VOLUME 2

सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP

N·S·D·C
National
Skill Development
Corporation
Transforming the skill landscape

Human Resource and Skill Requirements in the Auto and Auto Components Sector

(2013-17, 2017-22)

cutting through complexity

This report is prepared by KPMG Advisory Services Pvt Ltd (KASPL).

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Acknowledgement

We are grateful to the Government of India and its various departments, State Governments, Industry Associations, Sector Skill Councils, Skill Training Institutions, Academia and NGOs, for their contribution towards the successful completion of the Sector Skill Gap study (2013-2017, 2017-2022).

We would like to thank all NSDC's industry and training partners for their active participation. The success of the study has been possible through their collaborative efforts.

In addition, we convey our gratitude to all those who have, in some way or other, contributed towards the successful completion of this study.

Executive Summary

Policy interventions in land acquisition and taxation are stimulate the Auto and Auto Components sectoral growth India…

Key Growth Drivers

India and other BRIC nations would emerge as major manufacturing hubs due to the availability of cheap labour and other favourable investing environment. More companies are looking at India as a manufacturing base and shifting their operations from Europe to India, and other south-east Asian countries.

Many global auto component manufacturers have manufacturing presence in India either through joint ventures or otherwise. A good number of auto component manufacturers are focusing on exports as excise duty is very less in complete knocked down (CKD) units.

The sales growth is not uniform in all sub-segments. two-wheeler segment is expected to grow at CAGR of 11 percent. Passenger car and commercial vehicles have much less growth expectation at 8.6 percent and 8.1 percent.

India's Competitive Advantage

India allows 100 percent FDI for the automotive sector and the its approval is through an automated route with minimal requirement of government permissions

automation and operational efficiency, an addition of one manpower at the OEM would lead to generating eight jobs at the vendor's end.

India has highly developed transport facilities with multiple ports capable of handling large shipping vessels. Chennai, Ennore, Mangalore, and Mumbai are the large ports close to automotive clusters in south and west India

Land acquisition norms	Due to lack of implementation of standardised processes relating to land acquisition as well as difficulty in approaching the concerned department/ ministry/organisation at the right time, it becomes difficult to acquire the required land at a number of locations
Taxation complexity	Tax laws in India are believed to be one of the most complex laws across the globe. The cars registered in one state should be sold in the same state to avoid double taxation. Further, the taxes applicable at different states are different.
Increasing cost pressure	There exists inefficiency in operations due to lack of clear definition of processes in auto component manufacturers leading to increased cost. Significant value of auto components are imported. This puts cost pressure with exchange rate fluctuations.

Sources: KPMG in India analysis

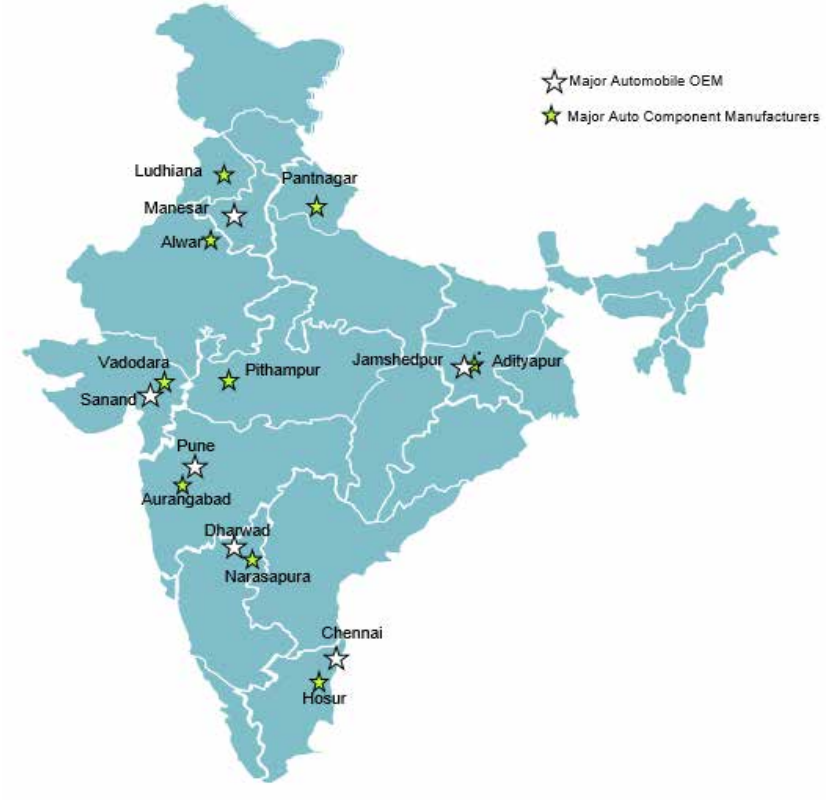
Demographic characteristics of workforce

Direct employment in the sector is expected to be nearly 15 million by 2022…

Sub-sector	Employment (In million)		
	2013	2017	2022
OEM	1.87	2.04	2.23
Auto component manufacturers	4.81	5.99	7.26
Service centers	2.80	3.10	3.44
Dealerships	1.50	1.68	1.95
Overall sector	**10.98**	**12.81**	**14.88**

- Industry growth, changing technology, growing economy, larger income at disposal and lowering first-hand life-cycle of cars have triggered requirements for fresh skilling and up-skilling in the sector.
- By 2022, nearly 15 million people are expected to be employed in automobile sector directly in the industry

Geographical Distribution of Employment



Haryana leads in the production of passenger cars, motorcycles, tractors and accounts for 50 % of total passenger cars and two-wheelers production in India.

