacturing footprint in Mexico

Audi, BAIC MOTOR, BMW, FCA, GM, Ford, HONDA, KIA, TOYOTA

Global Benchmarking
Country 6: Why Mexico and not India ?

Automotive Business Landscape

Near Shoring Advantage

- Proximity to US means all the cost benefits related to labour without any logistics or geological challenges
- Significantly more advanced manufacturing supply chain to support sophisticated industries than S-E Asia
- Lower operational costs for companies manufacturing in Mexico

India lags this due to non-proximity to US and reducing priority on next big - China

Cost & Availability of skilled labour

Manufacturing Wages :

- Cheap labour but 32% more expensive than India however the rate of inflation is lower
- Improving skill level due to proximity to US, major importer from Mexico

Labour force size and skill level :

Mexico : 47 India : 519
Labour Force (in millions)

Mexico : 64th India : 116th
Human Capital Report

India's labour size is 10 times of Mexico and cheaper labour rate

Logistics & Infrastructure

Has a crucial impact on operational costs

Development of logistics :

Mexico : 51st India : 44th
Logistics Performance Index

India's logistic network reach and connectivity is better than Mexico

Ease of Doing Business

Mexico : 60th India : 63rd
World Bank's Doing Business

Starting business :

- Firm registration requires 10 procedures in India against 8 in Mexico and double the time

Enforcing contracts :

- 4 years in India compared to 2 years in Mexico
- Both have almost equivalent expenses

India and Mexico both rank almost equivalent on DB

Corporate Tax structure & Subsidies

Mexico : 30% India : 22%
Corporate Income Tax (CIT)

- Global avg. CIT is 23.79% and the Asian avg. is 21.09%, India recently reduced from 30%
- Tax subsidies are competing for both, majorly higher for India but the recent USMCA changes have changed in favour of Mexico

India has lower CIT, however the tax benefits in Mexico are higher for exports

The New Future

Dominance over NEV :

- Additional IT exemption of Rs 1.5 lakh for buying EV on loan in India, only tax exemptions in Mexico
- Fast maturing R&D ecosystem for NEVs in Mexico compared to India due to international collaborations and huge impact of US economy

Global Factory :

- Mexico aims to be the "New China" of the west with aggressive trade policies

India is at a nascent stage with huge potential compared to Mexico

07
Vietnam

Global Benchmarking of Growth enablers
Country 7: Vietnam – Manufacturing Promotion / Automotive Hub Building

	Vietnam's Initiatives	Where does India Stand?

Tax Incentives	► **Corporate Income Tax = 20%**
	► For **high-tech industry**, **up to 4-years tax exemption**, 5% tax rate for next 9 years, 10% tax for next 2 years, and 20% after that + additional tax holidays based on negotiations
	► **Up to 4 years of tax exemption** and up to 9 years of reduced CIT (5% or 10%) for **businesses set-up in economically disadvantaged locations**
	► **Auto registration fee reduced by 50% for domestically produced cars**
	► **0% import tariff** on **imported component inputs for automotive manufacturing**
	► **Up to 10% tax deduction against R&D Fund**
	► Additional tax reductions for engaging in manufacturing, construction, and transportation activities that employ several female staff and/or ethnic minorities
	► Government is considering favourable policies for the auto manufacturers:
	  ► **Reduction/waiver of consumption tax on domestically made car components**
	  ► **Lower corporate tax for auto industry and its supporting industries**
	  ► **Raise in tax on imported cars** to make them expensive
	  ► **Waiver of land rentals and usage fees, financial aid for technology transfer and access to low-interest loans**
	  ► **Lower loan interest rates for buying domestically produced car**
		► **Corporate tax rate = 25%**
		► **Provision for low tax rate 17.16% basis eligibility for new manufacturers**
		► **Weighted deduction of 200%** for any sums paid to a national laboratory, university or technological institute; **100% on in-house R&D**
		► **SEZs: Deduction of 100% of profits and gains derived from export business** for first 5 years of commencement, 50% for next 5 years, 50% of ploughed-back profits and gains from export business for next 5 years
		► **Jharkhand: 100% electricity duty exemption for 10 years**

Source: ICEA, Bloomberg

Global Benchmarking of Growth enablers
Country 7: Vietnam – Manufacturing Promotion / Automotive Hub Building

	Vietnam's Initiatives	Where does India Stand?
Free Trade Zones	► **Vietnam Industrial Zones: 320+ industrial and export promoting zones** within **key economic zones:** Northern Vietnam Key Economic Region, Southern Key Economic Zone, Central Vietnam Key Economic Zone, and Mekong River Delta Economic Zone: ► **Reduced CIT @10% for up to 15 years** ► **5 years tax holiday for import of raw material for manufacturing** ► **Exemption from VAT and excise tax for goods imported, processed or manufactured within the IZs** ► **Exemption from land rental fees for up to 15 years and access to preferential government grants** ► **Govt. support in infrastructure development in difficult/remote areas**	► **The Automotive Mission Plan (AMP) 2006-2016** recognised the importance of the **automotive clusters** ► India has **5 automotive clusters:** Chakan; Oragadam; NCR; Sanand and Pithampur ► **Incentives for units in SEZ/NIMZ** or setting up of projects in special areas like the North-east, Jammu & Kashmir, Himachal Pradesh and Uttarakhand
Free Trade Agreements	► **12 major Free Trade Agreements – China, Japan, South Kore, ASEAN & EVFTA** ► Vietnam signed its free trade agreement with the EU and the comprehensive partnership agreement and Transpacific (CPTPP) which includes many countries producing high quality cars ► **Vietnam has guaranteed to eliminate all import tariffs on EU automotive exports, both cars and components, to Vietnam during the coming 7-10years**	► **India has bilateral agreements with ASEAN, EFTA, Japan etc** ► **Competing countries in automotive field need to be omitted for FTAs** ► **Current proposition for CBUs exclusion from negative list in India –EU FTA will impact localization**
Other Incentives	► **Projects relating to auto parts production, car assembly** of local companies that are part of a **global supply chain for production of parts or vehicle exports** are eligible **for loans from the Vietnam Development Bank**	► **AMP 2016-26: Skill development to add 65m people to the labour force (direct & indirect)** ► **Rebate on land cost in Andhra Pradesh, UP and Telangana** ► **Emergency Credit Line Guarantee Scheme: Government acts as guarantor to small businesses** with turnover up to INR100 crore to avail additional 20% of their outstanding loans up to INR25 crore

