A roadmap for creating Global Champions in Automotive Industry in India

19 November 2020

Final Report

Table of Contents

1. Introduction

1.1. Background

The Global Scenario:

Since the development of the first few prototypes, the automotive industry including automotive components has witnessed a continuous evolution and has become one of the leading global industrial sectors. The industry today accounts for one in ten jobs in industrialized countries. Automotive industry has been a catalyst for strong growth opportunities in developing countries, because of the strong dependence with other sectors which feeds into its supply chain.

The global automotive industry includes vehicle original equipment manufacturers (OEM), automotive component manufacturers, aftermarket parts manufacturers, dealers and retailers. The growth of automotive component industry is highly correlated to growth in the original equipment manufacturers (OEMs) in automobile industry.

Over the past few decades, due to availability of low-cost manufacturing options, rising urbanization and increasing Purchasing Power Parity, the manufacturing landscape for automobiles and auto-components is shifting toward Asian countries such as China, India, Thailand, Indonesia etc.

The Indian Scenario:

The Indian automotive sector is a US$100+ billion industry[1], of which exports comprises of US$27 Billion (2019). Auto OEMs exports out of India is US$11.7 Billion[2], which puts around 12 countries ahead of India in terms of export performance. The auto-component industry's exports amounted to US$15 billion[3] in FY 2019 and exports have been growing at a CAGR of 11.6% between FY 16 and FY19. By comparing India's share of exports in global automotive trade, it is visible that there is significant opportunity for India's automotive exports to grow.

However, the Indian automotive industry has certain disabilities with respect to competing nations, owing to certain infrastructural inefficiencies and bottlenecks. Some of the key challenges that industry participants face include high logistics cost, high cost of finance, high energy cost and inadequate availability of power, difficulty of doing business, and limited Free Trade Agreements which restricts market access on a bi-lateral basis.

1.2. Objective of the research

The primary aim of this research is to develop a framework for a robust incentive scheme that will make Indian Automotive industry more competitive and drive the process of globalisation. Such a framework should guide policy decisions to promote global champions, attract new investment in the automotive industry, grow demand and economic value add for the domestic sector including Medium Small Micro Enterprises (MSME). It should also create employment opportunities and enhance the overall competitiveness of Indian automotive sector.

[1] EMIS, PwC Analysis
[2] Ministry of Commerce, UN Comtrade
[3] Ministry of Commerce - HS Code Reports - Chapter 87

The key objectives of this research are to:

- Analyze India's import, export, domestic market performance and identify opportunities for growth
- Evaluate challenges and bottlenecks that causes disabilities for companies based in India in achieving global competitiveness
- Study incentive measures used by other countries to support development of their automotive industry
- Government of India has already announced its strategy of identifying Global champions that can drive rapid growth in industrial output and exports. This study analyses how this concept can be applied to the automotive industry
- Lay out guidelines and framework to design an incentive scheme that promotes global integration, enhances industry competitiveness and drives growth in industry output including exports

1.3. Methodology

The following methodology was followed to conduct the research and arrive at the framework for the incentive policy:

Automotive Industry Analysis

A thorough analysis of the Indian automotive industry was undertaken to understand the historical export/ import performance and the growth potential across the value chain – Automotive OEMs and Automotive components. Review of existing literature on public databases was also undertaken to understand the current challenges that restrict the import export performance of the industry.

Study of Global Incentive Schemes

A comprehensive study of global incentive schemes was completed to evaluate the different incentive scheme mechanisms adopted by leading and emerging automotive manufacturing countries.

Discussion with Industry Stakeholders

Multiple interactions with government bodies such as Niti Aayog, Department of Heavy Industries as well as with industry associations such as SIAM (Society of Automotive Manufacturers) and ACMA (Auto-component manufacturers association) were undertaken to understand the current challenges and gather their perspective on areas of required intervention.

2. Overview of the Indian automotive industry

As discussed in section 1.3, a thorough analysis of the current state of the Indian automotive sector is required to understand the current industry context, analyze the sector's performance in terms of domestic and export growth, and understand the current bottlenecks / challenges that can be alleviated to unlock growth and further the globalization of the sector. Each of these areas have been detailed in the sections below:

2.1. Current industry structure and size

Since the latter half of the 1990s, domestic automotive manufacturers started setting up large manufacturing facilities in India. Following the success of these domestic manufacturers and post de-licensing of the auto sector in 1993, foreign automotive manufacturers started entering the lucrative Indian market. By the early 2000s several global automotive companies had a footprint in India.

The automobile landscape in 2020 has several players operating in India. These players include large Indian home-grown manufacturers along with Indian subsidiaries of global automobile manufacturers. Vehicles produced in India cater to both the Indian market as well as foreign markets.

The automotive sector consists of a complex global supply chain which can be divided into the following 4 entities:

1. Suppliers – These are auto-component makers that supply assemblies, sub-assemblies and individual parts to the assembler of the finished product.

Suppliers can further be classified into Tiers. A supplier that directly sells to the OEM is known as a Tier 1 supplier. A *Tier 1* supplier may purchase sub-assemblies, individual components and/or materials from another supplier. Any supplier delivering goods to a Tier 1 supplier is known as a Tier 2 supplier. Tier 1 suppliers directly interface with OEMs and are manufacturers of automotive components. Upstream suppliers (i.e. Tier 2 and below) can be auto-component manufacturers, machined goods producers and/or raw material suppliers. For the purpose of this study, suppliers will include only Tier 1 – Tier N auto-component manufacturers.

2. Purchase IPOs (International Purchase Offices) are automotive component procurement houses that purchase components, parts and materials for an automotive company's global manufacturing operations. IPOs leverage cost, quality & economies of scale benefits to make favorable purchase decisions.

Large Tier 1 suppliers and original equipment manufacturers (OEMs) have Purchase functions in India that develop local suppliers, manage global RFP processes and facilitate purchase of components. The acquired materials may be used for production within the country or may be exported to support manufacturing operations in another country.

3. Original Equipment Manufacturer (OEM) – These companies assemble the components and parts acquired from suppliers to produce the finished vehicles. All motor-vehicle manufacturers would fall under the category of OEMs.

OEMs may export, import or sell the finished motor-vehicle domestically. For export and import of the finished goods, OEMs may follow one of two approaches:

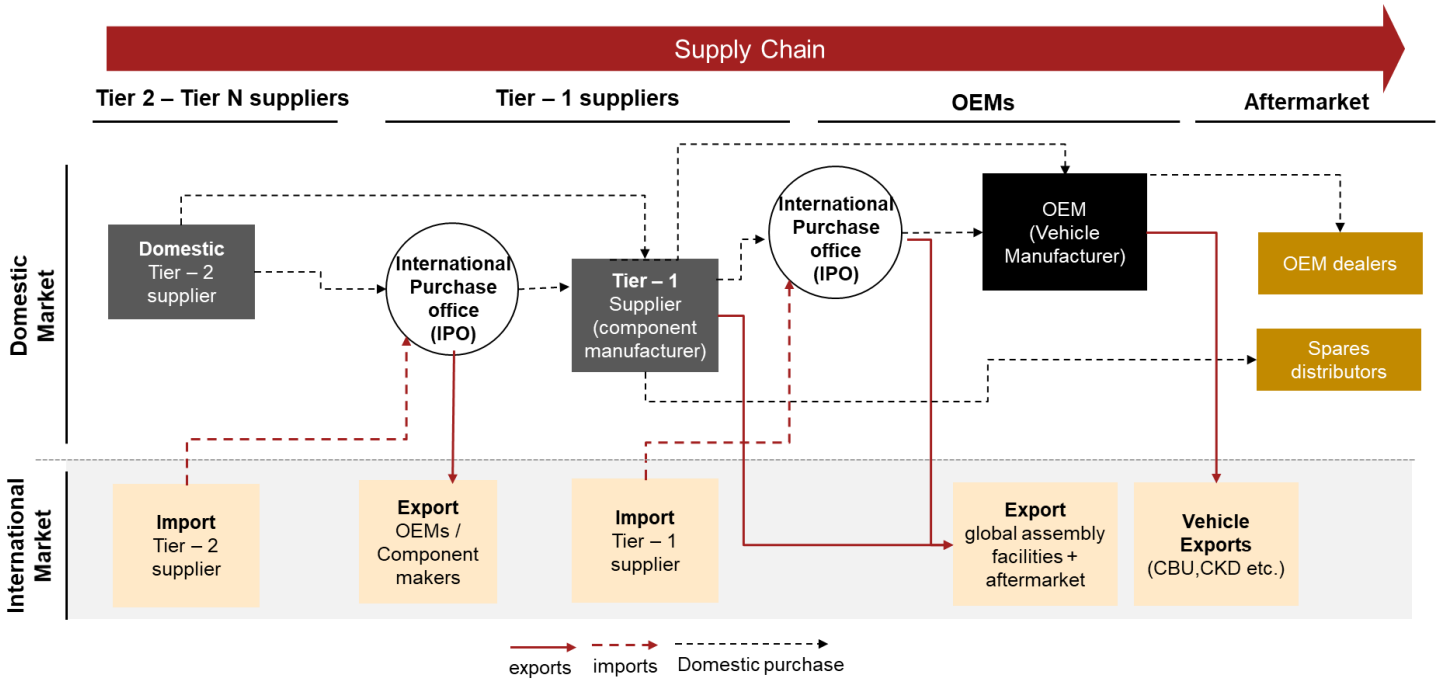
a. Completely knocked Down (CKD) / Semi Knocked down (SKD)/Component Aggregates – In this approach, the OEM ships sub-assemblies / components in the form of kits to the destination country where these sub-assemblies are assembled into a finished motor vehicle.

b. Completely Built-Up (CBU) – In this approach, the entire finished motor-vehicle is shipped to the destination country.

4. Aftermarket – The aftermarket comprises of sellers of automotive spare parts. The sellers may be automotive OEMs or distributors of spare parts. For both these seller categories, the spare parts are sourced from component suppliers.

The graphic below explains the interactions and structure of the automotive industry.

Figure 1 - Structure of the Automotive Industry



As India's GDP output has increased, so has its citizens' propensity of consumption. Growth in household income is highly correlated to the increase in sales of motor vehicles[4]. During the financial year (FY) 2015, 23.97 million motor vehicles were manufactured in India. By FY 2019, this number increased to 31.80 million motor vehicles. This corresponds to a compounded annual growth rate (CAGR) of 7.3% for the 5-year period between FY15 and FY19. Below is the split by category:

[4] The Institute for Social and Economic Change - Income and Vehicular Growth in India: A Time Series Econometric Analysis

Table 1 - Motor Vehicle Production in India (units)

	FY 2015	FY 2019	CAGR ('15 - '19)
Passenger Vehicles	3,221,419	4,026,047	5.7%
Commercial Vehicles	698,298	1,112,176	12.3%
2 Wheelers	18,489,311	24,503,086	7.3%
3 Wheelers	949,019	1,268,723	7.5%
Tractors	612,994	897,548	10.0%
Total	***23,971,041***	***31,807,580***	***7.3%***

Source: SIAM

Further, the Indian automotive industry recorded a turnover of $76 billion in FY2015 which increased to $106 billion in FY2019 representing a CAGR of 8.7%. Turnover numbers have been computed by considering sales of auto-components, value added by OEMs and exports (auto-components and motor-vehicles) in the given year[5].

The Indian automotive industry is also one of the leading employment generators with ~37 million people, both directly and indirectly employed in the sector. Direct workers include people directly employed by Automotive OEMs and auto-component companies to manufacture and assemble automotive vehicles and components as well as support and supervisory staff that enable the operations of these companies. Additionally, every vehicle produced generates secondary and tertiary employment. Examples of such workers include logistics providers, service contractors, OEM dealership staff, third party warehouse workers, etc. [6]

Basis the structure envisioned above and for the purpose of this study we can divide the automotive sector into two main sub-divisions:

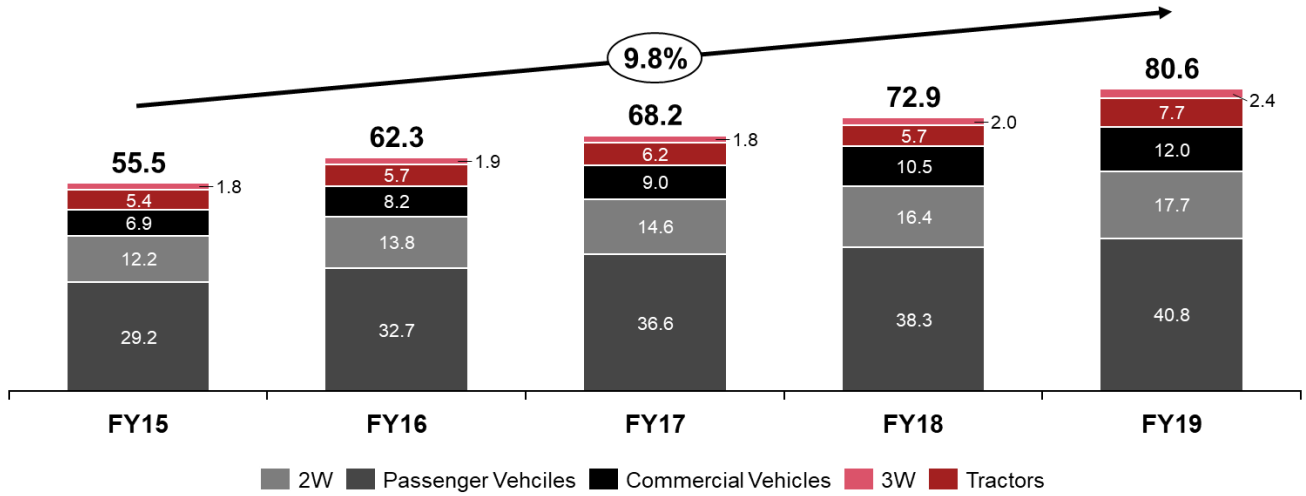
a. Original equipment manufacturers (OEMs)

a.1 - Turnover

The graph below captures the total turnover along with the segment-wise turnover for 42 automotive OEMs with manufacturing operations in India. All values are in billions of US Dollars. Exchange rate assumed = 1US$ = INR 70

[5] PwC Analysis, Capital Line, EMIS
[6] Ministry of Heavy Industries and Public Enterprises Annual Report 2018-19

Figure 2 - Annual turnover of OEMs in India ($ billion)



Source: Capitaline, Emerging Market Insights (EMIS), PwC Analysis

a.2 – Trade

As per data from Ministry of Commerce – Government of India, auto OEMs exported motor vehicles worth $11.7 billion while motor vehicles worth $1.4 billion were imported into the country in FY 2019[7].