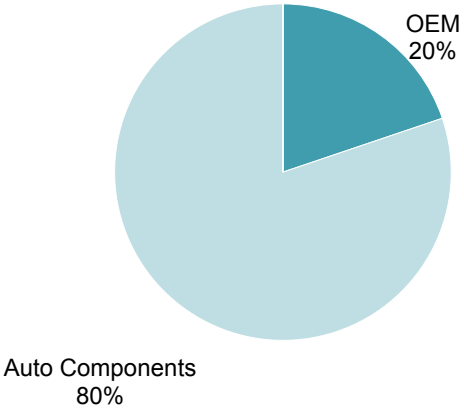
Sources: Industry Interactions; KPMG in India analysis

Demand Analysis

The additional requirement for labour is expected to grow to

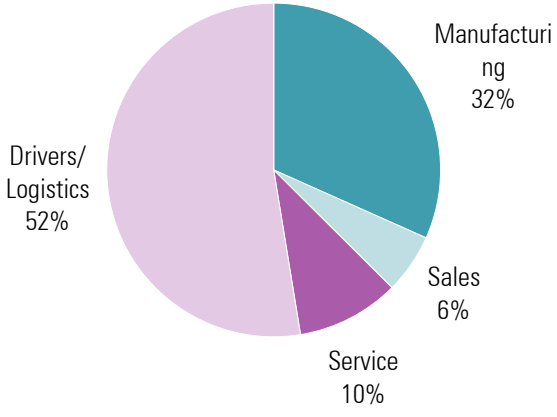
The calculation for additional requirement is done on the basis of growth rate of 8.5 percent in OEM and 14.1 percent in auto components till 2017 and a growth rate of 9.2 percent and 15.6 percent thereafter. The labour elasticity is estimated to be 0.25 and 0.4 for auto OEM and components till 2017, which is expected to drop to 0.2 and 0.25 thereafter due to improved production techniques and automation. The baseline employment for each sub-sector is estimated on the basis of primary interactions with industry experts and secondary research from industry bodies.

Manufacturing workforce distribution



- Out of 7.6 million employed in manufacturing, 72 percent of the employees are working in component sub-sector. Even in auto component manufacturing companies, a majority of the workforce is employed in tier-III and raw material manufacturing companies.
- By 2022, the share of employees working in auto component manufactures is expected to reach 80 percent from current 72 percent. This increase is due to faster growth rate and higher labour elasticity of auto component manufacturers when compared to automobile OEM. The share of contract workers has increased from around 40 percent in 2008 to 56 percent in 2014. This is expected to stabilise around 65 percent in 2022.

Auto sector workforce distribution

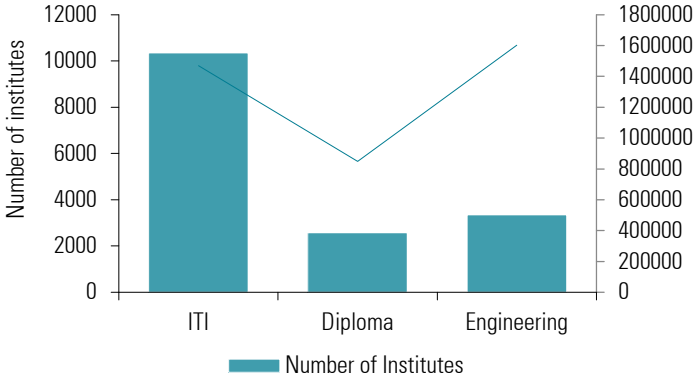


- 19.1 million people employed in automobile sector directly or indirectly. This includes manufacturing in OEM, Auto components, raw material factories, automobile dealers, service centres, and other enabler sectors. Presently, more than 70 percent of the auto component companies are SMEs. Access to capital, technology and the high rate of interest would limit their growth. Further, the automotive sector has 56 percent of workforce which is second highest after telecom sector.
- By 2022, the employment in this sector is expected to reach 38 million. The incremental employment is higher in indirect employment, which is expected to go up to 68 percent of the total employment

Supply & Training Infrastructure

Higher investment required for creating training capacities is a key challenge in the sector

Higher Education/ITI s



- Although there are many private engineering colleges, the number of private institutes providing education in Diploma/ITI is limited.
- Most of the existing demand is fed by the government institutes which are not effectively run to provide industry-fit employees. Further, the courses are not updated with the change in technology implemented at the plants.

Skill gaps in the Auto OEMs sub-sector

- Insufficient industry knowledge and technical knowledge pertaining to vehicles is limited
- Insufficient skills for maintaining the required service levels and customer satisfaction levels
- Civil engineering and project management skillset for building plants
- Skills to handle sophisticated software for design, such as Pro-e, Catia, unigraphics, etc.
- Programming skills for handling Computerised Numerical Controllers (CNCs)
- Supply chain skillset to understand and apply concepts such as kanban, Just In Time (JIT)
- Skills set to improve production operations such as Total Productive Maintenance (TPM)

NSDC Training Partner Capacities

Select NSDC training partners

Training institute	Capacity in lakhs
GRAS Hospitality	0.30
Pratham	2.50
Centum (Work Skills)	30.08
Laurus Edutech	3.93
Future Sharp	0.70
TVS	0.43
Jetking	9.00
Skill Source	4.20
Aptech	0.39
Don Bosco	2.75
CAP WDI	1.28
Involute	1.41

- Most of the commercial vehicle manufacturers have started providing courses on commercial vehicles drivers and other allied courses.
- The automobile OEM and tier-I auto component manufacturers employ high capital expenditure in their plants and expect high productivity. Many of these companies have in-house training facilities for up-skilling and fresh skilling.

Select recommendations & implications

Recommendation	Implications
Promotion of trainings for developing automotive design and related skills	▪ Although it is a niche segment, jobs in this area would be extremely critical to the competitiveness of the firm and the employees can expect a premium in salary.
Promotion of courses providing new skill requirements in Service centres	▪ Jobs in automobile service centre is not career many aspire to pick up. But, recent changes in vehicles has forced only well trained persons to repair the vehicles who are very short in number
Promotion of manufacturing related courses in auto clusters	▪ Promotion of courses related to manufacturing in clusters would have immense potential for satisfying job demands in varying levels of skills.
Promotion of small and medium scale enterprises	▪ Promotion of SME sector including lower tier automobile company will create jobs at entry level and strengthen the auto component base of India.
Promotion of research in electric vehicle design and production	▪ If the government pursues it mission of selling 6–7 million electric vehicles till 2020, a lot of jobs is expected in this domain. At present, only a handful of electric vehicle designs are available
Promotion of soft skills related courses for shop floor employees	▪ Courses in soft skills and behaviour would limit the extent of damages caused
Promotion of training for commercial vehicle drivers	▪ Initiatives, such as SAFE from SIAM should be encouraged and scaled up to bridge the already existing gap in numbers.