Source: ICEA

Global Benchmarking of Growth enablers
Country 7: Vietnam – Future of Automotive

	Vietnam's Initiatives	Where does India Stand?
Electric Mobility	► **No tariff on EVs imported from ASEAN, South-Korea and China**; imports from **Japan taxed @4%**, from **other countries @70%** ► **Special consumption tax rates 15-70% on EVs shipped to Vietnam; 18-20% import tax on CKD EVs** ► **Tough regulations on EV imports** have led to an **almost complete freeze of EV imports:** all imported car batches need to be inspected upon strict safety and emission standards together with the building of workshops or service centers ► **Government supports hybrid and PHEV buses via grants,** through its low-carbon bus fund for **up to 30% of the cost of the vehicle** ► **EV production complex to be built in Hanoi** ► In 2017, Hanoi announced a ban on fossil fuel motorbikes by 2030, resulting in several studies on efficient EV usage and public policy programmes and incentives ► **Government has proposed reducing the luxury tax on local electric cars to 0% and refund the 10% VAT** for equipment and machines imported to create fixed assets for firms in the supporting industries	► Government of India, in 2019, approved **the FAME-II scheme with a fund requirement of US$1.39b** for FY20-22 for adoption of EVs and EV infrastructure ► **NEMMP 2020: US$2.15b budget; 6m electric & hybrid vehicles per year on the road by 2020** ► **INR8,596 Crore demand incentive for EVs** ► Government is planning set up **at least one electric vehicle charging kiosk at around 69 thousand Petrol Pumps across the country** to induce people to go for electric mobility ► **Charging stations do not need a separate licence under the Electricity Act of 2003** ► **Kerala: e-Scooters with 50km range to be launched,** with provision for additional battery (swappable at public stations); **creation of EV cluster** ► **Delhi: Up to INR30,000 incentive** on purchase of electric 2W ► **Bihar: EV manufacturing cluster to be created,** including common facilities and R&D Center; **25% (max INR10 lacs) capital subsidy** on commercial public charging stations ► **Andhra Pradesh: EV Park; financial support to manufacturers; and INR500 Crore R&D grant**

Source: ICEA, UN Environment

Global Benchmarking of Growth enablers

Country 7: Vietnam – Key reasons for manufacturing here

- **Doi Moi Policy (1986)**: **Manufacturing** has been **primary growth sector** for Vietnam. Multiple measures taken to **improve domestic consumption & manufacturing capacity**, making Vietnam a much sought after **manufacturing hub** post US trade war
- **The Vietnam Ministry of Finance** has proposed a new **Special Consumption Tax** that will apply to cars under nine seats manufactured and assembled domestically and suggested the tax reduction for the **localization of components and productions parts**
- Ministry also proposed an increasing tax on certain vehicles, which is expected to **increase the prices of imported cars,** resulting in **higher demand for domestically manufactured car**

Government Policies

- **Corporate Income Tax = 20%**
- Auto registration fee **reduced by 50%** for **domestically produced cars**
- **0% import tariffs for auto parts and accessories**, which are currently cannot be manufactured domestically

Tax Incentives

- **Strategic location** (proximity to China, Japan & USA) and well developed logistics infrastructure (manufacturing hubs, ports & roadways)
- Growing skilled workforce and higher inclusivity (cost advantage)

Strategic Location

- **12 major Free Trade Agreements** – China, Japan, South Kore, ASEAN & EVFTA
- Vietnam signed its free trade agreement with the EU and the comprehensive partnership agreement and Transpacific (CPTPP) which includes many countries producing high quality cars
- Vietnam has guaranteed to eliminate all import tariffs on EU automotive exports, both cars and components, to Vietnam during the coming seven to ten years

Free Trade Agreements

- Projects relating to **auto parts** production, car assembly of local companies that are part of a global supply chain for production of parts or vehicle exports are eligible for **loans from the Vietnam Development Bank**