Trade values have been computed using relevant 4-digit Harmonized System (HS) codes under Chapter 87.

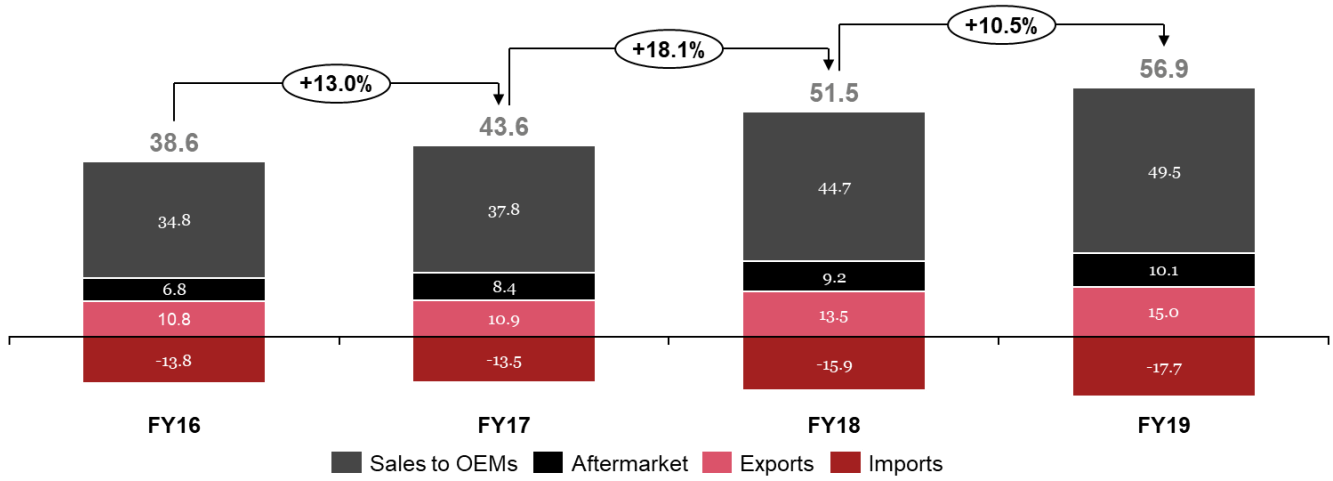
b. Auto-component manufacturers (ACMs)

b.1 – Turnover

The graph below captures the turnover for different segments under the auto-components industry. All numbers are in billions of US Dollars. Automotive component industry has seen a healthy growth in revenues reaching US$56.9 Bn in FY2019

[7] Ministry of Commerce - HS Code Reports - Chapter 87
Exchange Rate 1 USD = INR 70

Figure 3 – Market size of the Auto-components industry in India ($ billion)



Source: Capitaline, EMIS, SIAM, Annual Reports

b.2 – Trade

As can be seen from graph above, auto-components work $15 billion were exported from India while $17.7 billion worth of components were imported into the country in FY 2019[8].

Trade values have been computed using data for 219 HS codes that are classified as automotive components by the Automotive Component Manufacturers Association (ACMA)

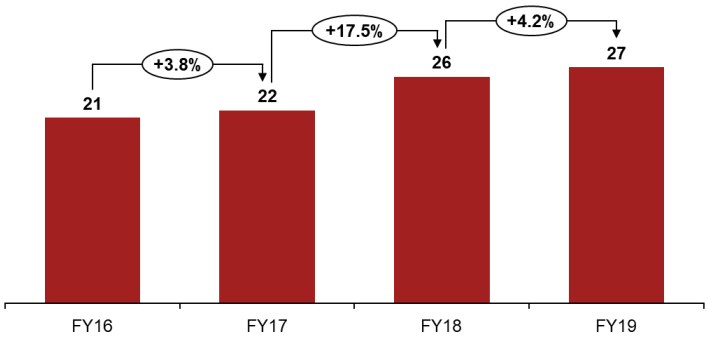
2.2. Analysis of Indian automotive sector's export performance

Exporting to multiple markets enables firms to ensure lower demand volatility and maintain economies of scale. This section highlights the Indian automotive industry's export performance and analyses the segments that outperform the others.

In FY 2019, the Indian automotive sector recorded exports worth ~$27 billion. This value includes the export of auto-components as well as motor vehicles. The graph below captures the auto sector's exports performance over the past few years. All numbers are in billions of US Dollars.

[8] Ministry of Commerce – HS Code level reports
Exchange Rate: 1 USD = INR 70

Figure 4 - Annual Exports Performance of India's Automotive Industry ($ billion)



Source: Ministry of Commerce, UN Comtrade

While the value of exports has grown at a CAGR of 8.0% between FY16 and FY19, it is imperative to understand the segments driving growth in exports. Fast growing export segments indicate a comparative advantage that can be utilized further to increase exports.

The table below breaks down total exports into auto-component and motor vehicle exports:

Table 2 - Exports split of the Automotive Industry ($ billion)

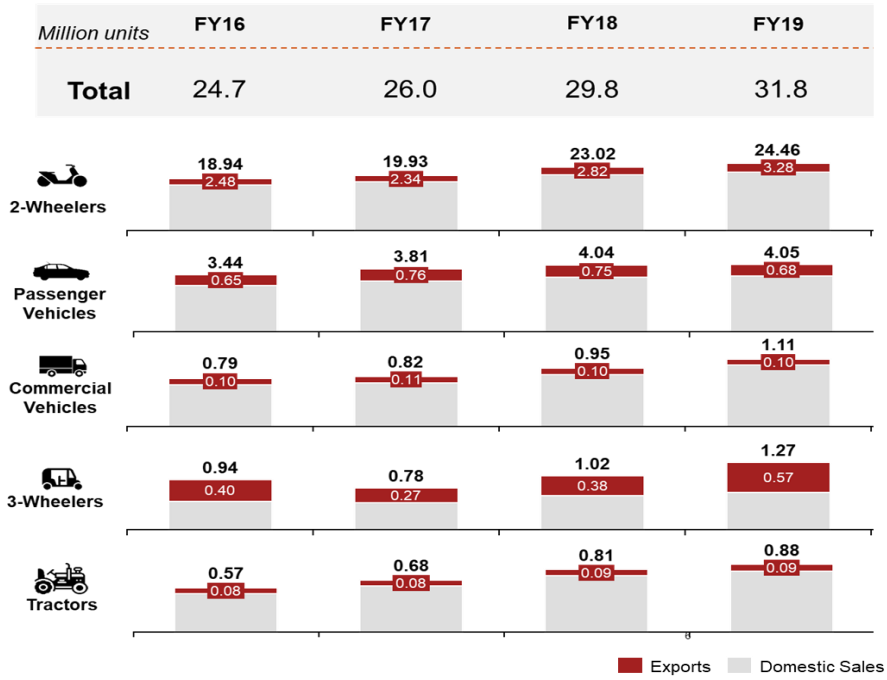
	FY16	**FY17**	**FY18**	**FY19**
OEM	10.4	11.2	12.4	11.7
ACM	10.8	10.9	13.5	15.0
Total	***21.2***	***22.1***	***25.9***	***26.7***

Source: Ministry of Commerce, UN Comtrade

1. Exports by OEMs

In order to study the export of motor vehicles by OEMs it will be useful to segregate exports into segments such as passenger vehicles, commercial vehicles, 2 wheelers, 3 wheelers and tractors. The following illustrative captures the export numbers by segment. All numbers are in million units.

Figure 5 - Exports performance by vehicle segment (million units)



Source: SIAM, Tractor Manufacturers Association (TMA), CRISIL

From the illustration above, it is evident that the 2 wheelers segment exports the greatest number of units followed by the passenger cars segment. However, some finer nuances may be revealed by exports as a percentage of total production.

Table 3 - Share of Exports in Total Vehicle Production for Each Segment

	FY16	**FY17**	**FY18**	**FY19**
Passenger Vehicles	18.8%	20.0%	18.6%	16.8%
Commercial Vehicles	13.1%	13.4%	10.8%	9.0%
2 Wheelers	13.2%	11.7%	12.2%	13.4%
3 Wheelers	43.3%	34.7%	37.3%	44.7%
Tractors	13.6%	11.3%	10.5%	10.2%

Source: SIAM, TMA

A high proportion of 3 wheelers are exported from India, indicating that this segment may have a comparative advantage. Further, small proportion of exports of commercial vehicles and tractors may demonstrate lack of global competitiveness and export focus in these segments.

1.a – Passenger Vehicles

On analyzing passenger vehicles exports, we find that 93% of all exports are driven by just 3 sub-segments:

Table 4 - Top passenger vehicle sub-segments exported (units)

Sub - Segment (Engine Capacity)	Export Nos.	% of Total Exports
Compact (<1.4 Litres)	280,171	41.4%
Mid-size (<1.6 Litres)	174,561	25.8%
Compact+ (Utility Vehicles)	176,201	26.0%

Source: SIAM

The sub-segments driving passenger vehicle exports are compact and mid-size cars along with compact sports utility vehicles (SUVs). The Indian market is known for its preference of small and mid-sized cars. Auto OEMs in the country spend on R&D to develop small & mid-sized cars. At the same time producing these small & mid-sized cars in India is cost-effective due to economies of scale offered by the production lines for such cars. Hence, cars with engine capacities less than 1.6 litres along with Compact utility vehicles less than INR 15 lakh dominate the passenger vehicle export landscape in India.

1.b – Commercial Vehicles

Overall commercial vehicle exports numbers and proportion of exports are low. Diving into exports data also reveals that exports are mostly scattered across sub-segments. The top 3 sub-segments account for ~60% of all commercial vehicle exports.

Table 5 - Top commercial vehicle sub-segments exported (units)

Sub - Segment (Body Weight)	Export Nos.	% of Total Exports
Pick-Up (2-3.5 tons)	21,462	35.3%
Mini-Truck (>2 tons)	8,300	13.7%
Pass. LCV (5-7.5 tons)	5,707	9.4%

Source: SIAM

It is evident that low tonnage commercial vehicles are exported from India. Unlike most countries, low tonnage commercial vehicles are more popular in India. Due to limited demand for low tonnage commercial vehicles within most countries, India produced commercial vehicles are not in high demand globally.

1.c – 2 Wheelers

For 2 wheelers, the top 3 sub-segments account for ~87% of exports.

Table 6 - Top 2-wheeler sub-segments exported (units)

Segment (Engine Capacity)	Export Nos. FY20	% of Total Exports
75cc to 110cc	1,559,846	44.3%
150cc to 200cc	859,978	24.4%
110cc – 125cc	658,431	18.7%

Source: SIAM

The sub-segments forming the majority of 2-wheeler exports are engine sizes between 75cc and 200cc. These are essentially small to medium engine 2 wheelers. The domestic 2-wheeler market in India is heavily tilted toward these small to medium engine 2 wheelers, hence, manufacturing these 2 wheelers in India is cost competitive.

1.d – 3 Wheelers

While top 3 sub-segments account for ~100% of exports, just one sub-segment accounts for 98.5%.

Table 7 - Top 3-wheeler sub-segments exported (units)

Sub-Segment (Body Weight)	Export Nos.	% of Total Exports
Passenger (<1 ton)	494,613	98.5%
Goods (<1 ton)	6,319	1.3%
Passenger (1-1.5 ton)	1190	0.2%

Source: SIAM

India is one of the few countries that produces passenger 3 wheelers at a mass scale. The export demand for passenger 3 wheelers has grown rapidly from geographies such as Africa and South-East Asia, which prefer using 3 wheelers for last mile connectivity.

1.e Tractors

Tractors account for a small number of units and a relatively smaller proportion of exports. The top 3 sub-segments amount to 93.7% of all exports.

Table 8 - Top tractor sub-segments exported (units)

Sub-Segment (Engine Size)	Export Nos.	% of Total Exports
>51 hp	46,268	60.8%
41-50 hp	18.925	24.9%
<31 hp	6,538	8.6%

Source: TMA

Despite India being the largest producer of tractors globally, its export volumes are small. This can be attributed to a domestic preference for low horse-power tractors. A smaller land-holding size coupled with lower farm mechanization in India spurs the demand for tractors between 31-50 horsepower.

Globally, the emphasis has been on increasing productivity by moving away from traditional farming methods to adopting other powered equipment and implements requiring the use of high-powered tractors (greater than 51 horsepower). This explains the highest share of high-powered tractor in exports from India. However, lower numbers may result from a lack of global cost-competitiveness due to a small production base for high powered tractors.