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Abbreviations

CAGR	Compounded Average Growth Rate
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
ITI	Industrial Training Institutes
MSME	Micro Small and Medium Enterprises
NIC	National Industrial Classification
R&D	Research and Development
SSC	Sector Skill Council
NSDC	National Skill Development Corporation
OEM	Original Equipment Manufacturer
SOP	Standard Operating Procedures
TQM	Total Quality Management
FMEA	Failure Mode and Effects Analysis
DOE	Design of Experiments
FEA	Finite Element Analysis
RTO	Regional Transport Office
LCV	Light Commercial Vehicles
M&HCV	Medium and Heavy Commercial Vehicles
FADA	Federation of Automobile Dealers Association
SIAM	Society of Indian Automobile Manufacturers
SAFE	Society for Automotive Fitness and Environment
IDTR	Institutes of Driving Training and Research
RDTC	Regional Driving Training Centre
ASDC	Automotive Skill Development Council

Context and approach

Brief background	NSDC had conducted sector-wise skill gap studies for 19 high priority sectors in 2008–09 . ▪ KPMG has been engaged as a consultant to help evaluate the skill gap across 25 sectors and develop actionable recommendations for its stakeholders. ▪ Mandate includes sector and sub-sector level analysis, demand-supply projection, estimation of incremental man-power requirement between 2013-2017 and 2017-2022, identification of key-employment clusters, and SWOT analysis of each sector ▪ Study also aims to take qualitative insights from stakeholders on enablers and challenges for each sector, way forward in terms of specific policy level actionable recommendations,
Inclusions over the previous study	▪ Study led by industry – Sector Skill Councils and a panel of professionals from different sub-sectors were consulted for their inputs on industry trends, key takeaways in terms of skill requirement, qualitative insights to understand specific interventions required for each sector and to validate the quantitative results and recommendations ▪ 6 sectors were added to the list of NSDC priority sectors for studying the skill gaps Updated study also includes ▪ Identification of top 20 job-roles in each sector, case studies around good training practices, sub-sector level indicators and growth factors ▪ Study also includes understanding of existing training infrastructure, work-force characteristics and employment clusters, ▪ Macro economic factors, central and state governments policies and their envisaged impact ▪ Synchronisation of the sector wise demand from the district level skill gap studies ▪ Recommendations for key stakeholders - Industry, NSDC, Training organizations and Government ▪ Environment scans every year till 2015-16 including SWOT analysis for the sector

Industry classification

NIC Classification

Manufacture of motor vehicles	• Section C • Division 29 • Group 291
Manufacture of bodies, trailers and semi-trailers	• Section C • Division 29 • Group 292
Manufacture of parts and accessories for motor vehicles	• Section C • Division 29 • Group 293
Manufacture of motor vehicles for special purpose	• Section C • Division 28 • Group 282
Sales of motor vehicles	• Section G • Division 45 • Group 451
Maintenance and repair of motor vehicles	• Section G • Division 45 • Group 452
Sales of motor vehicle parts and accessories	• Section G • Division 45 • Group 453
Sales, maintenance and repair of motorcycles and parts	• Section G • Division 45 • Group 454

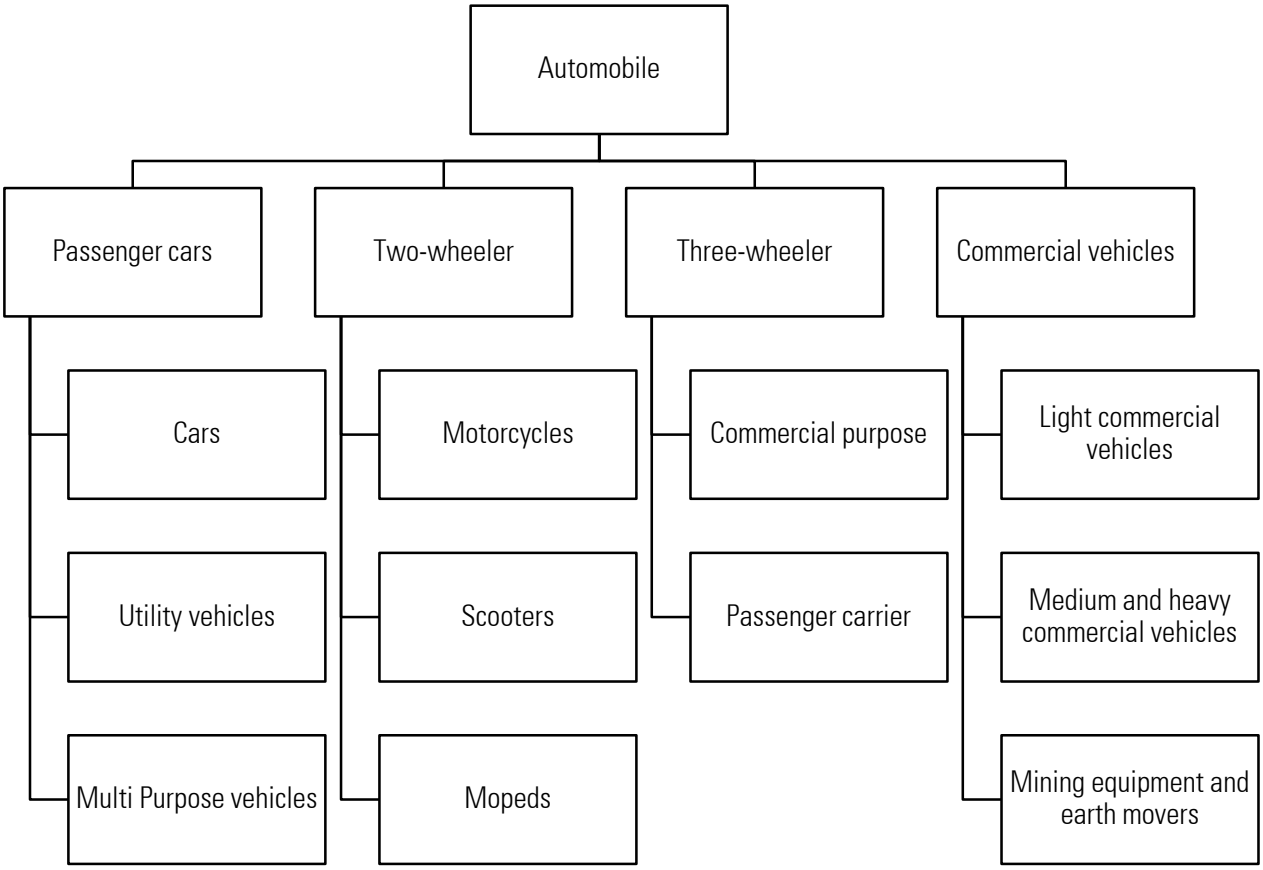
The National Industrial Classification (NIC), brought out by the Central Statistical Organisation (CSO) in the Ministry of Statistics and Programme Implementation (MOSPI), provides a uniform framework for classifying data according to the type of economic activities it caters. This classification is used in all types of censuses and sample surveys conducted in India.