Financial Support

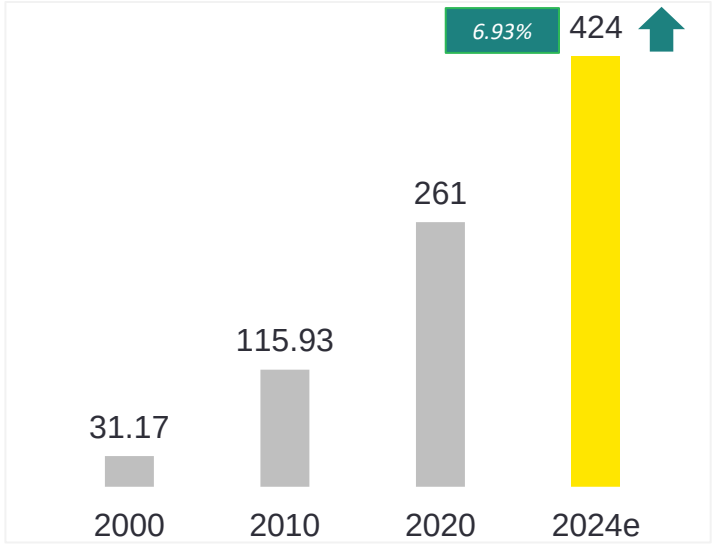
Source: Reuters, Economic Times

Global Benchmarking of Growth enablers
Country 7: Vietnam

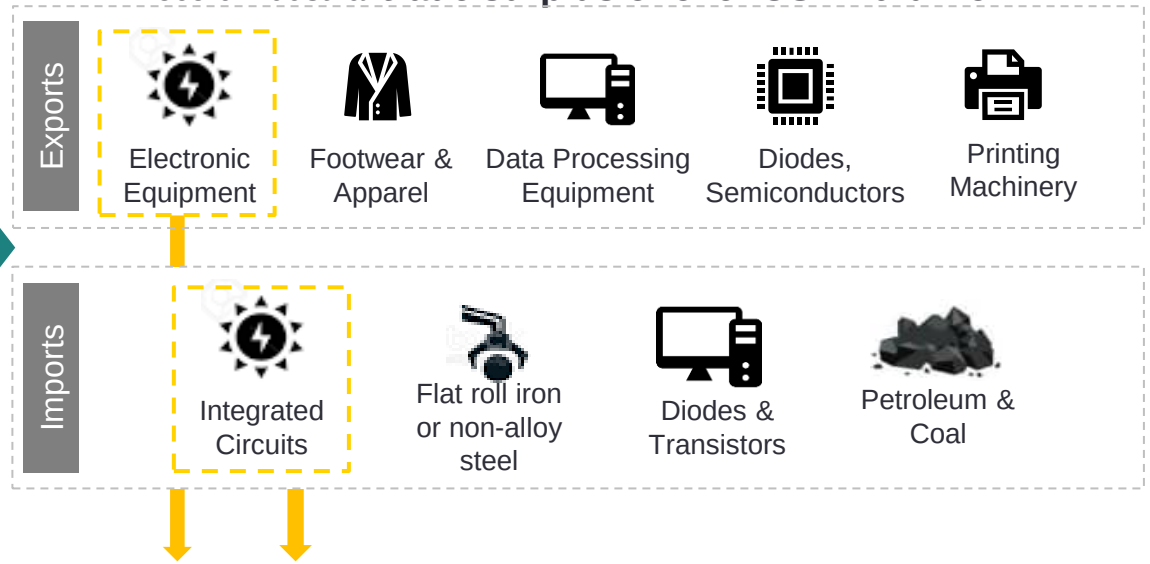
Globally, Vietnam is one of the world's fastest growing economies and is expected to expand by 7% by 2021

Economy Type

GDP Growth (per capita USD PPP)



Manufacturing rose by **10.9% year-on-year in 2019**, contributing a record industrial **trade surplus of over USD 10 billion**



Electrical machinery/ appliances form Vietnam's top exports and has grown 300% since 2017, with USA & China as its main export partners

What is enabling Vietnam to slowly shift its focus towards in-house manufacturing & become a leading export hub in the world?

Growth Enablers

Factors favouring manufacturing growth
Country 7: Vietnam

Geographic Advantage

1. Proximity to China, Japan, all ASEAN countries, NA & SA
2. Long Coastline and multiple ports
3. Multiple manufacturing hub cities formed along these port cities
4. Well developed road infrastructure connecting all major cities within Vietnam

46 Days — **TAT from order to delivery** ***(63 days in India)***

0.3 Days — **Time taken to reach port from mfg. unit** ***(7-10 days in India)***

Free Trade Agreements/ Bi-Lateral Trade Agreement

12 major Free Trade Agreements

Some major agreements….

1. China, Japan, Taiwan & South Korea

2. ASEAN FTA

3. EUVFTA (European Union)

Signed on Feb 2020

$18 trillion	*EVFTA can open EU doors for Vietnam with expected growth rate of 43% by 2025*
85% rate cut	*EU will reduce tariff on Vietnamese goods and gradually cut rest over next 7 years*
49% import duties	*Vietnam will lift import duties from all imported raw materials from EU over next 10 years*

Despite India's geographic advantage over EU (in terms of reach), the FTA with EU is still under negotiations and yet to be finalised

Economic growth when compared to India
Country 7: Vietnam

Key Economic Indicators

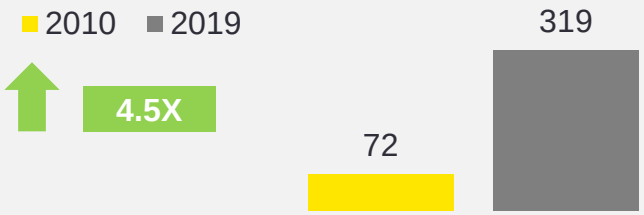
Rank 70
Ease of Doing Business

Rank 39
Logistic Performance Index

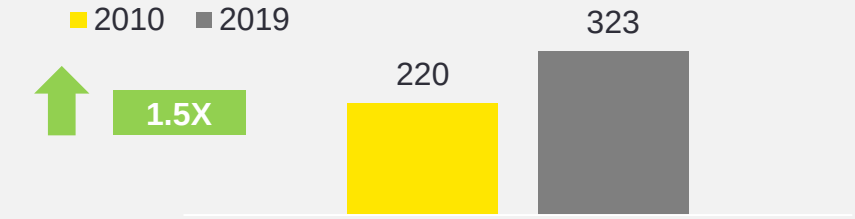
Rank 63
Ease of Doing Business

Rank 44
Logistic Performance Index

Export Trends

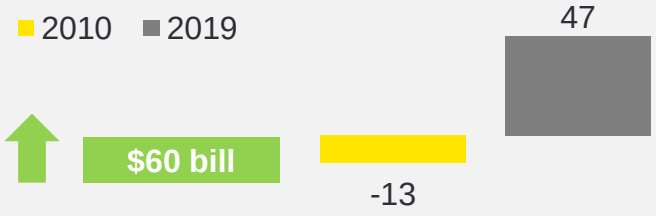


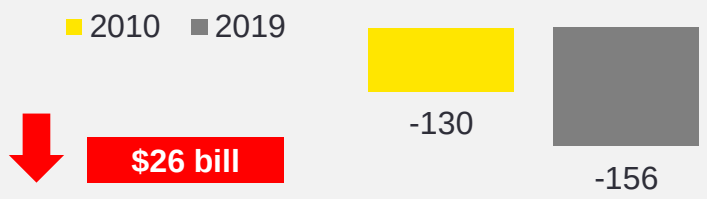
Average annual export growth over last 10 years: 18%



Average annual export growth over last 10 years: 5%

Trade Deficit





Challenges: *Vietnam still has to import around 80-90% of all raw materials required to produce cars. This results in a domestic cost of producing cars around 10-20% higher than those in the nearby countries. Due to the ASEAN zero-tariff policy rules, imported cars are bought at a cheaper price than domestically produces vehicles.*

Since the introduction of "Doi Moi Policy" in 1986, manufacturing has been primary growth sector for Vietnam. Since then, multiple measures has been taken to improve domestic consumption & manufacturing capacity, making Vietnam a much sought after manufacturing hub post US trade war.