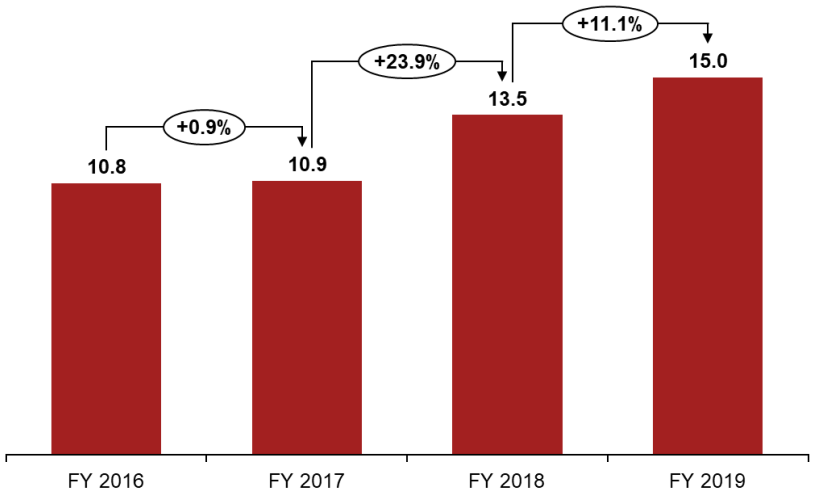
Key Takeaways from OEM Exports

- India has a comparative advantage in producing small to mid-size passenger vehicles and 2 wheelers
- 3 wheelers have the largest proportion of exports to vehicles produced. Indian passenger 3 wheelers in demand in several developing economies
- Small to mid-sized commercial vehicles and tractors preferred within India, opposed to the trend globally. As a result, these 2 segments have limited global competitiveness

2. Exports by Auto-components manufacturers (ACMs)

India remains a net-importer of auto-components. In FY 2019, the trade deficit for auto-components stood at $2.7 billion. However, the trade deficit has largely remained around $2 - $2.5 billion level since FY 2015 while value of exports from India has increased. The chart below details the value of auto-component exports from India. Numbers are in billions of US Dollars:

Figure 6 - Annual auto-component exports from India ($ billion)

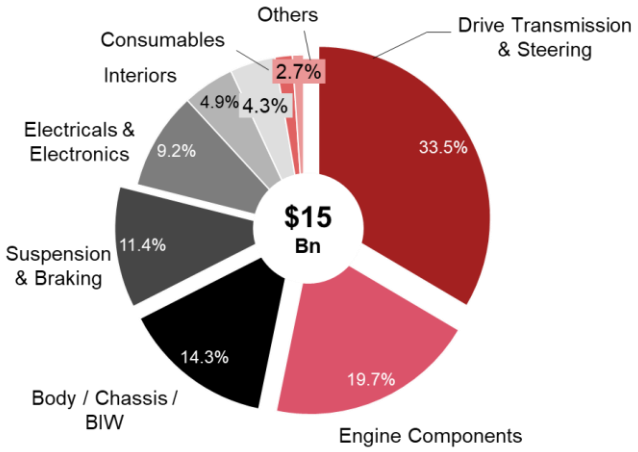


Source: Ministry of Commerce - Govt. of India

Overall automotive exports from India (OEM+ ACM exports) grew at a CAGR of 8.0% (FY16 – FY 19). Compared to the overall automotive exports, auto-component exports have grown at a faster pace, recording a CAGR of 11.6% between FY 2016 and FY 2019. The value of auto-components exports has been computed using 219 HS Codes specified by the Automotive Component Manufacturers Association (ACMA).

The graphic below shows the split of auto-component segments exported from India in FY 2019:

Figure 7 - Aggregate split of auto-components exported from India in FY 2019



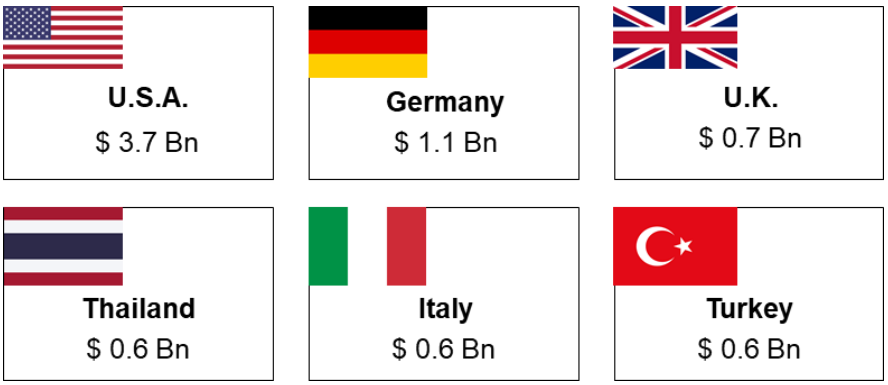
Segment	Export Value - FY19 (Billions)
Drive Transmission & Steering	$ 5.0
Engine Components	$ 3.0
Body / Chassis / BIW	$ 2.2
Suspension & Braking	$ 1.7
Electricals & Electronics	$ 1.4

Source: Ministry Commerce, ACMA, PwC Analysis

Drive transmission and steering has remained the largest export segment from India for the last 5 years. Similarly, engine components have not moved from the 2nd spot either. However, the highest growth segment has been Electricals & Electronics, recording ~15% year-on-year growth since FY 2017. The high growth is line with increasing "*Electronification*" of automobiles which has spurred demand for this category.

The following graphic shows India's largest export markets for auto-components in FY 2019:

Figure 8 - Top global export destinations of Indian auto-components



Source: Ministry of Commerce

The United States of America and Europe are the largest markets for Indian auto-components. Both United States and Germany are large producers of motor vehicles. However, for its proximity to the United States and

cost advantage, Mexico is a large growth market. In FY 2019, India's auto-components exports to Mexico recorded a year-on-year growth of 25% totaling $439 million.

2.3. Key challenges & bottlenecks for global competitiveness

For Indian automotive industry to further enhance its global integration, it is essential to unlock bottlenecks that restricts its goods to have a competitive advantage in the global automotive market. In order to understand the automotive industry's take on barriers to exports competitiveness, interactions with experienced stakeholders across OEMs, auto-component manufacturers and industry interest groups were setup. Basis our interactions, following were the key challenges highlighted by participants:

1. Price competitiveness and increased competition from other competing nations

Indian manufactured automotive vehicles and components face strong price competition from other developing nations. Several inefficiencies and utility cost structures increase manufacturers' cost structure, leading to higher costs. A case in point would be high interest rates for credit made available to exporters. While rates have hovered around 8% - 11% in India, these are as low as 4% in competing nations such as Thailand. Another cost head higher than competing nations is power tariff. A World Bank study on Power distortions in South Asia[9] determined that state owned power plants in India are less efficient than private plants. The report also states that there are significant transmission and distribution losses with more than 20% of power generated lost during transmission in FY 2016. These losses amounted to roughly INR 700 billion in the same fiscal. Extra charges such as a coal cess and royalty charges in the metals sector also add to the cost burden of manufacturers.

2. Ease of doing business in India

While India's ranking on the Ease of Doing Business Index has improved, it still has a long way to go compared to its competing countries in the automotive industry. Several stakeholders cited inflexible and slow government processes, heavy regulatory burden and access to skilled labour as key challenges. One area that stands out among the rest in ease of doing business is the Logistics sector. Logistical inefficiencies push up transportation costs significantly in India and result in price disadvantage and delivery inconsistency as compared to other countries. This typically translates into higher inventories to be maintained at warehouses in the exporting nations, adding further to the costs.As per World Bank's Logitics Performance Index, India ranks the lowest in Timeliness of shipments compared to China, Thailand, Vietnam and Indonesia. Quality of logisitcs infrastructure is another area of concern highlighted by the index with India only marginally better than Indonesia. Vietnam, Thailand and China remain considerably ahead of India on this parameter[10]. While India ranked 63 on World Bank's Doing Business Index 2020, China and Thailand ranked 31 and 20 respectively. Mexico, which is a major automotive producer ranked closer to India at 60[11].

[9] The World Bank - In the Dark - How much do power distortions cost South Asia? (2019)
[10] The World Bank – Logistics Performance Index (2018)
[11] The World Bank – Doing Business 2020

3. Lack of Free-Trade Agreements

A limited number of free-trade agreements hamper the competitiveness of Indian exports. Looking at coverage of global tade blocs, India currently has 42 trade agreements (inlcuding those under negotiation)[12]. While these trade agreements cover blocs such as EU and LATAM, a major exclusion is Africa. India also does not leverage its trade agreements as deeply as its competitiors. Despite India having multiple trade agreements with SAARC and ASEAN nations such as the SAARC Preferential Trading Arrangement (SAPTA) followed by the South Asian Free Trade Agreements (SAFTA) as well as Indo-Myanmar Border Trade Agreement, ASEAN-India Trade in Goods Agreement and Indo-Sri Lanka FTA, India's trade performance in contrast with China's in the South Asian region leaves much to be desired. In 2014, Indian exports to South Asia accounted for $24.70 billion while Chinese exports stood at $60.41 billion[13]. In the case of the CEPA with Japan, bilateral trade has either declined or stagnated after the 1st year of implementation but there has been a substantial rise in trade deficit with that country also.

4. Lack of investment in brand by Indian companies

Indian OEMs and component manufacturers need to spend more in order to enhance brand awareness in international markets. Branding helps create share of mind for the brand and Large Indian OEMs should evaluate sustained investments in building the brand for greater customer acceptance. Indian auto-component makers must similarly devise international B2B marketing strategies through ongoing market outreach. Leveraging digital marketing can be an effective channel for building the made in India brand.

5. Exchange rate variation

A volatile currency has negative effects on industry as depreciation tightens liquidity for manufacturers. The foreign currency component of export credit availed by manufacturers gets revalued higher (in INR), reducing available limits and depriving exporters of funds. Further, volatility in exchange rates result in uncertainty on profitability especially as profit margins can be quite thin for several companies.

6. Research & Development (R&D) investment gap

Despite the automotive sector contributing ~7% of India's GDP[14], the R&D expenditure of the sector remains limited. An analysis of the top automobile manufacturers in India reveals that cumulatively, these firms spent ~2.6% of revenue earned on R&D[15] compared to 5%-6.5% of revenue for major global manufacturers[16]. Within the Indian OEMs, major passenger car manufacturers spend ~5% of automotive revenues on R&D since all major development projects are driven from India for these firms. The large Indian two-wheeler players' R&D spend stands at ~1.6% of revenue[17]. Among the automotive component manufacturers, R&D spends are even lower, with the top 10 Indian component manufacturers by revenue spending ~0.8% of their revenues on research & development[18].

In recent years, several global automobile firms have set up dedicated R&D facilities in India. They hope to leverage the abundant and hence, affordable engineering talent in country to drive down costs for their in-

[12] Department of Commerce – Trade Agreements (Current Engagements/Negotiations)
[13] Brookings Institution India Center - India's Limited Trade Connectivity with South Asia (2020)
[14] CII – Automobiles sector
[15] EMIS, Capitaline, PwC analysis
[16] Company annual reports, PwC analysis
[17] Company annual reports, PwC analysis
[18] Company annual reports, PwC analysis

house product development. However, the heightened R&D activity in India is mainly geared toward lower value activities within the R&D value chain.

The R&D value chain can be divided into three activities: fundamental research, design & engineering of automobiles and development. The captive R&D centres in India are undertaking development work. There is R&D skill gap among the higher value activities in the R&D value chain in India.

The R&D captive centres established in India by global automotive players undertake several activities including the following development activities & services in India:

- Homologation – Adapting global product designs to meet Indian standards and regulations. The activity involves adapting the design of not only the automobile but in some cases also the design of components to obtain certifications of roadworthiness
- Engineering design services – Involves the use of computer aided systems (software) to convert 3D renderings of vehicle components into software models. Design services also assist engineers in preparing the Bill of Materials (BoM) for various activities such as production, prototyping, testing, etc.
- Cost engineering – Involves the estimation of the manufacturing & procurement cost of vehicle parts. This activity allows OEMs to source components at lower costs for its global manufacturing operations
- Testing services – The design of new vehicles and components is subjected to various stress tests in order to determine roadworthiness

Comparatively, Indian OEMs undertake higher value design and engineering activities which involve vehicle platform design, vehicle exterior design, components design and testing as well as the design and testing of critical sub-assemblies. Given the paucity of high-end R&D talent in India, OEMs have resorted to models such as acquiring international design & engineering companies to bridge the talent gap and fast track R&D capabilities. OEMs in India need to increase their investment in R&D and build capabilities across the value chain.

Despite Indian OEMs' focus of design and engineering, automotive R&D in India requires a push toward fundamental research and pure R&D. With the global automobile sector at the cusp of disruption, a push toward pure research shall bode well for the sector. As electric vehicles and alternative fuel sources start coming into the mainstream, India is presented with an opportunity to become a leader in research. An increased focus on vehicle safety and light weight structures to reduce emissions throws up the opportunity to expand materials research with regards to the automotive sector. On the auto components front, Indian manufacturers generally lack the technology for electrical and electronic components except a few companies. In FY2020, India imported electrical and electronic components worth $2.5 billion[19]. While this was the third largest import category under vehicle components, it has been the fastest growing import head for the last 3 years, growing at compounded annual growth rate of ~9% between FY2017 and FY2020[20]. With connected vehicles entering the mainstream, "*electronification*" of vehicles shall only increase. Indian auto component manufacturers must seize this opportunity to shore up their product lines to meet this challenge. Effective industry-academia collaborations and research incentives may nudge the Indian automotive sector to the highest value generating activities within the R&D value chain.

[19] Ministry of Commerce – HS Code-wise data
[20] Ministry of Commerce, PwC analysis

2.4. Key Cost Disabilities[21]

Automotive manufacturers in India are adversely impacted by the inefficiencies in the supporting infrastructure and suffer cost disabilities in comparison to other automotive producing nations.

Of all the cost incurred by Automotive manufacturers in India, outbound freight, inbound logistics, power & fuel, finance & depreciation costs & taxes are directly impacted through government policies, infrastructural bottlenecks and ineffieciencies. These cost heads can add up to disabilities of around 5-8% to the total expenses incurred by automotive manufacturers. Further details on cost structure of Automotive OEMs & Auto-component players is presented in the Appendix.