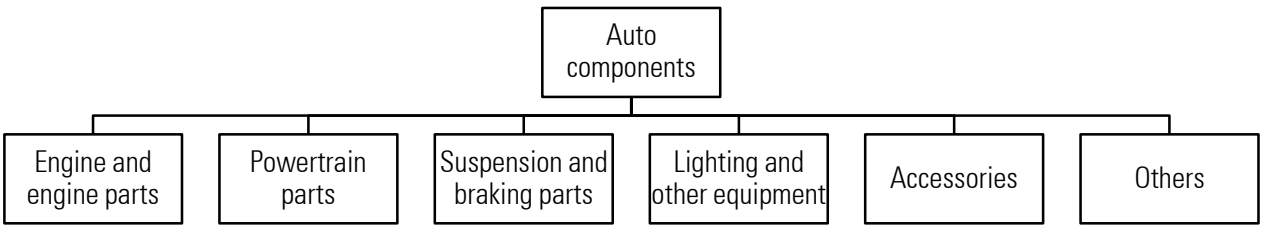
All the activities are grouped into several 'activity groups' or 'tabulation categories' in a hierarchical manner. Activities are first grouped into 'sections' alphabetically coded from A through U; every section is divided into 'divisions' with two-digit numeric code for each division; every division is further segmented into 'groups' with a three-digit numeric code for each group; and every group is divided into 'class' with a four-digit numeric code.

Sources: National Industrial Classification, 2008, Ministry of Statistics and Programme Implementation

Industry overview

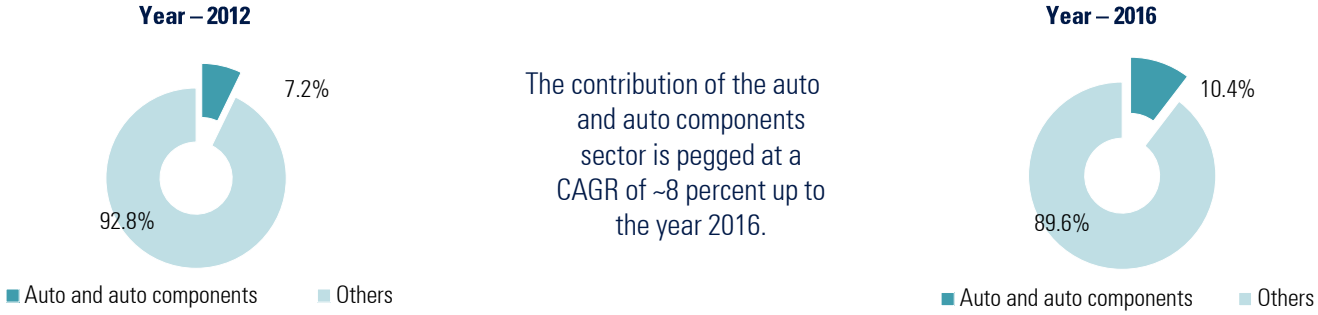
The classification of the auto and auto component industry is as follows





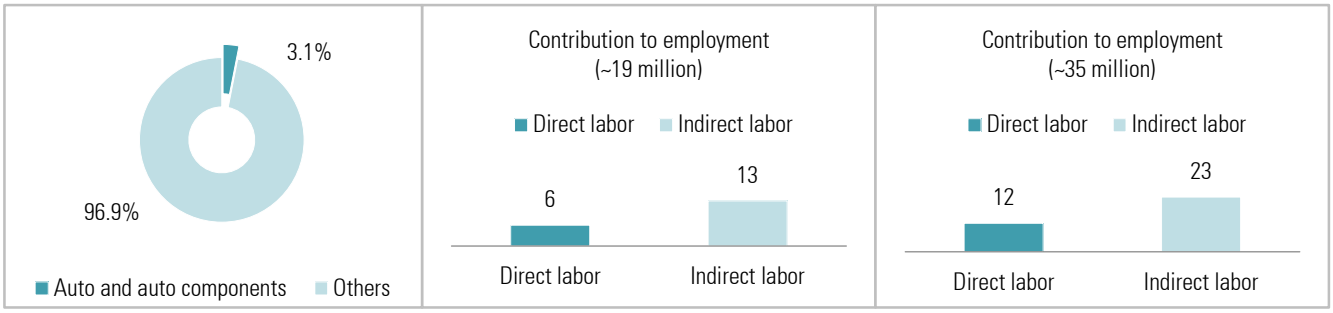
GDP contribution of the sector expected to grow from 7.2% in 2012 to 10.4% by 2016

Contribution of auto and auto component sector to India's GDP



Source : KPMG Report — Auto Industry: India in the changing world order, 2012

Contribution of auto and auto component sector to employment (FY12) (FY22)



Source: SIAM — Convention paper — "Contribution of Auto Industry in Economic Development" — December 2013

- The direct labour refers to the personnel employed in the auto OEM's and auto component manufacturers. The indirect labour refers to support services, which assist the direct labour activities — such as the service activities, drivers, cleaners, automotive finance providers and insurance jobs.