OEM & Suppliers' Initiatives

OEM & Suppliers Initiatives
Maruti Suzuki India Ltd.

1. **Local Supplier Development**
2. **Strategic Joint Venture for Localization of Key categories**
3. **R&D Investment**
4. **Top management Focus on promoting Deep Localization**
5. **New technology parts localization - Battery Development for EV**

1981

Founded in 1981 as Maruti Udyog Ltd., established 1st manufacturing setup in Gurgaon, Haryana in 1982

2007

Commissioned 2nd plant in Manesar with additional capacity of 300,000 per annum

2015

Established a global-scale, state-of-the-art R&D Centre at Rohtak, Haryana with all vehicle testing including crash test facility

2017

Suzuki Motor Gujrat Plant setup in Hansalpur, Gujarat with a total annual capacity of 750,000 units

2020

Pioneer in Localization: Increased Rate of Localization by collaborative efforts with Vendor / their Technology Partner and SMC support

1

Established extensive **Local Supplier base** to achieve world class levels in mfg. & set up Vendor Parks in Gurgaon/Manesar

2

Setup various Joint Ventures (JV) for **Localization of critical technology parts & capital intensive manufacturing setup** such as Plastic Fuel Tank, AMT Technology etc.

3

INR 3,800 Cr invested in Rohtak R&D centre. R&D activities focused on expanding the product portfolio.

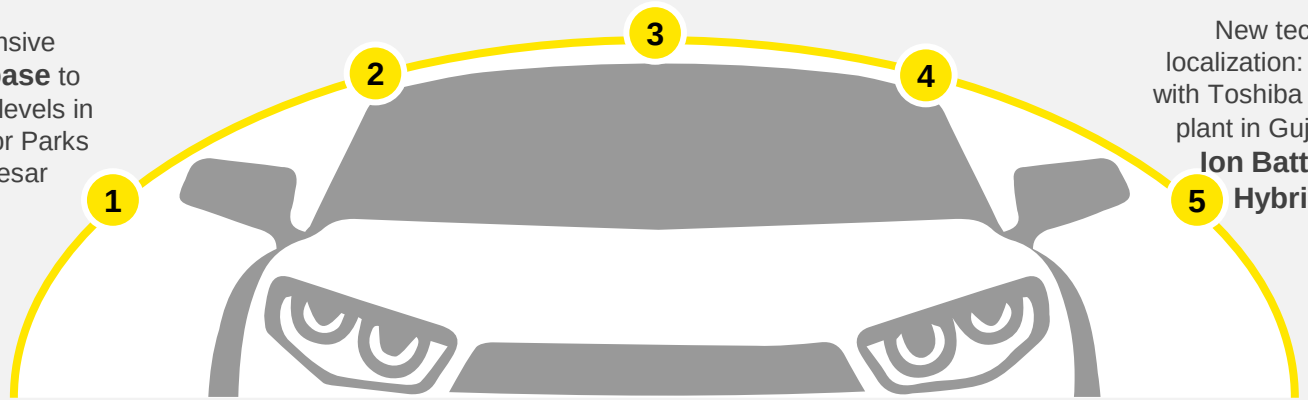
Brezza & S Presso vehicles conceived, designed, developed and validated locally in India

4

Deep localization of technology parts by backward integration.
New facility setup / JVs by overseas Tier-2 vendors for child parts used in HVAC, Airbags, Wiring Harness etc.

5

New technology Parts localization: Formation of a JV with Toshiba & Denso to setup a plant in Gujarat for **Lithium Ion Battery** for **EVs & Hybrid Vehicles**



OEM & Suppliers Initiatives
Hyundai

1. **Supplier & R&D Investment**
2. **Building Trust with Government & Indian People**
3. **In-house Product Localization**
4. **Positioning & pricing of products**
5. **Localization basis Customer Demand**

$7 B — Launched in 1996 with **$7B investment**. Launched Santro as 1st car inline with customer needs

2006 — **Establishes R&D center** in Hyderabad to accelerate local content development

2008 — Commissions 2nd plant in Sriperumbudur with additional capacity of **300k/annum**

1.5 Mn — Hyundai India crosses **1.5Mn** export mark in 2012 covering 120 countries

2019 — Announces **1 Bn** investment in India, to focus on capacity expansion and new launches

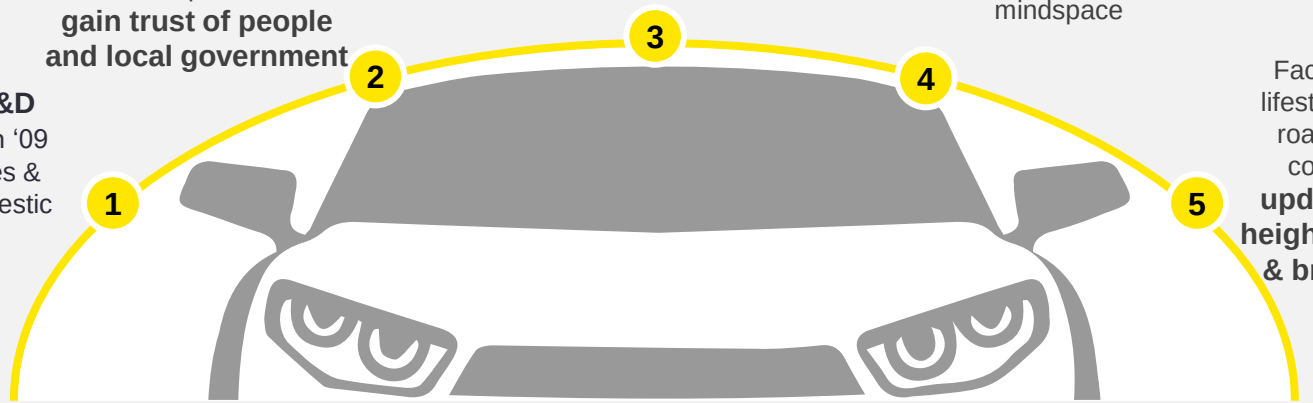
1 — **Hyundai Mobis R&D Centre** established in '09 for developing engines & transmissions for domestic & exports

2 — **Hired > 5000 local employees** as opposed to their strategy of highly automated processes to **gain trust of people and local government**

3 — HMI invested **$600mn in Sriperumbudur & Kanchipuram plants** to set up manufacturing processes and products dedicated to Indian market

4 — HMI launched Santro as a completely different product to gain customer trust. Hired local celebrity to gain customer mindspace

5 — Factors such as lifestyle, climate & road conditions considered to **update product height, powertrain & brake quality**



OEM & Suppliers Initiatives
Honda

- **Supplier development** — 1
- **Vendor park development** — 2
- **In-house Localization** — 3
- **Positioning & pricing of products** — 4
- **Customer perception of Quality** — 5

$7 B — Started operations in 1997 with $4.5 B investment. Initial capacity of 30k units.