The table below compares the key cost drivers for automotive producers in India in comparison to other emerging automotive manufacturing countries:

Table 9 – Comparison of Key Cost Drivers

Production Factor	India	China	Thailand	Indonesia	Vietnam
Import Duty on Auto-Components (%)	7.5 – 20%	0-17%	0-30%	0-30%	0-30%
Import Duty on Basic Raw Materials (%)	9%	5.6%	3%	5.3%	5%
VAT / GST (%)	18/28%	13%	7%	10%	5/10%
Average Power Cost (INR / KWH)	8.5	6.87	8.92	5.32	6.1
Logistics Ranking	44	26	32	46	39
Average Lending Rate (%)	8-11%	4.3%	4.1%	10.5%	7.4%
Corporate Tax Rate	25.17%	25%	20%	25%	20%

Source: ACMA Report on Potential Exporter & Global Manufacturing Champion, World Bank, ILO

[21] PwC Analysis, ACMA, World Bank

While Indian manufacturing wages are lowest among countries compared above, inflexible labor laws increase the overall employee cost burden for the companies. High import duties and local indirect tax rates also push above the overall input material costs for the manufacturers and can increase the overall costs by 2-3%.

It is a known fact that logistical inefficiencies push up transportation costs significantly in India. As per World Bank's Logitics Performance Index, India ranks the lowest in Timeliness of shipments compared to China, Thailand, Vietnam and Indonesia. Quality of logisitcs infrastructure is another area of concern highlighted by the index with India only marginally better than Indonesia. Vietnam, Thailand and China remain considerably ahead of India on this parameter. The impact of such logistical inefficiencies on overall cost of the Indian automotive manufacturers can be between 1.5 to 4%, depending on the distance of point of sales from the factory.

A World Bank study on Power distortions in South Asia determined that state owned power plants in India are less efficient than private plants. The report also states that there are significant transmission and distribution losses with more than 20% of power generated lost during transmission in FY 2016. These losses amounted to roughly INR 700 billion in the same fiscal. These inefficiencies increase the energy tarrif for Indian manufacturers and can increase the overall costs for automotive manufacturers by 0.5 – 1%.

The higher lending rate for Indian companies also push up the cost of capital and overall finance costs and adversely impact the plant modernization plans of Indian manufacturers. The higher lending rates can additionally increase the overall costs for Indian auto manufacturers by 0.5 – 1%.

On the whole, inefficiencies in the enabling infrastructure can lead to a cost disability of 5-8% for Indian manufacturers in comparison to other automotive manufacturing countries. A robust and targeted incentive mechanism is required to address the disabilities and provide an even platform to the Indian automotive sector.

2.5. Opportunities and potential for Growth

Table 10 - Top Vehicle exporting nations in 2019 ($ billion) (Source: UN Comtrade)

Country	OEM Exports (2019)
Germany	$172.10
Japan	$113
Mexico	$87.80
United States of America	$85.20
South Korea	$43.50
China	$27.80
Czech Republic	$24.50
Slovakia	$24.50
Turkey	$20.80
Thailand	$20.0
India	$11.70
Brazil	$9.55
Indonesia	$4.53
Vietnam	$0.61

India's potential for growth in global automotive market can be determined by looking at some of the largest OEM exporting nations. The table 10 below captures OEM exports in the calendar year 2019. All values are in billions of US Dollars.

Top exporters such as Germany and Japan are home to some of the largest motor vehicle manufacturers in the world. These manufacturers' domestic production has led to high export numbers for these top players. Meanwhile, Indian OEMs export considerably more than Indonesia and Vietnam. However, Thailand and China remain ahead. These 2 countries demonstrate an immediate potential for growth in OEM exports from India.

For opportunities in growth of auto-components exports, a list of the world's largest importers of auto-components presents possible markets. The table below also captures Indian auto-components' current share in the import bill of 10 largest importers of auto-components globally. All values in billions of US Dollars:

Table 11 – India's auto-component exports for top global importing nations

S.No.	Country	Total Imports (2019) US$ Billion	India's Share (% of total imports)
1	United States of America	$197	1.9%
2	Germany	$128	0.9%
3	China	$81	0.5%
4	Mexico	$72	0.8%
5	Canada	$50	0.6%
6	France	$50	1.2%
7	United Kingdom	$48	1.5%
8	Span	$38	1.1%
9	Japan	$37	1.1%
10	Italy	$30	2.0%

Source: Automotive Component Manufacturers' Association (ACMA)

The table 11 clearly shows that India's market share isn't greater than 2% in any of these markets. While the United States is India's largest export market for auto-components by value, its market share is in low single digits. Meanwhile, China supplies $33 billion of auto-components to the United States accounting for 17.2% market share in the United States' imports. Looking at Japan, China and Thailand export components worth $12.8 and $3.3 billion respectively. This gives China and Thailand a market share of 34.6% and 8.9% respectively.

Drive Transmission & Steering and Engine Components are the two largest export categories for Indian auto-components, accounting for 53.2% of component exports. With the rise of electric vehicles, demand for several components belonging to these 2 categories may be affected in the future. Component manufacturers must

sense opportunities arising from the transition to electric vehicles and connected mobility. These trends in auto sector are resulting in an increasing demand for components in the Electricals & Electronic segment and auto-components manufacturers in India must be ready to pivot their product offerings to expand exports.

2.6. Outlook & Emerging Trends for the Indian Automobile Industry

The sale of motor vehicles in India has grown rapidly since the beginning of the new millennium. Between 2001 and 2016, the number of new vehicle registrations in the country increased at a compounded annual growth rate (CAGR) of 10.01%[22]. The increased motorization of Indian roads has given rise to four main externalities:

1. Pollution - As per a recent study conducted, India houses 21 of the 30 most polluted cities in the world[23]. Of these 21 cities, majority are housed in the northern region of the country reporting Air Quality Index (AQI) levels at three times the permissible limited set by the United Nations. Studies conducted by the National Institute of Health Sciences have indicated that 51% of pollutants are released by industries, 27% by vehicles, 8% by crop burning and the remaining 5% by fireworks[24].

In 2019, India launched the "*Clean Air Programme*" with a target of reducing PM 2.5 and PM 10 concentrations by 20% - 30% within 2024 - taking 2017 as the base year[25]. As per the Paris Agreement adopted by India on 12 December 2015, the country aims to cut GHG emissions by 33%-35% of 2025 levels by 2030. A switch to electric vehicles shall assist India in meeting the targets set.

In order to meet targets under the *Clean Air Programme* & *Paris Climate Accord,* India needs to address its second largest source of pollutants, i.e. motor vehicles. Hence, a clear trend toward reduction in vehicular emissions can be seen emerging.

2. Congestion - Indians' preference for private modes of transportation have resulted in clogged city roads, state and national highways. This affinity for private transportation can be attributed to inadequate public transport infrastructure which has resulted in an increased number of vehicles per kilometer of road in cities. Further, lack of median-divided roads and poor adherence to traffic rules & lane driving cause the congestion seen on Indian roads.

Major Indian cities now rank as some of the most congested in the world. Within some of these major cities, the average trip speed is less than 10 kilometres per hour. A recent study by Dutch firm Tom Traffic Research indicates that an average trip on Indian roads take 150% of the time to complete compared to a similar trip in other Asian cities[26]. At low speeds, scientific studies reveal that vehicles burn fuel inefficiently. At average trip speeds between 5 and 20 kilometres per hour, pollutant emissions have been shown to be 4 to 8 times as much as the pollutant emissions would have been at average speeds of 55 to 70 kilometres per hour[27].

Traffic congestion in India's four major cities is estimated to cost INR 1,60,000 crore annually. Most of the estimated social costs arise through pollution caused by exhausts from vehicles. As per a recent study by Tom Traffic Research, 3 of the world's 5 most congested cities are in India (Bengaluru, Mumbai & Pune). The same

[22] Ministry of Road Transport & Highways – Road Transport Handbook 2018
[23] IQAir Air Visual – 2018 World Air Quality Report
[24] National Institute of Health Sciences – A comprehensive study on prevailing air quality in India
[25] Ministry of Environment & Forest – National Clean Air Program (NCAP)
[26] TomTom Traffic Index – An objective measure of urban traffic congestion
[27] Matthew Bart, Kanok Boriboonsomsin (November 2009) - "Real-World CO_2 Impacts of Traffic Congestion"

study estimated that Bengaluru's traffic congestion (the most severe in the world) cost the city 5% of its GDP in 2019.

The rise in traffic congestion must surely be addressed by reducing the number of vehicles on road at any given point in time. Building toward such an outcome shall require innovative solutions leveraging technology and improving the occupancy & utilization of existing vehicles on road.

3. Urbanization - Approximately 377 million people live in the 7935 urban centres of India (population greater than 5,000 is classified as an urban centre). In 2011, there were three cities with more than 10 million population and 5304 cities with more than 1 million population[28]. As India aspires to become a middle-income economy (gross national income per capita between INR 72432 to INR 284760 per annum) the number of city dwellers shall increase rapidly. It is estimated that 40% of India's population will live in urban centres by 2030 compared to 33.5% in 2019. This translates to an urban population of 590 million by 2030[29].

This rapid urbanization will result in the growth of megacities in India but at the same time will also result in smaller cities growing in size. In 2015, India committed to building 100 smart cities. These "cities of the future" will be built around the tenet of planned mobility that incorporates latest technologies. Electric vehicles and electricity-based transit systems will drive mobility services in these cities.

In order to address transportation needs of growing urban centres, mass transit systems coupled with seamless mobility platforms enabled through the use of technology will be required.

4. Accidents – India has 1% of the world's vehicles but accounts for 6% of the world's road traffic accidents[30]. In 2018, a total of 4.7 lakh road accidents were reported in India with ~1.5 lakh citizens losing their lives and 4.7 lakh suffering non-fatal injuries[31]. The World Health Organization lists speeding as the most common cause of road accident fatalities. The improvement in road infrastructure has led to an increase in average speed of vehicles resulting in increased fatality counts.

Other common reasons for road accidents are driving under the influence of alcohol, non-use of protective equipment such as helmets & seat-belts, distracted driving, unsafe road infrastructure, vehicles with low safety ratings and inadequate enforcement of traffic laws[32]. While remedying causes such as non-use of helmets & seat-belts is a cost-effective way of preventing fatal injuries, rectifying other causes is a costly affair. Fixing road safety infrastructure along India's vast road network as well augmenting the strength of the traffic police force to ensure improved enforcement are costly projects with taxpayers bearing the burden of the entire cost. It is estimated that India will be required to spend $109 billion over the next decade to halve the number of road accident deaths[33].

Therefore, reducing the number of accidents as well as fatalities in a cost-effective manner shall require innovative solutions that are practical, in order to drive widespread adoption.

[28] International Union for the Scientific Study of Population – Emerging issues from 2011 census data
[29] McKinsey Global Institute – India's evolving demography
[30] World Health Organization (WHO) – Global Status Report on Road Safety 2018
[31] Ministry of Road Transport & Highways – Road Accidents in India 2018
[32] World Health Organization (WHO) – Fact Sheet, Road Traffic Injuries
[33] World Bank – Delivering Road Safety in India : Leadership priorities and initiatives to 2030

A holistic view of the four externalities of increased motorization leads us to the emerging trends in mobility that can be seen in India as well as globally. These trends are collectively shaping the transformation of Automotive industry to be **A**utonomous, **C**onnected, **E**lectric and **S**hared (ACES).

1. Autonomous vehicles **–** While autonomous vehicles directly address the externality of road accidents, they are enabled through rapid advances in technology over the last decade. It must be noted that *autonomous* does not only refer to a self-driving vehicle but is rather a term for vehicles with certain automated features. There are five levels of vehicle autonomy with the fifth level (L5) signifying a completely self-driven car without the need for any human intervention. Lower levels of vehicle autonomy (L1 to L4) include features such as forward collision warning, anti-skid braking (ABS), traction control, driver monitoring systems, pedestrian collision warning, blind spot detection, automatic emergency braking, etc.

In India, currently only L1 autonomous vehicles are available. These L1 autonomous vehicles have factory fitted features such as forward collision warning, blind spot detection, automatic parking assist, automatic emergency braking and adaptive cruise control. These features are available in higher-end passenger cars as well as some commercial trucks.

Externally fitted aftermarket devices also enable certain L1 features to be added to a vehicle. Such devices promote safe driving behavior and also capture useful vehicle data that can prevent accidents and breakdowns. These devices are especially useful to operators of large commercial vehicle fleets.

Level 2 (L2) autonomous vehicles control both steering and accelerating/decelerating. Here the automation falls short of self-driving because a human sits in the driver's seat and can take control of the car at any time. Such vehicles are currently sold in United States and are slowly making their way into Europe.

2. Connected vehicles **–** Such vehicles can communicate with systems outside the vehicle allowing the sharing of internet access and data with devices inside and outside the vehicle. Connected technologies include heads-up displays, smart infotainment and telematics systems.

In India, connected passenger vehicles hit the market with full force in 2019. Sales numbers from 2019 and 2020 show that the best-selling passenger car models were those with *connected* features. Owing to the acceptance of connectivity features by Indian consumers, several OEMs have incorporated these in their newer models. However, the business model for monetization of connected vehicle features is still at an exploratory stage.

Within commercial vehicles such as trucks, buses and taxis, connected devices enable improved fleet management, vehicle tracking and also revamped business models. Aftermarket devices that can be fitted externally allow old commercial vehicles to get upgraded to a connected vehicle. The market for such devices is estimated to grow from $77 million in 2020 to $442 million by 2025[34].

Recently passed regulations such as the Privacy and Data Protection Bill 2018 as well as AIS 140 (ARAI) pave the way for widespread adoption of connected vehicles in the Indian market.