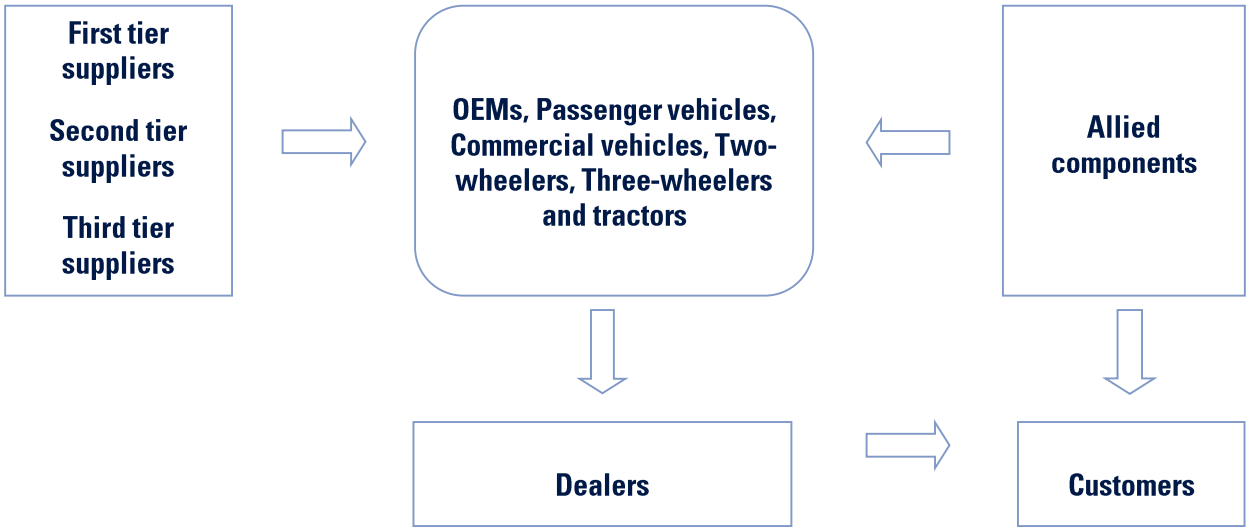
- The automotive sector with its backward linkages (metals, such as steel, aluminium, copper and plastics, paint, glass, electronics, capital equipment, trucking, warehousing and logistics) and forward linkages together (retail dealerships, credit and financing, logistics, advertising, repair and maintenance, petroleum products, gas stations, insurance, service parts) has been recognised and identified, at different national councils, as a sector with immense potential to increase the share of employment in the manufacturing and tertiary sectors.

- India, with its huge strength of domestic market, rapidly growing purchasing power, market linked exchange rate along with well established financial market and corporate governance laws, is appearing as an attractive destination for new investments in this sector.

Source: Primary interactions, KPMG analysis

The auto sector is also seen as a multiplier of industrial growth

Value chain of automotive industry



Source: KPMG in India analysis

Global ranking of the Indian auto sector among 148 countries, 2012

Vehicle Type	Ranking	Units
Two-wheeler	Second-largest two-wheeler market in the world	13.9 Million
Passenger vehicles	Third-largest PV market in Asia	2.6 Million
Commercial vehicles	Fifth-largest CV market in the world	0.8 Million

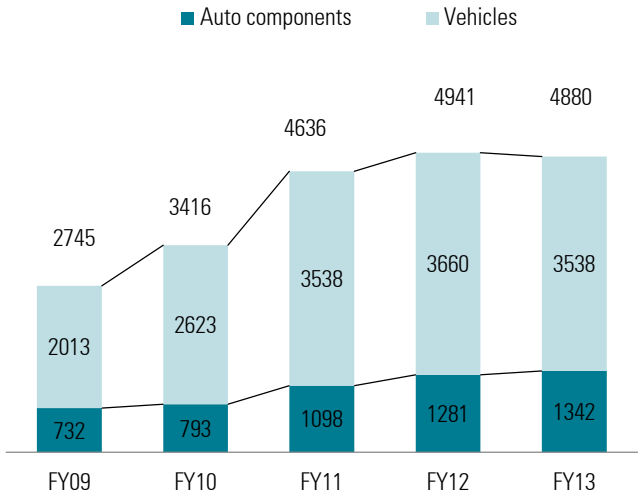
Source: Automotive Component Manufacturers Association of India (ACMA) Report, Indian Automotive Industry: Status.

- According to the Tamil Nadu Automobile and Auto Components Policy 2014, with the current level of industrial automation and operational efficiency, an addition of one manpower at the OEM would lead to generating eight jobs at the vendor's end.
- Further, the vendors need to invest three times the investment made by the OEM, which makes automotive industry a multiplier of industrial growth.
- Free-trade agreements signed with ASEAN countries is expected to boost the auto component industry in the years to come as Indonesian Automobile industry is one of the fastest growing industries, growing at a rate of 10.4 percent.
- India has highly developed transport facilities with multiple ports capable of handling large shipping vessels. Chennai, Ennore, Mangalore, and Mumbai are the large ports close to automotive clusters in south and west India

Source: Tamil Nadu Automobile and Auto Component Policy, 2014, KPMG Analysis

Sector has also witnessed growth in FDI, 7% of total FDI in India in 2012-13

Gross turnover of the automobile manufacturers in India (in INR '00 crores)

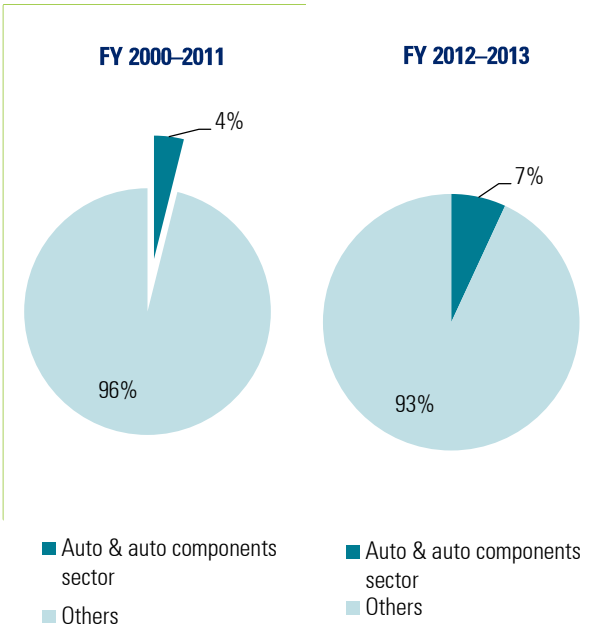


- The CAGR of the turnover of auto and auto components sector for a period of five years (2009–13) is 15.47 percent. However, the future growth in the industry is expected to be 8.5 percent from 2014–2020 according to the Economist Intelligence Unit.
- The growth in demand for manpower, raw material, automotive and auto components thereafter is expected to lead to an increase in turnover.