2008 — Capacity increased to 1 lac units/year

2014 — Commissions 2nd plant in Alwar, Rajasthan. Employees 3200 people.

2018 — Announces fresh investments of 9.2k Cr to produce hybrids & EVs

2019 — Announces plans to revamp entire sales network focusing on improving sales experience

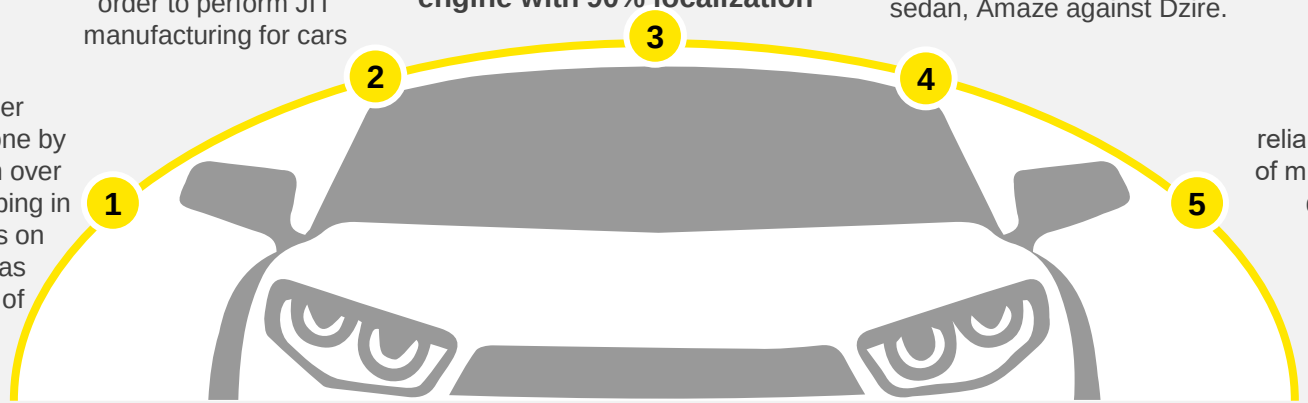
1 — Conscious supplier development was done by India purchase team over a period of time, keeping in mind robust checks on technical as well as financial aspects of suppliers.

2 — Honda Developed vendor parks at their Tapukara facility in Rajasthan, in order to perform JIT manufacturing for cars

3 — Invested **~3550 Cr** in Tapakura plant which has all manufacturing processes - forging, press shop, powertrain shop, welding shop, paint shop, plastic moulding, engine assembly, frame assembly and engine testing facility enabling it to develop Honda's **first diesel engine with 90% localization**

4 — Competitively priced products with justifiable premium over the competition. Aggressively positioned it's mass segment sedan, Amaze against Dzire.

5 — Established reliability and 'peace of mind' badge value despite high localization



OEM & Suppliers Initiatives
Ford

1. **Local Supplier Development & Sourcing**
2. **Local Management Development & Higher Autonomy**
3. **Launches 'Emerging Market Operating Model'**
4. **Focusing on 'Make in India'**
5. **Leveraging IT**

1995 — Entered Indian market with 50:50 JV with M&M

2010 — Yearly production crosses 100k mark,

$72 Mn — Makes specific investments to export engines manufactured in India

1 Bn — Invested in 2nd plant which becomes operational in Gujarat in 2014

40% — Ford currently exporting 40% engines & 25% cars produced in India to 35 countries

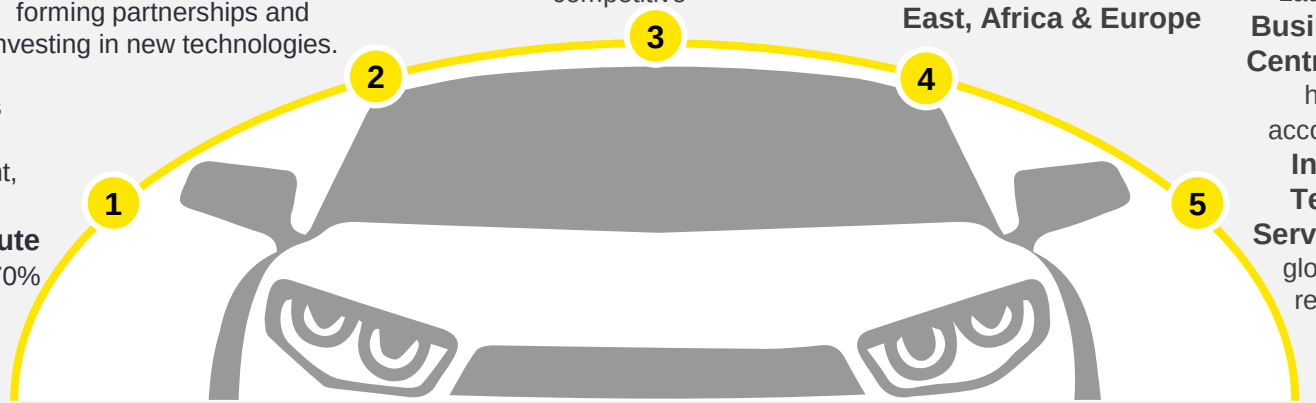
1 — **Reduced logistics costs by 20%** by switching to rail freight, **locally sourced components constitute > 85%** from about 60-70%

2 — **Greater autonomy to the local management** contributed to global restructuring plan & saved **$11 billion** by cutting costs, forming partnerships and investing in new technologies.