3. Electric vehicles **–** While electric battery technology has existed for many years, electric vehicles have become affordable only recently due to falling battery prices. Between 2010 and 2019, Lithium-ion battery

[34] PwC analysis

prices declined by 87%[35]. Given the challenges of climate change faced globally, governments have drafted regulatory frameworks for the uptake of electric vehicles. In India, the following regulatory updates have been made:

- Launch of the National Mission for Electric Mobility (NMEM) in 2011 to establish manufacturing capabilities in the full range of electric vehicles

- Launch of FAME I & subsequently FAME II to incentivize the purchase of electric vehicles to promote initial uptake

- Standards for electric vehicle charging infrastructure declared along with delicensing of electric vehicle charging stations

- Several state governments have launched incentive schemes, roadmaps and regulations to promote the manufacturing, sale and commercial use of electric vehicles within states

In FY20, 1.5 lakh electric two-wheelers, 600 electric buses and 3400 electric passenger cars were sold in India[36]. Globally, 2.2% of all vehicles sold in 2019 were electric. Among individual countries, China leads in the sale of electric vehicles. In 2019, 8 lakh electric vehicles were sold in the country. United States followed in second place with the sale of 2.5 lakh electric vehicles[37].

4. Shared Mobility – A transition to shared mobility can help address the externalities of pollution as well as congestion. By increasing occupancy of passenger vehicles, India has the potential to reduce vehicle kilometer demand by nearly 35%, accounting to 2000 billion kilometers in 2035. This, combined with more efficient vehicle technologies, can cumulatively save above 1 gigatonne of CO2 through 2030[38].Further, the shift will enable efficient asset utilization and in the long run can also challenge private car ownership which is costly and inequitable. India's strong digital infrastructure uniquely positions the country to seamlessly adopt shared mobility platforms and transit systems.

Several startups promoting carpooling, ride splitting and shared modes such as buses have been successful at establishing large user bases in India. Further, micro-mobility startups, solving the last mile challenge have also curated a loyal customer base by encouraging vehicle sharing. The strength of the shared mobility fleet in India is estimated at 2 million vehicles in 2019.

2.7. Key Takeaways

India's automotive industry has been growing at a healthy rate over the last 5 years and has witnessed participation from large global and domestic automotive firms. The industry has reached a high degree of localization across different sub-segments and has created a competitive automobile manufacturing as well as auto-component manufacturing segment that not only caters to local demand, but also competes with global countries in the export market. However, despite the strong fundamentals of the sector, India's share in global automotive trade is significantly low (<2%) in comparison to other competing nations. One of the key challenges that curb automotive exports from India are the high cost of disabilities that the sector faces due to

[35] BloombergNEF
[36] Society of Manufacturers of Electric Vehicles (SMEV)
[37] JATO – Global sales of pure electric vehicles
[38] Niti Aayog – Enabling Shared Mobility in India

inefficiencies in the enabling infrastructure. Such disabilities add 5-8% to the total cost and thus limit the competitiveness of the sector's exports. A robust incentive mechanism that addresses the disabilities is required to ensure a level playing field so that it can support higher globalization of the automotive sector.

In addition to the incentive mechanisms, Indian automotive firms must recognize the shifting trends with respect to autonomous, connected, electric, and shared mobility. Investments in new technology and capability aligned to these trends will ensure future competitiveness of Indian firms in comparison to their global counterparts.

3. Global automotive incentive schemes

For designing a robust incentive scheme to address the disabilities faced by the automotive sector, a scan of global incentive policies is required to further our understanding of the different type of successful incentive models adopted by competing countries. In this Chapter, we explore the key types of incentive mechanisms and understand their operating model through select global examples.

3.1. Key incentive schemes/mechanisms deployed for promoting automotive industry

Globally policy support is provided to Automotive OEMs and component suppliers across the value chain to make domestic manufacturing cost competitive. Even so, most countries are willing to provide incentives for typical expansion projects that meet the eligibility requirements for their respective programs. Depending on the size of the investment and the number of new jobs to be created, incentives range from statutory incentives - typically investment tax credits and employment tax credits - to discretionary incentives, offering cash and in-kind services. The schemes can be categorized into 6 major buckets based on their mechanism/fiscal incentive measures:

- **Fiscal Incentives/Cash Grants/Subsidies**

Fiscal incentives in form of cash grants/corporate tax exemption to bring new investments to boost export and bring down manufacturing cost. Ex- South Africa, Australia & Thailand

- **Production Incentives**

Volume assembly/Production incentives aimed at increasing local sourcing. Ex- South Africa, & Australia

- **Subsidies on Vehicles/Auto components**

Subsidies on the FOB value of vehicle and auto parts to be exported. Ex- Uruguay

- **Duty Drawback on Raw Material, CAPEX / Import Duty Exemptions**

  Tax exemptions on import of Raw Materials, Equipment & Machineries to be used for manufacturing of export goods, including service providers and logistics. Ex-Turkey, Mexico

- **Low Cost Financing**

  Low cost loans at below market interest rates to subsidize auto and components exporter. Ex- Brazil

- **Subsidies on Manufacturing Consumables**

Subsidies on Electricity, Natural Gas, Water, Credit, and Capital. Ex- Turkey

3.2. Global Incentive Schemes

Following are the key incentives/schemes available across countries to promote growth of automobile OEMs and component suppliers by making them cost competitive.

3.2.1. Import tax/VAT exemptions – Mexico[39]:

Mexico under its IMMEX program provides substantial tax exemptions on import of Raw Materials, Equipment & Machineries to be used for manufacturing of export goods. The IMMEX program was launched in 2006, replacing the Maquiladora and PITEX programs and continues till date as a pan industry program intended to boost Mexico's manufacturing output.

Key Details of Mexico's Trade Incentives to boost Exports:

- Temporarily import goods that will then be used in the manufacture or repair of products, *without having to pay general import tax or the value added tax (VAT) of 16 percent on those imported goods*.
- Within a set timeframe, six to twelve months depending on the nature of the finished product, the finished manufactured product must then be exported, transferred to another IMMEX company in Mexico.
- Applicable for Manufacturing, Service provider, Warehouse and Logistics company
- Applies to raw materials, components that are to be totally integrated into export goods, as well as fuels, lubricants and other materials that might be used during the production process.
- Also, covers shipping containers, boxes, package labeling and the machinery, equipment and tools that might be used in the production process.
- ***Qualification Criteria:*** With annual sales abroad of at least USD $500,000, or invoice exports accounting for at least 10 percent of the total company invoices.

3.2.2. Volume assembly allowance/Production incentive – South Africa[40]:

The Automotive Production and Development Program (2013-end of 2020) was initiated to build local manufacturing capacity and to meet the WTO requirements on subsidies, thereby improving international competitiveness though a re-orientation of incentives towards local manufacturing capacity building.

Key highlights of the incentives:

- **Stable Import Tariffs**

  Import tariffs fixed at 25% for CBUs and 20% for CKD components

- **Vehicle Assembly Allowance:**

[39] Doing business in Mexico – PwC Report
[40] South Africa Automotive Masterplan 2035

A volume assembly allowance which allows vehicle assemblers with a minimum plant volume of 50,000 per annum to import a percentage of their component's duty free (20% initially reducing to 18% after 3 years)

- **Production Incentive (PI):**

An allowance for duty free import of vehicles or components, in the form of duty credits, aimed at raising manufacturing value-added. Allowance calculated at 55% of value added in the SA supply chain (reducing 1% each year to 50% in 5 years). Incentive includes a special dispensation for vulnerable industries where the allowance factor is higher (varying from 70-80% of value added).

- **Automotive investment allowance - South Africa:**

Automotive Investment Allowance was initiated to stimulate investment in automotive sector - in particular:

- Investment in technologically advanced automotive production & new and replacement models/components
- Increase plant production volumes
- Overall strengthening of the automotive value chain

Key details of the allowance program that is available to OEMs and component suppliers:

- A non-taxable cash grant paid over 3 years with minimum benefit calculated at 20% of qualifying automotive investments for OEMs and 25% of qualifying automotive investments for suppliers
- An additional 5% and 10% of qualifying automotive investments- subject to Economic Benefit criteria

3.2.3. Low cost financing arrangements - Brazil[41]:

Brazil provides low cost loans at below market interest rates to subsidize Brazilian exporters across different sectors. Some of the key low-cost financing models:

a) Advanced Payment Under Export Document

Full or partial funding of working capital in national currency (BRL) to the exporter, made by a financial institution, before the good is shipped. Its duration ranges from 180 days prior to the shipment of goods to 180 days after shipment and before payment by the importer.

b) Guarantee Fund for Competitive Promotion (FGPC)

The fund covers interest rate risk up to 70-80% of the loan value for exporting firms in Brazil. The interest rate covers financial costs plus basic spread and risk spread. Thus, interest rate is normally LIBOR+1% (basic spread) +risk spread.

[41] Export incentives in Brazil and Korea within the WTO framework (Working paper)- Indian council for research on international economic relations.

c) Preferential Export Financing

The financing is operated exclusively by Banco do Brazil, acting as Brazilian Treasury agent, in which it is possible to finance up to 85% of export value in the negotiated INCOTERM. The repayment period varies from 60 days to 10 year.

3.2.4. Subsidy on export of vehicle and auto parts – Uruguay[42]:

Uruguay provides substantial subsidy on the Fob value of vehicle and auto parts to be exported making it cost competitive. Following are the incentives:

- Subsidy to vehicle and auto parts exports: 10% refund on the FOB value of vehicle and car parts exports, through credit certificates issued by the Government, subject to meeting criteria of a National Value Added of 20%.
- Reimbursement of VAT and indirect taxes applied to the purchase of supplies.
- Temporary Admission regime for imports of machinery and material supplies which are included in the exported goods. Therefore, no taxes are applied to them (customs and others)

3.2.5. Favorable cost of doing business – Turkey[43]:

Turkey through its Ministry of Trade supports promotion of trade by providing tailor made investment incentives through:

- Rebating energy expenditures partially to the investor.
- Government can make capital contribution of up to 49% of the investment amount
- Gross wages of qualified personal to be employed for up to 5 years will be covered
- A certain portion of the interest to be paid for loans will be covered by the government

Global OEMs have utilized such incentives to establish manufacturing presence in Turkey to produce vehicles for both domestic and export markets.

3.2.6. Fiscal incentives to boost exports – Thailand[44]:

Thailand provides fiscal incentives to auto and components exporter to make it cost competitive for exports. Some of the key incentives:

- Three-year exemption from corporate income tax, or a 6-year exemption for projects inside industrial estates or promoted industrial zone with capital investment of more than THB10 million in industrial zones or 7 years if the project succeeds in obtaining ISO 9000 or 14000 certification within 2 years of start-up

[42] Ministry of Industry, Energy and Mining (Uruguay)
[43] Investment Incentives – Ministry of Trade (Turkey)
[44] Thailand Board of Investment

- Approved projects qualify for a 5-year exemption from import tariffs on raw materials and essential goods used in manufacturing exported products
- Reduction of 50% of import tariffs on machinery where the tariff is more than 10%.

3.2.7. Tariff elimination through FTAs – Thailand[45]:

Thailand provides relief from high tariffs to auto and components exporter through the FTAs mode to make it cost competitive for exports. Some of the key measures taken to reduce tariffs:

- Auto parts exported to ASEAN nations are subject to no tariff. Elimination of tariffs on commercial vehicles, passenger cars, and their parts and accessories.
- Exemption of corporate income tax on the net profit and dividends derived from the promoted activity. A 50% reduction of corporate income tax. Reduction of import duties for raw or essential materials.
- Exemption of import duty on machinery and material supplies which are included in the exported goods. Additional 25% deduction of the cost of installation or construction of facilities.

3.2.8. Automotive transformation scheme - Australia[46]:

Australia through its Ministry of Trade supports automotive OEM and auto component industry through substantial financial assistance based on number of units manufactured. This is applicable to the exports market as well. Key highlights of the financial assistance under Automotive Transformation Scheme:

- Financial assistance to motor vehicle producers of at least 30K units/year for local and export consumption.
- Financial assistance to auto component producers to be used in at least 30K automobile units/year for local and export

3.3. Key takeaways

After studying the major incentive schemes across the globe, it is certain that many countries have provided automobile industry with incentives that help them reduce the cost of production and made their vehicles and components more cost competitive in the global market.

Successful incentive policies have the following key common tenets:

- Policy focus on supporting and attracting investments from large global companies to increase domestic and export output
- Performance orientation of incentive mechanisms to support companies that deliver outcomes aligned to overall sectoral objectives
- Consistency in policy and continuation of benefits for a mid-long duration
- Focus on increasing local value addition to increase local economic activities and reap long term economic benefits

[45] Thailand Board of Investment
[46] Automotive transformation scheme (Australia) – https://www.business.gov.au/Grants-and-Programs/Automotive-Transformation-Scheme

4. Considerations and guidelines for incentive scheme design

In Chapter 2, we understood the nature and quantum of cost disabilities faced by the automotive sector. A robust incentive policy that supports the eligible participants through incentives in the range of 5-8% of product value is required to even the playing field.

Further, we also reviewed the incentive policies of competing countries in Chapter 3 and identified key tenets of a successful incentive policy – Promotion of large companies, performance orientation of the schemes, consistency in policy over a substantial period of time, and focus on enhancing domestic value addition.

In this Chapter, we detail the key principles that will guide the incentive policy for the Indian automotive sector.

4.1. Key objectives of the incentive scheme

The automotive industry is a major economic contributor in India. The sector is responsible for ~50% of India's manufacturing GDP and has been a key growth driver for the economy. Today, many component makers are Tier 1 suppliers to global auto OEMs and several India manufactured motor vehicles make their way to international markets. This demonstrates that the Indian automotive sector has been an adopter of global technological changes and other global standards. Yet, Indian auto-component exports comprise ~1% of global auto-component trade. While motor vehicles exports from India in FY 2019 ($11.7 billion) [47] were roughly half of what a developing economy such as Thailand exported ($20 billion) and only one-eighth of Mexico's motor-vehicle exports for the year ($87.8 billion) [48].

Increasing globalization can be a significant hedge to the domestic market and drive sustainable competitiveness of the sector generating additional jobs and investments. Given the Indian automotive industry's global standards, the sector can champion this strategy in India.

In spite of its healthy development Indian Automotive industry still faces several disabilities with respect to competing countries. A robust incentive scheme can be one of the enablers to help overcome these disabilities and make India more competitive furthering globalization of the Indian automotive industry.