Source: Society for Indian Automobile Manufacturers (SIAM), KPMG analysis

- The Indian auto industry is known as a global hub for manufacturing compact cars and, therefore, the value of FDI in the sector is also increasing.
- India allows 100 percent FDI for the automotive sector and the its approval is through an automated route with minimal requirement of government permissions.
- The FDI in the automotive sector accounted for 3.9 percent during the years 2000 to 2011. This increased to 6.9 percent in 2012 and 2013. This is further positioned to increase as more foreign players are looking to expand their manufacturing base in India. Till December 2013, India received INR999648 crores of FDI out of which INR44880 crores was in automobile.

FDI garnered by the auto and auto component sector



Source: Department of Industrial Policy and Promotion, KPMG analysis

Global OEMs are planning to make India a primary sourcing hub for their global operations

Advantage auto components

Key trends

- Tier-I automobile companies are moving from component manufacturers to module manufacturers.
- Tier-I auto component manufacturers are increasingly getting involved in designing of components.
- Rising quality consciousness among auto component manufacturers has resulted in 80 percent of the major auto component manufacturers getting ISO 9000 certification while 25 percent of them are already TS 16949 certified.

Innovation

- Increased deployment of IT-enabled automobile support systems, such as global positioning systems (GPS), anti-braking systems (ABS), automatic speech recognition (ASR) and safety systems, is promoting innovation in the auto components industry leading to requirement for skilled manpower.
- Many auto component manufacturing companies , such as DuPont and Bosch have significant R&D capabilities in their research centres in India.

Concerns and challenges

- Shortage of skilled manpower affects both, the quality and productivity in auto component manufacturers.
- Auto component manufacturers are extremely sensitive to input material prices since they are correspondingly always under immense pressure from the OEMs on the pricing and are under the threat of losing business to competitors while they work with very low margins.

Opportunities

- ASEAN-free trade agreement would help in boosting the growth rate as countries, such as Indonesia, have strong growth in automobile sales but do not have a strong auto component manufacturing base.
- Strong support for R&D through establishment of National Automotive Testing and R&D Infrastructure Project centers.
- Growth in automobile sector would result in higher growth in auto component sector as they serve after sales spare part market also.

Source: KPMG in India analysis

Sector will witness large employment generation in coming years with increasing manufacturing set-ups by OEMs

- According to SIAM annual convention report, 19.1 million people are employed directly or indirectly in this sector.
- Traditionally, the workforce has been male dominated. Although, some of the OEMs are focusing on improving the workforce diversity, the sector workforce as a whole is expected to remain male dominated.
- The workforce requirement in this sector includes high skills and knowledge, which is becoming a concern as the quality requirement is getting stringent.
- Labour issues have resulted in damage to the machinery as well as production loss. This highlights the need for imparting soft skills and negotiation training to manpower.
- While attrition is a concern at lower tier auto component manufacturers and contractors, the attrition in automobile OEMs and large auto component manufacturers is very less.

The main areas for development of skill in the auto and auto component sector are:

- R&D
- Design
- Manufacturing/Operations
- Drivers
- Sales and marketing
- After-sales technical operations

Key Drivers

- Global OEMs setup in India — providing training to employees on an ongoing basis
- OEM's targeting India as a 'global hub' — for setting quality standards, therefore ensuring expansion and growth of the existing sector that would drive employment and add to the available opportunities.

Innovation

- Nurturing skill sets to meet global standards by concentrating on R&D.

Advantage auto workforce

Concerns and challenges

- Lack of quality engineering and design capabilities
- Education system may not completely match the sector needs with regard to employability

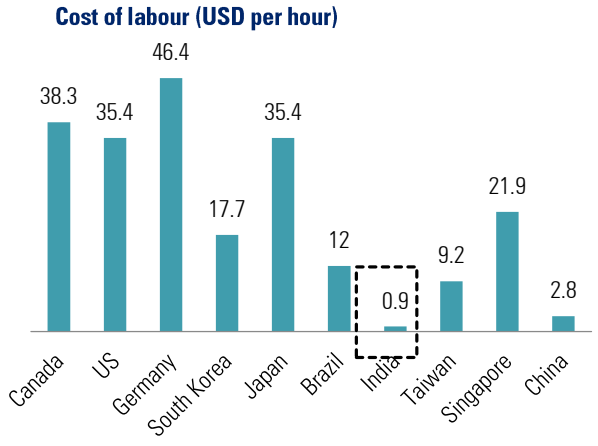
Opportunities

- OEMs , such as Renault, tie up with design and engineering schools and universities in India to train students to be industry ready.

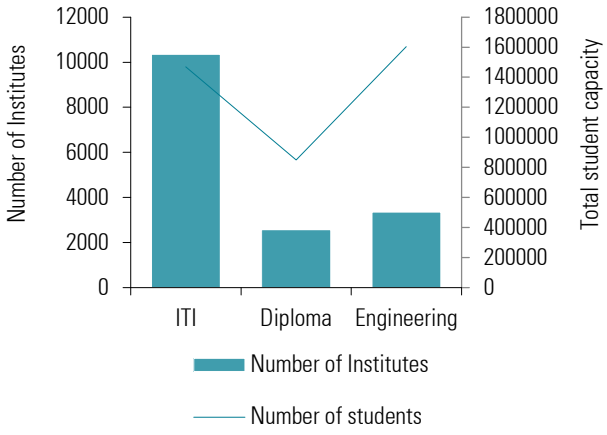
Source: Primary interactions, KPMG analysis

Cheaper labor force needs to be trained in order to leverage on cost advantage

Comparison of labour cost — on a global platform



Engineer supply force in India



Source: Global Manufacturing Competitiveness Index US Council on Competitiveness 2013

India lacks a fairly competitive labour workforce when compared to many countries , such as many countries, such as Mexico, Japan and Brazil as the number of vehicles per employee is only 8.1 which indicates the need for manpower skill development.