3 — Launched EMOM that helped **reduce manufacturing costs by 40%** and develop more vehicles locally as it moved away from 'One Ford' which was restricting its ability to be cost competitive

4 — Ford India took advantage of 'Make in India' campaign and started **exporting EcoSport to US along with Middle East, Africa & Europe**

5 — Launched **Ford Business Service Centre**, India- global hub of Ford accounting. **Ford Information Technology Services-** caters to global software requirements



OEM & Suppliers Initiatives
Toyota

1. **Global Collaboration with Suzuki Moto Crop**
2. **De-risk Foreign Exchange & Supply Chain**
3. **Launch of AI & ML R&D Center**
4. **Focus on Part Localization**
5. **Supplier Management Development Program**

1997 — Toyota launches JV with Kirloskar Group

2011 — Launches 2nd plant in Karnataka to focus on producing Etios & Fortuner

2014 — Crosses 1 mn sales mark in India

2018 — Concluded agreement with Suzuki Motor Corp to produce hybrid vehicles for Indian market

2020 — Announces 200 Cr investment in electric components for domestic cars & exports

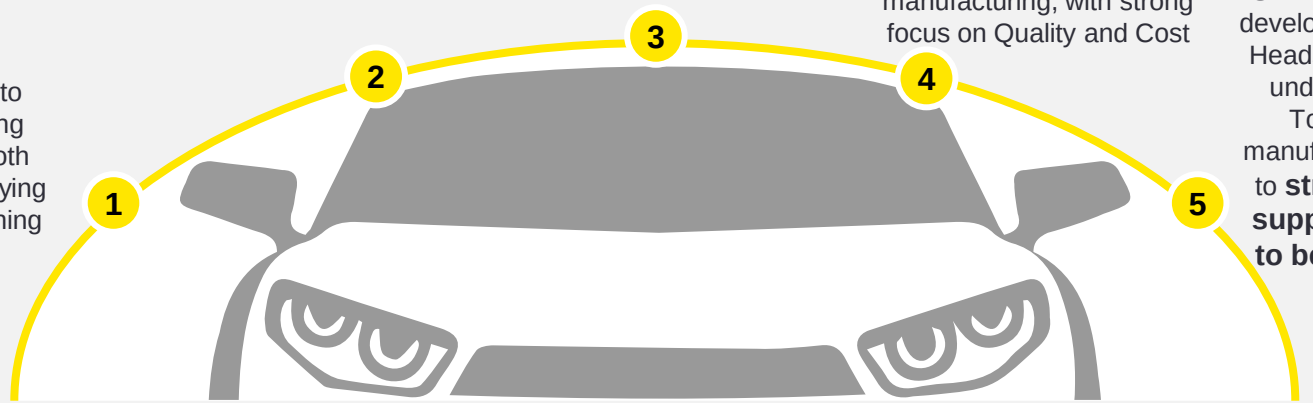
1 — Alliance with Suzuki to focus on strengthening competitiveness of both the companies by applying strong points and learning from each other

2 — Toyota started with **localizing engine components with 85% localization** currently. Next focus is on gear boxes.

3 — Chennai office set-up to focus on deep learning-driven, artificial intelligence-based use cases for **connected car services**

4 — Toyota focuses on localization of components, thereby providing an opportunity for local suppliers to be transformed into world class manufacturing, with strong focus on Quality and Cost

5 — **SMDP** introduced to develop Supplier Plant Heads to deepen the understanding on Toyota way of manufacturing & HRD to **strengthen the supplier partners to be self–reliant**



OEM & Suppliers Initiatives
Hero Moto Corp.

Import Strategy & Planning 1

Supplier upskilling for next decade 2

Emerging Mobility Business Unit 3

Focus on Part Localization for EV 4

Switch to Local Suppliers to Insulate Supply Chain 5

1984 — Started as JV between Hero Cycles & Honda, Japan

2003 — Collaborates with Small Industries Service Institute **(SISI)** to hire local talent

2008 — 25 Mn production milestone reached

2017 — Halol plant inaugurated, 18 lac capacity

10k Cr — Announces 10,000 Cr investments in R&D and network expansion by 2025

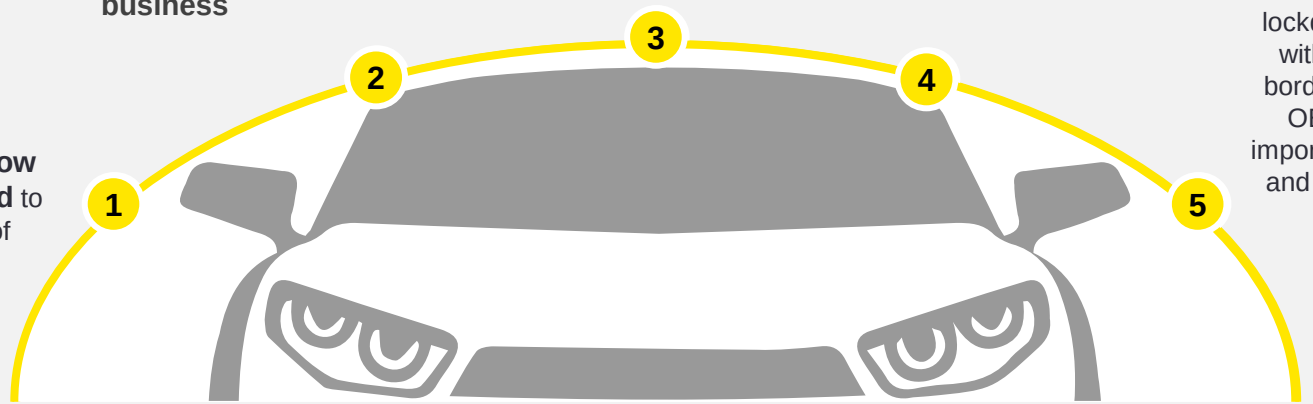
1 Bucketing parts as **Proprietary, commoditized & Low Cost Commoditized** to plan future course of action

2 Key focus on upgrading supplier processes and ensure collaborations to 'be the future of mobility' in the next decade and **increase exports business**

3 **Sets up EMBU** to identify new opportunities in the mobility space by working with internal & external startups

4 Hero currently working with suppliers on **exploring ways to localize ALL components required in EV's** to lower production costs.