A. Key objectives of the incentive scheme

The proposed incentive scheme has 3 key objectives:

1. **Globalization**
2. **Economic Output**
3. **Compliance with Local / Global Regulations**

[47] Ministry of Commerce – Govt. of India
[48] International Trade Centre

1. Globalization – *Enhance India's globalization in automotive trade and double India's automotive exports in the next 5 years to achieve greater than $50 billion exports per annum*

Doubling India's export output in the auto sector will provide manufacturers (auto-components & OEMs) a growth in scale which in turn should increase cost-competitiveness of Indian exports. It is imperative to note that due to the structure of the automotive value chain, a growth in scale of either the OEMs or the auto-component makers has a cascading effect on the value chain. Upstream suppliers (Tier II and Tier III) will experience growth in scale as well, leading to fixed costs being distributed over a larger base and hence, enhanced cost competitiveness. Through targeted incentives, the scheme aims to kick-start this virtuous cycle of increased scale which would allow Indian automotive industry to enhance its competitiveness in domestic and global markets.

2. Economic Benefit

2a. Attract investments and create jobs in the Indian automotive sector

An increase in industry output and exports will lead to risk diversification of Indian OEMs and component makers as the revenue stream will be distributed over a larger number of geographies. This shall also enable manufacturers to predict demand more accurately since volatility in demand patterns gets reduced. The natural hedging of demand due to geographic diversity in revenue stream will ensure help increase capacity utilization.

Such a trend allows manufacturers to increase investments in fixed assets such as plant and machinery, thereby spurring demand in other manufacturing related sectors of the Indian economy. It is estimated that investments to the tune of $15-$20 billion are required to double the current output and exports market share of manufacturers.

Job creation is also an immediate benefit of increased industry output. According to the India Skills Report 2018, roughly 12 million youth aged between 15 and 29 will enter the Indian labour force annually over the next two decades[49]. Meanwhile, the International Labour Organization (ILO) pegs this estimate at 8 million youth joining the workforce annually in the next decade[50]. Each additional vehicle produced by the automotive sector not only adds to the direct manufacturing workforce but also to secondary and tertiary employment in areas such as service centers, dealers, and logistics. It is estimated that an employment of 13 people for each truck, 6 people for each car, 4 people for each 3W and 1 person for each 2W is generated through local production[51]. Such a high jobs multiplier is needed to generate jobs catering to the large influx of workers entering the workforce annually.

2b. Growth in demand and economic value add for the domestic sector including MSMEs by leveraging the economic multiplier

An economic multiplier is essentially an effect that causes gains in total output to be greater than the amount spent to generate the gains. A direct result of job creation and investment enhancement is increased cash in the hands of the general population which would lead to increased household income and hence, an enhanced ability of consumption. As per Ministry of Micro, Small & Medium Enterprises, MSME's employ > 11 Cr people

[49] Confederation of Indian Industry (CII) - India Skills Report 2018
[50] International Labour Organization (ILO) - Decent Work for Youth in India
[51] Ministry of Heavy Industries and Public Enterprises, Annual Report 2018-19

in India[52]. An enhanced propensity for consumption is bound to benefit MSMEs in the country, allowing them to generate capital.

3. Comply with local and global regulations

The incentive scheme should comply with local and global regulations and work within the applicable international and national legal framework.

4.2. Guiding principles for automotive scheme design

The guiding principles detailed in this section shall provide a template to ensure that all scheme components are designed keeping in mind the three objectives highlighted above. These principles provide a framework within which elements of the scheme are designed.

Principle 1

Focus on *Global Champions*

Existing global promotion schemes focus on a large number of companies, however, many of these companies' lack scale, have limited access to target markets and are constrained by their ability to invest and undertake the risk required for rapid growth. Therefore, a change in strategy is needed to focus on promoting larger firms that have the scale, competitive ability and management capabilities to be a global champion. Such companies must have strong market access, existing channel and customer base and export revenues. Large companies will buy components from numerous suppliers, including small and medium enterprises (SMEs). This will also have a multiplier effect on employment and eventually increase the overall competitiveness of the Indian automotive sector.

The target global champions should display the following characteristics:

- Economies of Scale/size of operations
- Access to global markets and an existing market base
- Commitment to consistent growth
- Capability to invest for growth

Principle 2

The proposed incentive scheme follows the below mentioned equality principles:

- Incentives are offered without discrimination to companies incorporated in India irrespective of their ultimate ownership being Multinational or Indian
- Incentives are provided to encourage manufacturing growth and support deeper globalization of the Indian automotive industry.

[52] Ministry of Micro, Small & Medium Enterprises – (https://pib.gov.in/Pressreleaseshare.aspx?PRID=1579757)

- Incentives have also been recommended to offset disabilities with higher cost of certain factors of production (e.g., Logistics Cost, cost of capital, power cost, higher transaction cost), where limitations in the Indian infrastructure disadvantages manufacturers based in India in comparison to their global counterpart. As discussed in section 2.4, such disabilities amount to 5-8% of additional cost for Indian manufactured goods. In order to balance the inequality, ***incentives have been provided on the sales value of Indian manufactured goods***

Principle 3

High value thresholds – Incentives to global champions that will deliver high value growth

The scheme will support global champions that deliver consistent value growth throughout the program. Incentives will be linked to meeting growth thresholds and high growth performance will be supported with higher magnitude of incentives.

In Section 2 we saw that India's OEM exports are skewed toward high volume low value products. The graphic below highlights this:

Figure 9 - High volume, Low value performance of India's OEM exports

Segment	Export Volume (FY'19)	Export Value (FY'19)	Average Price (FY'19)
2-Wheelers	3,520,736	$ 2.08 Bn	$ 591
Passenger Vehicles	677,311	$ 6.55 Bn	$ 9,776
Commercial Vehicles	60,713	$ 1.79 Bn	$ 26,716
3-Wheelers	502,169	$ 0.46 Bn	$ 916
Tractors	76,047	$ 0.82 Bn	$ 10,789

Source: SIAM

With the increasing maturity of Indian automotive industry, share of higher value vehicles (executive and luxury sedans, large size SUVS, >250 cc bikes etc.) has started growing over the last few years. In FY 2017, 6.8 lakh bikes greater than 250cc were sold in India, accounting for 3.8% of all 2-wheeler sales. In FY 2019, this number increased to 8.4 lakh units accounting for 4% of all 2-wheeler sales[53].

One of the objectives of the incentive scheme is to continue to the development of the automotive industry with promotion of high value products so as to enhance the overall maturity of the entire value chain. The eligibility criteria, annual thresholds, incentive structures of the schemes have been designed to reward such high value performance rather than high volume performance. It is expected that automotive participants looking to

[53] Society of Indian Automotive Manufacturers – Month Flash Reports (March 2018, March 2019)

benefit from the scheme will focus on producing higher value products so as to meet the defined incentive thresholds.

The three guiding principles will provide a framework to design an incentive scheme that can help the program achieve the intended objectives. The guiding principles also act as a framework to identify beneficiary segments, characterize ideal beneficiary firms, and to define mechanisms that connect the scheme objectives to the government outlay.

5. Automotive incentive scheme framework

As discussed in the previous chapter, focus of the automotive incentive policy should be to support large companies that have the scale, global market access, and investment capabilities to become a global champion. The global champions need to deliver consistent high value growth and achieve global scale so as to enhance the globalization of the Indian automotive sector.

In this Chapter, we detail out the Automotive Global Champion Scheme for different segments of the automotive industry, specifying the eligibility criteria, establishing the tenure of benefits, and elaborating the operating mechanisms of the schemes.

5.1. Overview of proposed incentive schemes

Overview of Global Champion Scheme:

Automotive Global Champion scheme is designed to support companies that have the scale, competitiveness and management capabilities to be a global champion. Under the Automotive Global Champion Scheme (AGCS), 4 schemes have been designed to promote growth and support expansion:

	1	2	3	4
	***'Global Sourcing'* Incentive Scheme**	***'Champion OEM'* Incentive Scheme**	***'Production linked'* Incentive Scheme**	***'Component Champion'* Incentive Scheme**
Target Segment	International Purchase offices of Indian / Global OEMs & Tier-1 Suppliers	Vehicle Manufacturers	OEMs and Auto-component companies	Auto-component companies

Each eligible global champion can apply and be approved for a maximum of 3 incentive schemes at the time of application

5.2. Eligibility Criteria for Global Champion

Eligibility Thresholds:

Auto OEMs and Auto-component companies will need to meet the following criteria to qualify as global champions and receive benefits under the Automotive Global Champion Scheme. The minimum criteria below ensure the eligible global champions have sufficient scale, global market access and investment capability.

Table 12 – Eligibility Criteria for Global Champions

Eligibility Criteria	Auto OEM	Auto-Component
Revenue from Outside India	• Minimum of INR 1,000 Crore (base year)	• Minimum of INR 200 Crore (base year)
Revenue	• Global group* revenue size of minimum INR 10,000 Crore in base year	• Global group* revenue size of minimum INR 1,000 Crore in base year
Investment	• Global Investment in fixed assets (gross block) of INR 3,000 Crore as of 31.03.2019	• Global Investment in fixed assets (gross block) of INR 300 Crore as of 31.03.2019

A Group Company will cover holding & subsidiary companies where one has significant control over financial decisions even if shareholding is less than 50%. - E.g. JV companies

Base year for eligibility of the scheme will be considered as financial year April 1, 2018 to March 31, 2019

5.3. Timeline and duration of the schemes

Timeline for Application

- The Scheme shall be open for applications for a period of 24 months from the announced start date of the scheme
- After due evaluation of the application, qualified applicants will be approved as a 'Global champion' for the scheme, subject to meeting the eligibility criteria
- However incentive will be payable only upon achieving targeted revenue growth goals as specified under each of the 4 schemes.
- No application will be considered post 24 months from the date of announcement, unless reopened for all applicants by the competent authorities

Tenure of Benefits

- An approved applicant will be eligible to receive the benefits for **5 years** from the date of approval of the application.
- The approved applicant will be eligible to receive the benefits subject to meeting the annual performance conditions as defined under the schemes

Maximum Cap for Benefits

- A cap of **INR 8,500 Crore across 5 years** (~15% of total projected incentive outlay) is proposed on the maximum benefit a **single company** can avail under the automotive global champion schemes
- This cap will ensure that the incentives are not distributed disproportionately to any single company legal entity and the benefits of the scheme are passed on to a broader set of industry participants

5.4. Application & Disbursement Process

Application process for the Automotive Global Champion Scheme could follow the below:

- Application will need to be submitted in prescribed format with the required corporate profile, business details, 5 year business plans and required financial information to justify qualification as a Global champion
- The application should also specify the schemes under which the applicant is seeking to gain incentives from the government. An eligible applicant can apply to a maximum of 3 out of the 4 schemes
- Eligible applications should be appraised for completion, compliance with criteria, and supporting proofs should be reviewed. A confirmation to be provided to the applicant once application is reviewed and found to be compliant with the criteria
- **Step 1:** Companies to submit an online application along with financial & supporting documents that are audited by a Chartered Accountant
- **Step 2:** Program Management agency (PMA) to acknowledge the application upon initial scrutiny
- **Step 3:** Recommendation by PMA to approval committee
- **Step 4:** Evaluation of Application by an Empowered committee (EC)
- **Step 5:** Upon approval or rejection PMA to issue letter communicating the outcome of the application
- Above process to be completed in a time bound manner within 60 days of the receipt of the application
- EC should be an inter-ministry empowered team

Disbursement process for the Automotive Global Champion Scheme could follow the below:

- Step 1: Companies need to submit their annual claims under the respective schemes along with audited financial statements / proof of achievement of target criteria by June 30 of each year.
- Step 2: PMA to acknowledge after Examination and assessment of claim and incentive eligibility
- Step 3: PMA to make recommendation to EC based on review of the facts presented
- Step 4: EC to approve or reject the claims and same to be communicated to the applicant
- Step 5: Annual payment to be initiated through bank transfer upon completion of pre-disbursal processes
- Above disbursement process should be completed within 60 days of receipt of disbursement application

5.5. Scheme details

5.5.1. Scheme #1: 'Global Sourcing' incentive scheme

Overview:

- India's share of global automotive trade is less than 2% and highlights a significant opportunity for automotive exports and imports growth
- Global Sourcing incentive scheme is aimed at incentivizing International Purchase Offices (IPO) to increase sourcing of automotive components from India and to grow India's contribution in the process of globalization within the Automotive industry
- The global purchase offices help increase the global reach of Indian component suppliers (as well as local subsidiaries of global suppliers).
- Global or international purchase offices (IPO) are procurement groups of Automotive OEMs and Tier-1 suppliers that focus on purchase of components from India for their global manufacturing plants. These entities may be part of Indian owned entities as well as Multinational companies.
- The role of these organizations is to develop suppliers in India and facilitate growth in purchase of components from India
- Currently, more than 40 OEMs and Tier-1 suppliers have their International purchase offices in India
- The scheme can enable multi-fold growth of the Indian auto-component sector and generate employment, attract investments and increase industry globalization

Target Segment – International Purchase Offices (IPO):

International purchase offices in India primarily play three roles:

Supplier Development – IPOs identify, onboard and develop local supplier base in India and enable them to integrate with the global supply chain. They also conduct regular audits and recommend capability development plans for the supplier

Managing Purchases – IPOs manage the purchase process of auto-components for global plants and coordinate with Indian suppliers for submission of bids to global tenders

Balancing Purchase – Balancing sourcing mix from different countries / region to optimize cost of sourcing, purchase risk and meeting delivery schedules

Figure 10 – Role of International Purchase Offices

Eligibility:

Eligible global champions who meet the below criteria will qualify for incentives under the Global Sourcing Scheme:

- International Purchase offices, in India, of Global and Indian automotive OEMs and components, sourcing from India and providing orders for global plants will be eligible to apply for the scheme
- Purchases done directly or indirectly by eligible global champions on behalf of global customers (including holding/global company) can qualify as deemed purchases – However, only purchase of automotive components/ aggregates/ CKD/SKD kits will qualify for incentive. Global champions who are purchasing on behalf of other global companies will need to provide contractual documents that verify their authority to undertake such purchases for their customers.
- Growth incentive applicable on increase in 'eligible purchase value'. The definition of eligible purchase value for a year = Purchase value of Components for Export + Purchase value of Components for Domestic (Indian consumption) or 1.25 times Purchase value of components for exports; whichever is lower. I.e. Ratio of incentives payable on purchases for exports and domestic should be at least 80:20 (export purchase share of incentives can be greater than 80%)
- Incentives applicable on both components sourced from Indian suppliers as well as imported from international suppliers. However, total purchase should have a maximum of 20% imported purchase to qualify for the incentive
- All automotive-component purchases made by IPOs from India (including parts manufactured as well as bought out by their component suppliers) for exports are eligible for the incentives under the scheme

Proposed Scheme Incentive Mechanism

- As per the proposed scheme, eligible applicants will be entitled to receive incentives (% benefit) on the increase in eligible purchase value of components, as compared to the base year
- As a key guiding principle of the scheme, global champions need to deliver consistent absolute growth to receive the applicable benefits. The quantum of growth, irrespective of current IPO size, needs to be significantly large in order to contribute to the overall growth vision envisaged for the Automotive Global Champion Scheme.
- A cumulative growth threshold has been proposed to allow the participants to carry forward their above average growth performance in any given year to the subsequent years, so as to counterbalance any dip

in performance in the subsequent years due to external environment / fluctuations. Growth threshold defined below:

Table 13 – Growth Thresholds for Global Sourcing Scheme

Year	Cumulative Increase in Eligible Purchase Value (INR Cr) from Base Year
Year 1	60
Year 2	150
Year 3	325
Year 4	700
Year 5	1200

- A company needs to meet or exceed cumulative increase in eligible purchase value for each year as specified above
- In case the company fails to meet the threshold in any given year (e.g., INR 60 Cr in Year 1), it will not receive any benefits for that year. However, it will still be eligible to receive the benefits under the scheme in the next year if it meets the cumulative growth threshold defined for that year
- In addition to the above growth threshold as defined in table 13, Companies will also have to meet the minimum annual growth requirement of 8% Year on Year increase in eligible purchase value (i.e.8% increase in eligible purchase value in every year over the previous year) to be eligible to receive the benefits
- The magnitude of the incentive will depend upon the magnitude of increase in eligible purchase value over the base year. The incentive mechanism rewards companies that achieve high absolute growth, as measured over base year, by progressively providing a higher incentive %.
- Companies that achieve a target cumulative increase in eligible purchase value of INR 2,000 Crore across the duration of the program, will receive an additional incentive, over and above the specific slabs, on any increase in eligible purchase over the base above the target cumulative increase. This additional incentive is to support high growth achievers in their bid to pursue global scale
- The incentive slabs are defined in table 14 below:

Table 14 – Incentive Slabs for Global Sourcing Scheme

Increase in Eligible Purchase value over Base Year (INR Cr) for a given year	Incentives % on Increase in Eligible Purchase value	Maximum Incentive (INR Cr)
<=100	4%	4
100 – 250	5%	7.5
251 – 500	6%	15
>500	7%	
Additional Incentive on Cumulative increase in eligible purchase of INR 2,000 Cr over 5 years	2%	

5.5.2. Scheme #2:'Champion OEM' incentive scheme

Overview:

- An incentive scheme targeted to address the disabilities faced by OEMs in India and even the global playing field
- The Champion OEM Incentive scheme is a 'sales value linked' scheme, targeting vehicles/Completely Knocked Down (CKD)/Semi Knocked Down (SKD) kits, aggregates & components/ spare parts produced by OEMs in India to boost the manufacturing output, increase scale of operations and attract large investments in the sector

Eligibility:

Eligible global champions who meet the below criteria will qualify for incentives under the Champion OEM Scheme:

- Indian vehicle manufacturers as well as Indian subsidiaries of Global vehicle manufacturers with manufacturing capabilities in India and who have qualified as global champions will be eligible to apply for the incentive scheme
- Incentives applicable on all vehicles, CKD/SKD kits, vehicle aggregates & components/ spare parts of motorized 2Ws, 3W, passenger vehicles, commercial vehicles and tractors.
- Growth incentive applicable on increase in 'eligible sales value'. The definition of eligible sales value for a year = Export sales + domestic sales of vehicles / kits /aggregates/components or 1.25 times export sales; whichever is lower. I.e. Ratio of incentives payable on exports and domestic should be at least 80:20 (export share of incentives can be greater than 80%)
- A Maximum of 20% import content will be allowed on eligible sales value. Sales not meeting this criterion will not be eligible to receive the sales incentives

Proposed Scheme Incentive Mechanism

- As per the proposed scheme, eligible applicants will be entitled to receive incentives (% benefit) on the increase in eligible sales of vehicles, CKD/SKD kits, vehicle aggregates, and components/ spare parts manufactured in India, as compared to the base year.
- Companies will need to deliver consistent absolute eligible sales growth to receive the applicable benefits. The quantum of growth, irrespective of current OEM size, needs to be significantly large in order to contribute to the overall growth vision of the automobile sector
- A cumulative growth threshold (e.g., INR 100 Cr in year 1, INR 350 Cr in year 2 & so on) has been proposed to allow the participants to carry forward their above average growth performance in any given year to the subsequent years, so as to counterbalance any dip in performance in the subsequent years due to external environment / fluctuations. Growth threshold defined below:

Table 15 – Growth Thresholds for Champion OEM Scheme

Year	Cumulative Increase in Eligible Sales Value (INR Cr) from Base Year
Year 1	100
Year 2	350
Year 3	850
Year 4	1700
Year 5	3000

- In case the company fails to meet the threshold in any given year, it will not receive any benefits for that year. However, it will still be eligible to receive the benefits under the scheme in the next year if it meets the cumulative growth threshold defined for that year
- In addition to the above growth threshold as defined in table 15, companies will also have to meet the minimum annual growth requirement of 8% YoY increase in eligible sales value (i.e.8% increase in eligible sales value in each year as compared to previous year) to be eligible to receive the benefits
- The magnitude of the incentive, as defined in table 16, will depend upon the magnitude of increase in eligible sales over the base year. The incentive mechanism rewards companies that achieve high absolute growth, as measured over base year, by progressively providing a higher incentive % (starting from 4% and increasing to 7% for increase in eligible sales of >INR 1000 Cr from base year).
- Companies that achieve a target cumulative increase in eligible sales of INR 6,000 Cr across the duration of the program, will receive an additional incentive.
- One of the key determinants of global competitiveness in the Automobile sector is the continual investment in R&D. In order to support companies that invest in carrying out research and development activities in India, an additional incentive will be provided on any increase in eligible sales over base year, over and above the specific incentive slabs, contingent on meeting a R&D spend criteria.

Table 16 – Incentive Slabs for Champion OEM Scheme

Increase in Eligible Sales over Base Year (INR Cr) for a given year	Incentives on Increase in Eligible Sales	Max. Incentive (INR Cr)
<=500	4%	20
501-750	5%	12.5
751 – 1000	6%	15
>=1001	7%	
Additional Incentive on Cumulative increase in revenue of INR 6,000 Cr over 5 years	Additional 1% on increase in eligible sales value over base year	
For companies that spend >=2% of net sales on R&D in India (including global R&D centers in India) in a given year	Additional 1% on increase in eligible sales value over and above the applicable slab	

Eligible sales for any year = Export sales + domestic sales of vehicles / kits /aggregates, components or 1.25 times export sales, whichever is lower

5.5.3. Scheme #3: 'Production Linked' incentive scheme

Overview:

- The Indian automotive industry suffers from cost disabilities such as high logistics cost, inadequate availability of quality power, high capital costs, insufficient focus and capability in R&D and product development
- Policy intervention aimed at leveling the playing field and improving the capability of the sector is critical to integrate with global value chains and to boost local manufacturing and investments
- The production linked incentive scheme aims at growing India's contribution in the process of globalization within the Automotive sector by addressing the disabilities faced by Indian companies
- It is a sales value linked incentive scheme open to eligible Automotive OEMs and Auto-component players that will be provide incentives subject to meeting certain sales threshold

Eligibility:

- All Global champions (vehicle as well as component manufacturers) with manufacturing facilities in India are eligible to apply for the scheme

Proposed Scheme Incentive Mechanism

- As per the proposed scheme, eligible applicants will be entitled to receive incentives (% benefit) on sales value for components, vehicles, aggregates, CKD/SKD that are produced in India. Unlike other schemes,

this scheme will provide incentives on the entire sales value (not just increase in sales) in a year as per the applicable slabs that are defined below

- Companies will need to deliver consistent absolute eligible sales growth to receive the applicable benefits. The quantum of growth, defined separately for OEMs and for Auto-components to account for difference in scale, needs to be significantly large to receive incentives under this scheme
- A cumulative growth threshold has been proposed to allow the participants to carry forward their above average growth performance in any given year to the subsequent years, so as to counterbalance any dip in performance in the subsequent years due to external environment / fluctuations. Growth threshold defined below:

Table 17 – Growth Thresholds for Production Linked Incentive Scheme

	For OEMs	For Auto-component Mfg.
Year	**Cumulative Increase in 'Long-distance' Sales Value (INR Cr)**	**Cumulative Increase in 'Long-distance' Sales Value (INR Cr)**
Year 1	100	25
Year 2	350	75
Year 3	850	175
Year 4	1700	350
Year 5	3000	550

* Long-distance sales is defined as total sales value for products transported over a distance greater than 3,000 km.

- Achieving the 'Long distance sales value' growth threshold is a qualifying criteria. While the actual incentive payable will be calculated based on the distance slab in Table 18
- In case the company fails to meet the threshold in any given year, it will not receive any benefits for that year. However, it will still be eligible to receive the benefits under the scheme in the next year if it meets the growth threshold defined for that year
- In addition to the above growth threshold as defined in table 17, companies will also have to meet the minimum annual growth requirement of 8% YoY increase in long-distance sales value (i.e.8% increase in long-distance sales in each year as compared to the previous year) to be eligible to receive the benefits
- Once the above-mentioned growth criterion is met, the **magnitude of incentives** will be calculated as per the distance travelled by the product, from ex-factory to point of sale, going up to 4% of sales value for >5000 km sales. A higher % incentive for more distance travelled to offset higher costs due to inefficiencies, warehousing costs, high lead time of logistics and customs processes

Table 18 – Incentive Slabs for Production Linked Incentive Scheme

Distance Travelled by Product	% Incentive on sales value
<=2000 km	0%
2001-3000 km	0.5%
3001 – 5000 km	2.5%
>5000 km	4.0%

- In order to receive incentives under this scheme, eligible global champions will need to submit a breakup of their sales as per the table above. This break-up of sales value by distance travelled of the product needs to be certified by a Chartered Accountant.
- Distance considered will be the actual distance travelled by the shipment rather than Aerial distance. Documentation to support this data must be made available during the validation process
- Actual distance would mostly cover road distance in case transportation is inland or nautical / ship distance in case of overseas shipment.
- In case of emergency shipment by air the actual distance travelled would be considered

5.5.4. Scheme #4: 'Component Champion' incentive scheme

Overview:

- The 'Component Champion' Incentive scheme is aimed at identifying and incentivizing auto-component champions that can achieve global scale of operations and become 'global champions' for the auto-component sector
- The scheme is a sales value linked incentive scheme that will incentivize eligible auto-component players on the increase in sales of manufactured goods from India

Eligibility:

- Global Champions that are exclusively in automotive component manufacturing including domestic owned and Multinational companies are eligible to apply
- Growth incentive applicable on increase in eligible sales value, where eligible sales for a year = Export sales + domestic sales of components or 1.25 times export sales; whichever is lower. i.e. Ratio of incentives payable on exports and domestic should be at least 80:20 (export share of incentives can be greater than 80%)
- Maximum import content allowed at 20% of value of components

Proposed Scheme Incentive Mechanism

- As per the proposed scheme, eligible applicants will be entitled to receive incentives (% benefit) on the increase in eligible sales of components manufactured in India, as compared to the base year

- Companies will need to deliver consistent absolute eligible sales growth to receive the applicable benefits. The quantum of growth, irrespective of current auto-component manufacturer size, needs to be significantly large and needs to meet/exceed INR 25 Cr in Year 1, INR 75 Cr in Year 2 and so on.
- A cumulative growth threshold has been proposed to allow the participants to carry forward their above average growth performance in any given year to the subsequent years, so as to counterbalance any dip in performance in the subsequent years due to external environment / fluctuations. Growth threshold defined below:

Table 19 – Incentive Slabs for Component Champion Scheme

Year	Cumulative Increase in Eligible Sales Value (INR Cr)
Year 1	25
Year 2	75
Year 3	175
Year 4	350
Year 5	550

- In case the company fails to meet the threshold in any given year, it will not receive any benefits for that year. However, it will still be eligible to receive the benefits under the scheme in the next year if it meets the growth threshold defined for that year
- In addition to the above growth threshold as defined in table 19, companies will also have to meet the minimum annual growth requirement of 8% YoY increase in eligible sales value (i.e.8% increase in eligible sales in each year over the previous year) to be eligible to receive the benefits
- The magnitude of the incentive will depend upon the magnitude of increase in eligible sales over the base year. The incentive mechanism rewards companies that achieve high absolute growth, as measured over base year, by progressively providing a higher incentive %.
- In order to support companies that invest in carrying out research and development activities in India, an additional incentive will be provided on any increase in eligible sales over base year, over and above the specific incentive slabs, contingent on meeting a R&D spend criteria.