Although the supply of engineering students is sufficiently high to meet the combined requirement of automobile OEMs and auto component manufacturers, they are not sufficiently trained to be industry fit. For examples, the expertise in design software, production techniques and statistical quality control tools is limited

Best practices adopted by OEM's across the country and its effects

OEMs are adopting new methods to enhance the quality of the operations in the auto sector. Some of the popular best practices adopted by the OEM's are :

- The Theory of Constraints (TOC)
- Total Quality Management (TQM)
- Just In Time (JIT)
- Six sigma
- Failure Mode Effect Analysis (FMEA)
- Lean Manufacturing
- First Time Right
- Total Productive Maintenance (TPM)

These best practices, once pioneered by Japanese manufacturers have now become an industry standard. These have helped the companies to become more profitable and to attain higher operational efficiency. Adoption of these practices by OEMs needs trained professionals and the workforce gets an opportunity to learn on-the-job.

Source: Primary interactions, KPMG analysis

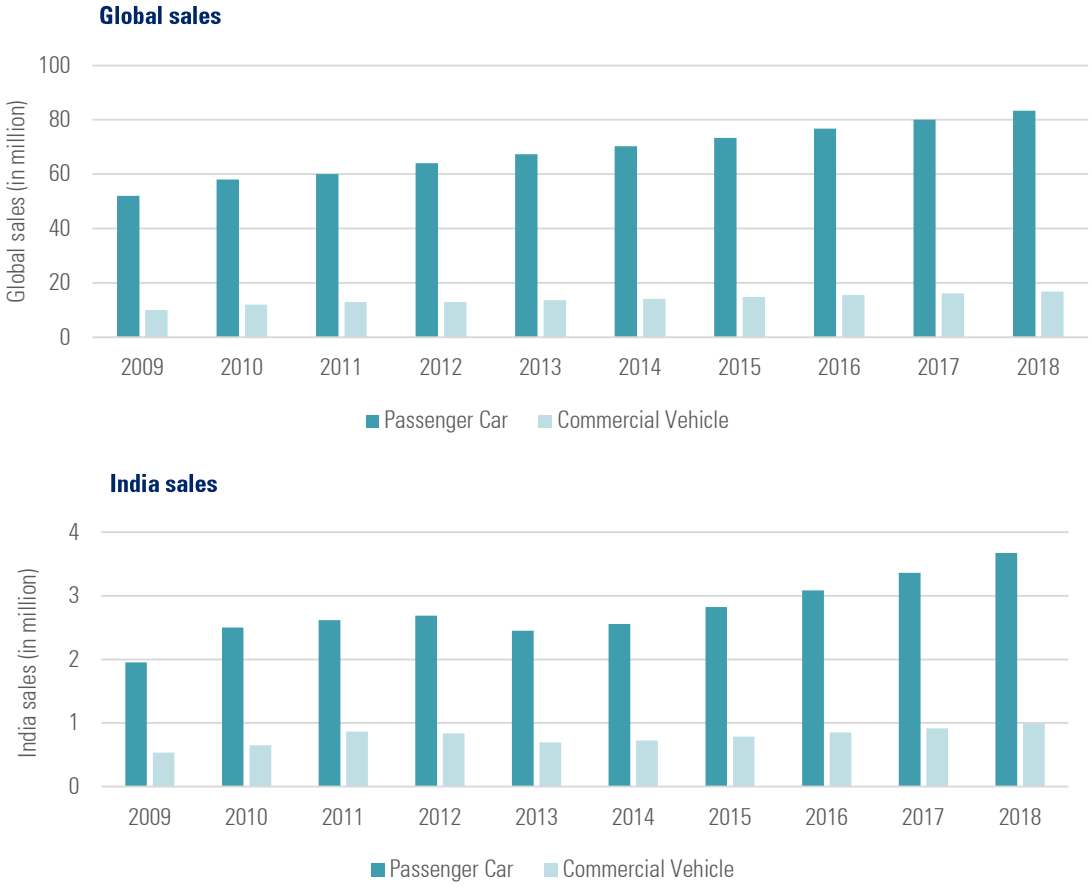
Indian Auto & Auto component industry will witness growth in all key sub-sectors

- Global automotive industry is set to grow at 4.8 percent in the next six to seven years. This growth would primarily be fuelled by higher growth in BRIC nations.
- The global car penetration is about 160 cars per thousand population. This is around 10 times that of India's car penetration.
- The commercial vehicles segment is also estimated to grow globally. Again, the growth engines would be BRIC nations.
- The Asia-Pacific commercial vehicles' market was estimated to be around INR 15.93 lakh crores. This would grow healthily at 9.1 percent.
- Asia has already become the largest automobile producer and market. ASEAN-free trade agreement would help in consolidating the position.
- Asia is the largest manufacturer of two-wheeler with around 90 percent of the production being done in Asian countries.

- According to the economist Indian, automobile sales is set to grow at 8.5 percent in the next six to seven years.
- Indian two-wheeler penetration has grown from 15 percent to 34 percent in last seven years. According to NCAER, it would reach 58 percent by 2022.
- The commercial vehicles segment is estimated to grow at 8.1 percent in India. The growth would be cyclical but we are currently in the trough.
- Many passenger car OEMs, such as Hyundai, Maruti and Renault Nissan, have strong export market, which ensures job creation even if Indian market seems dull.
- India is expected to go past Brazil and Japan in 2016 and become the third-largest auto market. It would be behind China and USA.
- India is only second to China in the production of two-wheelers. India is the largest manufacturer of tractors in the world.