5 COVID related lockdowns coupled with tensions on border has pushed OEMs to avoid importing from China and switch to local suppliers



OEM & Suppliers Initiatives
Bajaj

- **Successful Collaborations** — 1
- **Supplier updation for International Markets** — 2
- **Segment wise Localization** — 3
- **R&D Collaborations** — 4
- **Switch to Local Suppliers to Insulate Supply Chain** — 5

1998 — Commenced production on 3rd plant in Chakan and launched 4 stroke bikes

2001 — Began 2 wheeler exports of mass & premium bikes

2007 — Pantnagar plant inaugurated

2011 — Started Exporting >10 Lac bikes per year

2020 — Announces 650 Cr investment to setup new plan to manufacture Husqvarna and Triumph motorcycles

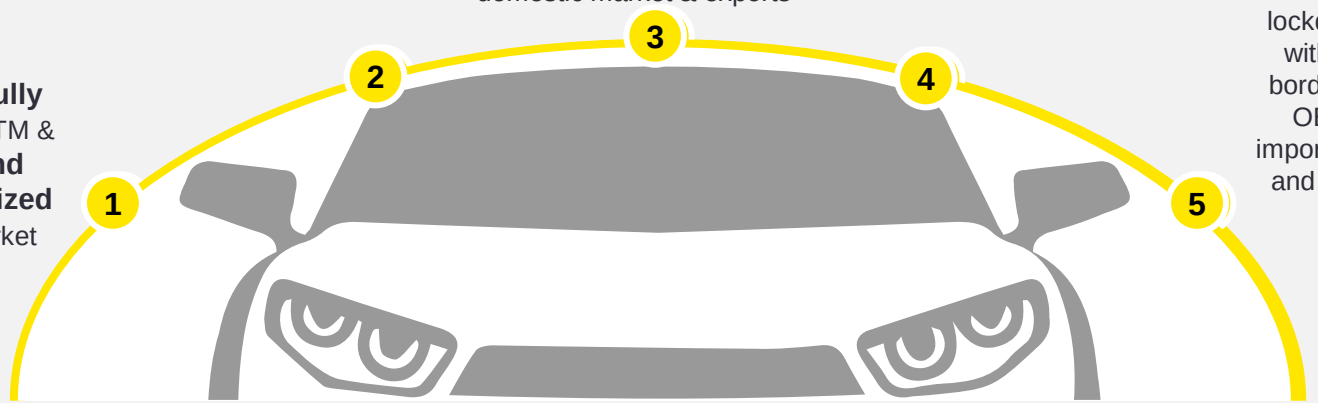
1 — Bajaj has **successfully collaborated** with KTM & Triumph to **R&D and produce 99% localized bikes** for Indian market

2 — Key **focus on supplier development** along with checks on operational & financial aspects to ensure seamless operations

3 — With plans of expanding its BigWing network in India focusing on premium range of motorcycles for the country, **Honda will launch its 1st 100% localized middleweight bike in 2021** for domestic market & exports

4 — Successfully collaborated with various brands to develop new products together for Indian market by **conducting R&D at facilities in Pune**

5 — COVID related lockdowns coupled with tensions on border has pushed OEMs to avoid importing from China and switch to local suppliers



OEM & Suppliers Initiatives
Bosch

Multi-Technology Leadership 1

Largest Technology Center outside Germany 2

Focus on Emerging Segments & Technologies 3

Localization basis Market Requirements 4

Investments in Skill Building 5

1886

Workshop for Precision Mechanics & Electrical Engineering founded in Stuttgart, Germany.

1951

Founded in 1951, Bosch India today has 18 manufacturing sites and 7 Development & Application Centers in India

'08-'09

Played a pivotal role in developing multiple **proprietary products locally** in India's ambitious low-cost car, the Tata Nano.

2014

Research & Technology Centre established in Bengaluru

2020

Clocked a revenue of **INR 195 Bn.** in 2020 across Mobility Solutions, Consumer Goods, Industrial Tech., Energy & Building Technology

1

Localization across multiple technologies – Fuel Systems, Chassis Systems, Steering Systems, Filters, Seals, Automation & Engg. Technology, Braking Systems, E&E Components

2

Bosch invested in their **largest Tech center outside Germany in India**, with a strong focus on developing end to end solutions

3

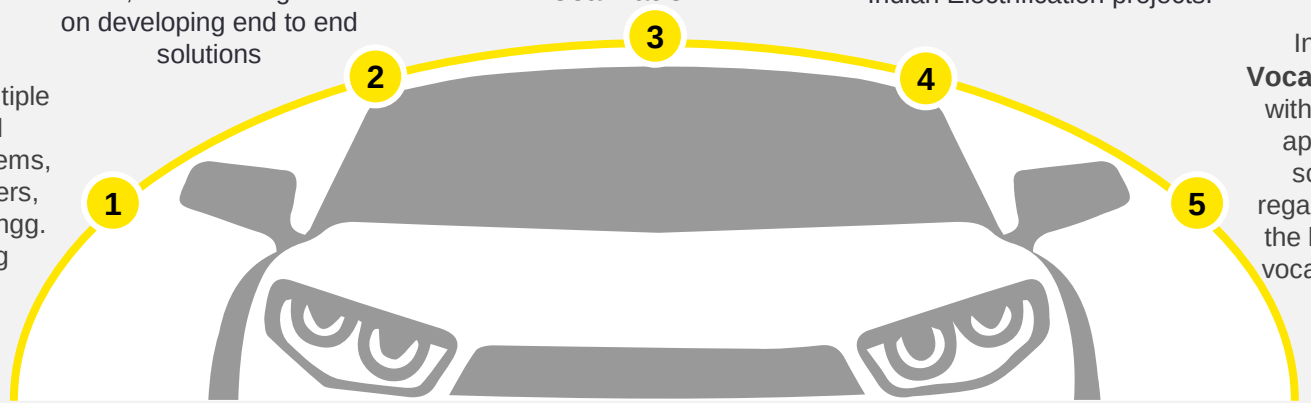
Bosch is involved in specific projects for the Indian EV industry and has **developed 48 volt battery system and Electric Drives for the 2W and 3W segments, enabling faster localization.**

4

Setup **'Agile Project House'** at its India Operations to be able to respond to local requirements better, on the Indian Electrification projects.