Table 20 – Incentive Slabs for Component Champion Scheme

Increase in Eligible Sales over Base Year (INR Cr) for a given year	Incentives on Increase in Eligible Sales Value	Max. Incentive (INR Cr)
<=100	4%	4
101-250	5%	7.5
251 – 400	6%	9
>400	7%	
Additional Incentive on Cumulative increase in revenue of INR 1000 Cr over 5 years	1%	
For companies that spend >=1% of net sales on R&D in India (including global R&D centers in India) in a given year	Additional 1% on increase in eligible sales value over and above the applicable slab	

6. Economic impact of incentive schemes

The economic impact of the proposed scheme has been modelled by establishing links between economic indicators, charting the course of incentives provided for the scheme. All inputs to the model have been computed from historical industry data and accuracy of relationships among indicators has been validated through back-testing. Assumptions in the model, wherever necessary, have been determined through inputs from industry stakeholders and analysis of sensitivity of output to the chosen assumptions has been duly conducted.

Basis the most relevant inputs, assumptions and scenarios, the impact of the proposed incentive scheme is computed.

6.1. Globalization impact

The primary aim of the incentive scheme is to enhance India's integration with the global automotive sector and double automotive exports from India in 5 years. The following waterfall chart highlights the contribution of each segment in augmenting the exports value from India. All figures are in billions of US Dollars.

Figure 11 – Segment-wise Estimated Exports Increase

Growth in automotive exports to $54 billion within 5 years implies a CAGR of 15%. This growth can be contrasted to the growth in exports between FY 2016 and FY 2019, which recorded a CAGR of 8%. The largest contribution to growth in exports is delivered by the OEMs. This can be attributed to the fact that OEMs have high-value exports which are contributing heavily to the overall increase in exports.

6.2. Government Incentive

With a view of expanding the automotive industry's integration with global trade, the incentive support required across the duration of the Automotive Global Champion Scheme is estimated to be **INR 57,042 Crore.**

The magnitude of estimated incentive outlay for each year has been highlighted in table 21:

Table 21 – Incentive in INR Cr by Year

S. No.	Year	Total Incentive (INR Cr.)
1	Year 1	4,477
2	Year 2	7,109
3	Year 3	10,274
4	Year 4	13,931
5	Year 5	21,252
	Total	**57,042**

6.3. Economic impact

The second objective of the global champion incentive scheme is to attract investments and create jobs in the automotive sector. The table below summarizes the jobs created, the estimated government tax collections and investments under the Automotive Global Champion Scheme

Table 22 - Investment & Employment impact of incentive schemes

S. No	Impact Area	Value (5 Years)
1	Investments – INR Cr	102,722
2	Job Creation – Lacs	58.8
3	Increase in Direct Tax Collections – INR Cr	16,525
4	Increase in GST Collections* – INR Cr	12,686

*GST collections estimated only on the additional domestic industry growth due to the increase in industry maturity as a result of the Automotive Global Champion Scheme

The maximum employment generation is attributed to the growth of OEM exports. OEMs have a high job multiplier (currently ~1x10) in India. This means that significant employment is generated along value chain as well as in associated areas such transport services, etc. The high multiplier for OEMs is also indicative of a high value addition per employee in auto OEMs. The multiplier effect is captured in following tables highlighting jobs created along the value chain.

Table 23 - Jobs created along the automotive value chain

Employment Generation					
OEM	Tier-1	Tier-2	Tier 3/4	Ancillaries / Other	Total
329,843	949,826	883,179	1,310,265	2,411,308	5,884,421

An increase in exports shall also drive up revenue* for firms along the value chain as order books swell. The table below captures revenue increase across 5 years for value chain players:

Table 24 – Cumulative Revenue increase along the automotive value chain – 5 Years

Cumulative Increase in Revenue (INR Cr) for 5 Years				
OEM	Tier-1	Tier2	Tier 3/4	Ancillaries / Other
215,893	**324,454**	**231,617**	**220,683**	**115,789**

* Revenue increase is cumulative addition of increase in revenue across 5 years with respect to the base year.

With enhanced scale, employment and additional capital, firms along the value chain become cost competitive by leveraging economies of scale and investing in superior technology. A larger capital base also augments the credit capacity of a firm, allowing investments in Research & Development. Such investments become imperative for the industry to become globally competitive and excel in the long term.

6.4. Impact on MSMEs

Micro, small and medium enterprises (MSME) form a critical backbone of the automotive value chain in India. As per industry estimates, more than 75% of the auto-component suppliers in India fall under the category of MSME[54]. With the definition of MSMEs being revised by the Government of India (Medium enterprises with turnover less than INR 250 Crore & investment in plant & machinery/equipment <INR 50 Crore) , a greater number of automotive value chain participants are expected to fall under the MSME category.

Thus, it is imperative that the benefit of any incentive scheme is also passed on to the MSME automotive sector. In the proposed scheme, increase in competitiveness of the global champions will directly benefit the MSME sector as they will receive more orders and will experience a boost in revenues. Increase in revenues can be invested by the owners/ proprietors of these MSME firms to enhance their capability and capacity.

The table below highlights the estimated share of MSMEs across various Tiers as well as the expected increase in revenues for each tier as well as MSMEs as a category:

Table 25 – Cumulative Revenue increase for MSMEs – 5 Years

	Cumulative Increase in Revenue (INR Cr) for 5 Years				
Company Category	OEM	Tier-1	Tier-2	Tier ¾	Ancillaries / Other*
	215,893	**324,454**	**231,617**	**220,683**	**115,789**
Large (>250 INR Cr revenue) %	100%	100%	80%	40%	40%
MSME (<250 INR Cr revenue) %	0%	0%	20%	60%	60%
Cumulative Increase in revenue for MSMEs – INR Cr			46,323	132,410	69,473
Cumulative Increase in revenue for MSMEs	~INR 200,000 - 248,206 Crore				

It is estimated that MSMEs, shall gain ~INR 200,000 to INR 248,000 crores of incremental revenue through the Automotive Global Champion scheme. Such increases in revenue not only help stabilize the jobs of workers in these firms but also enable MSMEs to avail cheaper credit. Such credit shall enable expansion and hence, more jobs in the long term.

[54] ET Auto - https://auto.economictimes.indiatimes.com/news/auto-components/auto-msmes-battle-to-breathe-amid-lengthy-lockdown/75366869

MSME organizations also contribute significantly the employment generation within the automotive sector. These firms typically deploy labour-intensive manufacturing technology and give employment to a large number of skilled and unskilled workers.

It is estimated that the proposed incentive scheme will create approximately **24 lakh jobs** across the duration of the scheme. This demonstrates the power of the multiplier effect of the automotive industry and further highlights the need to support & boost the competitiveness of the sector.

7. Scheme Implementation Suggestions

This section provides certain suggestions that would support a successful roll-out of the scheme and will streamline its operations.

7.1. Applications assessment, baselining & benefits disbursement

- A thorough appraisal of applications for the Automotive Global Champion Scheme should be carried out by the appointed nodal agency responsible for implementing the scheme
- Appraisal process should include validation of financial reports, declarations & disclosure of group holding structure, legal registration documents by a reputed CA firm of sufficient scale & size
- Baselining of purchase value, export sales, domestic sales, eligible sales value, and long-distance sales value for calculation to be based on financial year 2018-19. Baselining to be based on CA certified documents and should include capturing information on export & domestic sales of all relevant sister entities of any applicant. While the incentive estimation will be based on the sales / purchase value of approved legal entity, a thorough baselining of other related entities will ensure greater transparency while assessing claims of the applicants during the benefits disbursement process
- Benefits disbursement process should include a thorough validation of applicants claim through a certified CA agency. Incentives to be disbursed only after the applicant has achieved the performance thresholds laid out in the individual incentive schemes

7.2. Scheme Performance Review & Continuous Improvement

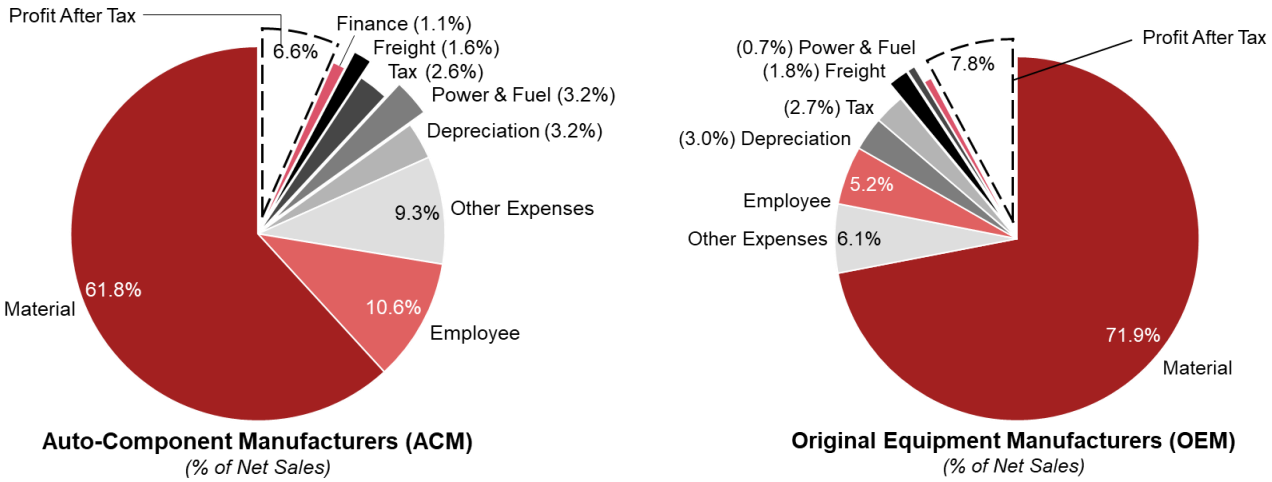
- A technical committee comprising of representatives from Niti Aayog, DHI, Ministry of Commerce, industry associations (ACMA, SIAM) and independent industry experts / consultants should be formed to monitor the progress & conduct regular reviews of the Automotive Global Champion Scheme
- The committee should recommend amendments in the scheme guidelines to the nodal agency based on the periodic reviews, industry feedback & grievances to ensure successful achievement of scheme objectives
- Any changes in thresholds / eligibility criteria should be approved only after they have been reviewed and approved by the technical committee

Appendix:

Cost Structure of Automotive OEMs & Auto-Component Players in India

The charts below captures major cost heads of manufacturers in the Indian automotive manufacturing setup. The analysis considers top OEMs and auto-components manufacturers.

Figure 12 – Cost Structure of Leading Automotive OEMs & Auto-Component Players



Auto-Component Manufacturers (ACM)
(% of Net Sales)

Original Equipment Manufacturers (OEM)
(% of Net Sales)

Material costs account for more than 60% of sales value for both OEMs & Auto-component players and is the largest cost bucket. OEMs & Auto-component players undertake continuous improvement initiatives to optimize material costs through best-in class sourcing practices and design & yield improvement initiatives.

Employee and manpower related expenses are the 2nd largest cost bucket for Automotive OEMs & component players. The wage rates in India have been increasing annually to account for inflation increases as well as to reduce the disparity among the general populous. In order to counter the increase in wage rates, automotive players have invested in productivity improvement initiatives including increase in automation & digitalization that can enhance the overall productivity of operations.

As mentioned in Chapter 2, Freight, Power & Fuel and Finance costs can be directly impacted through government policies and incentives. These costs can comprise 4-6% of net sales value at an aggregate level but can be much higher for orders that are exported out of India. Infrastructural and policy improvements undertaken by the central and state governments can have a significant impact on optimizing these costs for the automotive sector.

Assumptions & Methodology for Export Output & Incentive Outlay

#	Automotive Company Category	Number of Assumed Beneficiaries	Avg. Export Size of Each Beneficiaries	Estimation Methodology
1	International Purchase Offices (IPO)	35	INR 800 Cr	• According to various industry estimates, there are more than 50 automotive IPOs in India • Primary research was conducted with a sample of top exporting IPOs as well as smaller IPOs to estimate the avg. purchase size
2	Auto OEM	15	INR 5,000 Cr	• There are more than 40 OEMs operating in the country across different vehicle categories • As per industry data, Top 15 OEMs account for >90% of automotive exports • Financial analysis of Top 15 OEMs through annual reports, subscribed databases & MCA company registry to calculate the current & historical exports value for qualifying OEMs • In-house knowledge was also leveraged for estimations through discussion with experts
3	Auto Component	45	INR 600 Cr	• In-house database of top 100 auto-components exporters was leveraged to identify key exporters • Financial analysis of Top 30 exporters was conducted(Including some Non-ACMA members) leveraging annual reports, subscribed company databases to arrive at average export size

Assumptions & Methodology for Economic Impact Calculation

S.No	Economic Impact Category	Estimation Methodology
1	Increase in Employment	• Employment norms for productivity (per Rs. Crore revenues) at OEMs, Tier-1, Tier-2, Tier-3 etc. were arrived at using company annual reports along with NSDC & DHI estimates for total automotive employment • Primary research with select automotive and component companies was conducted to validate the norms • New jobs for each leg of automotive value chain was estimated basis the increase in revenue & the employment norms
2	Direct Tax Collection	• A thorough financial analysis of a sample of companies was conducted to arrive at average profitability for each value chain leg • Estimated margins were also arrived at through the analysis of P&L statements (revenue & cost of materials) • Increase in Profit Before Tax (PBT) was estimated using average profitability & estimated increase in revenue • Increase in PBT was multiplied with direct tax rate% to estimate increase in collections
3	Indirect Tax (GST)	• For calculating GST collection, growth in revenue from increase in domestic sales was considered (GST on increase in exports not considered due to duty drawback) • Applicable GST on increase in domestic revenue calculated basis 18% GST rate
4	Investments	• Financial analysis of OEMs & components was conducted to arrive at average Investment norms (Average asset turnover ratio) • Current asset utilization & threshold asset utilization was estimated using sample financial analysis. Asset utilization & investment norms were applied to the increase in revenue for OEMs & component players to arrive at estimated investment that will be required to the achieve the targeted growth

End of Report