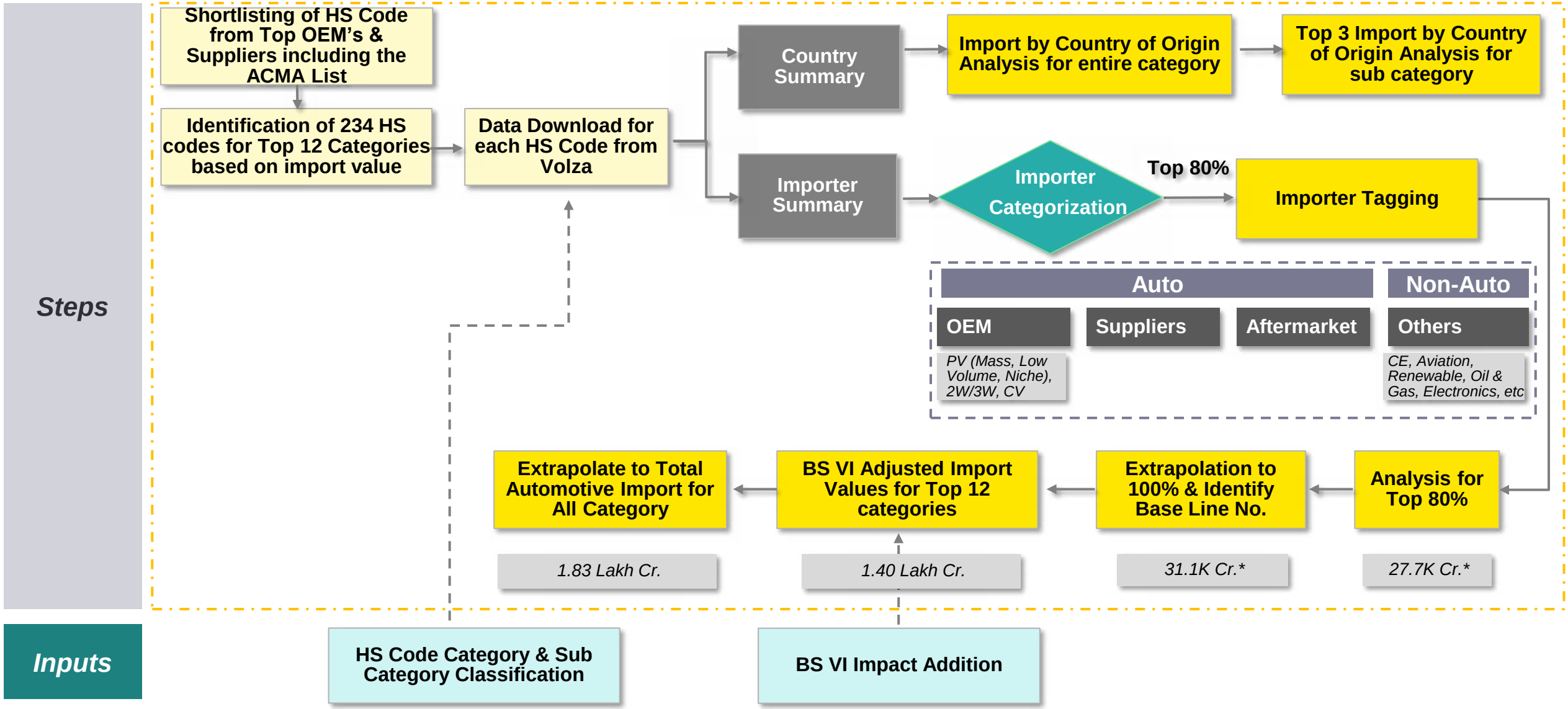
5

Invested in a **Vocational Centre**, with a Tool Room apprenticeship scheme, still, regarded as one of the best Industrial vocational centres



Annexure

Import Analysis Methodology
Workflow



*Illustrative no.s for Drive Transmission & Steering.

Impact of BS-VI & other forthcoming emission regulations

Top-Down Approach

- Vehicle Production numbers of FY 20 have been considered as the baseline
- Average (Ex. Showroom) Price per vehicle for each segment and the price increase on account of BS-VI and other forthcoming emission regulations has been estimated
- The total impact of the price increase has been calculated for the volume of vehicles produced
- Adjustment factor applied for BS VI imports already part of FY 19-20

Total Impact	→	Import Content#
INR 31K Cr.		**INR 10K Cr.**

#after having accounted for the import percentages based on the previous years' trends

Bottom-up Approach

- Key Categories impacted by BS-VI have been considered : Engine, Electricals and Electronics
- For each category, the cost increase due to BS-VI and other emission regulations has been estimated
- Based on the past trends, the import content for each of the categories has been accounted for
- The net increase in imports for the selected categories has been calculated
- Adjustment factor applied for BS VI imports already part of FY 19-20

Segment	Category-level Increase (INR Cr.)			Total
	Engine	Electronics	Electricals	
PV (Mass)	770	525	-	1,295
PV (Low Volume)	37	18	-	55
PV (Niche)	23	29	-	52
PV/CV	5	12	-	17
CV	851	-	-	851
2W/3W	-	-	-	-
Suppliers	3,403	2,902	338	6,643
Grand Total	**5,089**	**3,485**	**338**	**8,912**

**BS-VI numbers are based on best estimates*

Total adjusted import value including the correction factor due to BS-VI

Category Name	Total (INR Cr.)
Drive Transmission & Steering	31,105
Engine	21,366
Electricals	18,695
Electronic components	16,145
Iron & Steel	14,119
Rubber Raw Material	13,494
Tools, Dies & Moulds	8,074
Body / Chassis / BiW	7,134
Interiors (non-electronic)	3,256
Rubber Components	3,020
Fasteners	2,505
Tyres	1,969
Grand Total	1,40,881

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Thank You!

Disclaimer

The information contained on imports in this report is limited to the timeline of FY19-20 (1 April 2019 to 31 March 2020) calibrated in certain areas as per the study requirements using reasonable industry specific assumptions. The information gathered as part of import data assessment contains reasonable industry specific assumptions. The information and report has been prepared using these assumptions on a best effort basis, primary inputs from industry stakeholders and secondary research.

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