Note: USD to INR conversion rate at 60

BRIC Countries would emerge as major manufacturing base due to cheap labour cost and large market consumption



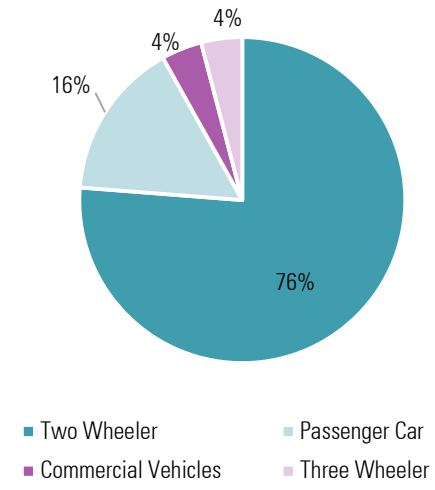
Source: Economics Intelligence Unit, The Economist, 2014, KPMG analysis

- Asia would contribute to 45 percent of the global car sales by 2018. Western Europe and North America's contribution to sales is estimated at 16 percent and 23 percent by 2018.
- India and other BRIC nations would emerge as major manufacturing hubs due to the availability of cheap labour and other favourable investing environment.
- More companies are looking at India as a manufacturing base and shifting their operations from Europe to India, and other south-east Asian countries.
- Many global auto component manufacturers have manufacturing presence in India either through joint ventures or otherwise. A good number of auto component manufacturers are focusing on exports as excise duty is very less in complete knocked down (CKD) units.
- The sales in Indian market is expected to grow in the coming years. The economist expects the automotive industry to grow at a rate of around 8.5 percent.
- The sales growth is not uniform in all sub-segments. two-wheeler segment is expected to grow at CAGR of 11 percent. Passenger car and commercial vehicles have much less growth expectation at 8.6 percent and 8.1 percent.

Note: USD to INR conversion rate at 60

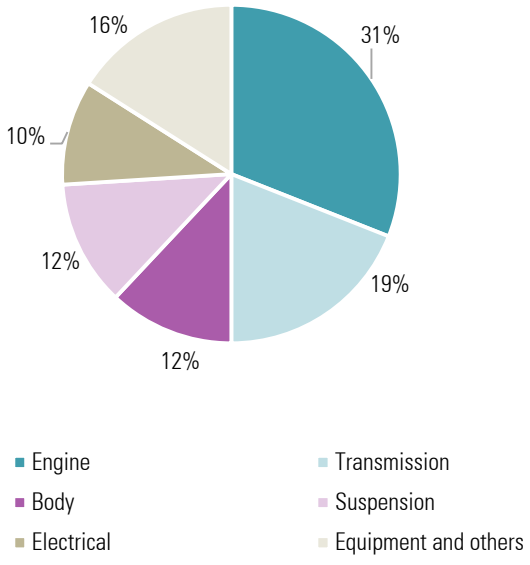
Market structure- product-wise

Automobile production



- Cyclical growth in commercial vehicles is expected to continue in the coming decades.
- Good export market created by many automobile OEM would ensure that the production would continue even in years of dull sales.
- Passenger car expected to pick up in the next few years. Good growth estimated in A and B segment cars
- Two-wheeler would continue its growth path, the penetration in India is estimated to reach 58 percent till 2022.

Auto component production



- Tier-I auto component manufacturers moving into the role of integrated module providers.
- Companies, such as Bosch and Tata Auto Components, have significant research capabilities.
- The workforce in tier-I auto components is similar to auto OEMs in terms of educational qualifications as well as skill levels.
- Most of the machining and welding work is now handled by tier-II and III auto component companies, with tier-I focusing on assembly and research.
- Many global auto component companies have started operations with a joint venture.

The industry is making progress on all fronts to become one of the key Industry for growth in the coming years.

Production trends	Regulatory trends	Labour trends	Market trends
Decreasing kerb weight — higher usage of plastics	Stringent pollution control norms — Compliance to Euro-V and Euro-VI norms in future	Increasing labour conflicts. Maruti, Honda, Toyota amongst the ones worst affected	High demand in high-end cars
Increasing fuel efficiency — higher electronics component	Heavy tax on vehicles not adhering to minimum fuel efficiency norms	Increasing labour wages in NCR region	Two-wheeler segment to grow at good growth rate
Emergence of hybrid and electric vehicles	Incentives and subsidies to promote electric vehicles	Increasing expectation towards production targets and quality improvement	Increasing competition from foreign producers
Auto components become system providers	Crash worthiness tests and pedestrian safety norms	Tamil Nadu has committed to declare the sector as Public Utility to prevent flash strikes	Newer models coming every year

Developing skilled manpower, inefficiency in operations, cost pressure, infrastructural inefficiencies and minimal policy support are major challenges faced by the sector

Land acquisition norms

- Due to lack of implementation of standardised processes relating to land acquisition as well as difficulty in approaching the concerned department/ ministry/organisation at the right time, it becomes difficult to acquire the required land at a number of locations.
- This leads to delays in setting up plants and initiating the manufacturing processes in a timely manner.

Taxation complexity

- Tax laws in India are believed to be one of the most complex laws across the globe. The cars registered in one state should be sold in the same state to avoid double taxation. Further, the taxes applicable at different states are different. Unlike Europe, the registration of leased cars must be in the name of lessee even though legal ownership remains with the lessor. This reduces the leased markets as there is a lengthy process involved for leasing.

Increasing cost pressure

- There exists inefficiency in operations due to lack of clear definition of processes in auto component manufacturers leading to increased cost.
- Significant value of auto components are imported. This puts cost pressure with exchange rate fluctuations. China is exporting tyres, engine and transmission parts, which is competing with Indian component companies.
- Increased competition with 46 OEMs operating has led to cost pressure.
- Highly fragmented component market is another concern and consolidation is required to gain critical mass.

Skilled manpower

- There is an urgent need to improve the quality of skilled and semi-skilled manpower working in the auto industry.
- The existing vocational educational institutions have to be upgraded and additional ones should be started.
- Attrition rate of contract labour employed in this sector is as high as 30–40 percent.

Infrastructural inefficiencies

- Road infrastructure growth is poor in India; this is likely will to put a drag on the growth of the commercial vehicle sector and affect the entire sector. Although the network of highways has reached 98200 km in 2014, the road density per thousand population remains at a dismal 0.07km when compared to developed countries , such as USA with 21 km and France with 15 km.

Source: KPMG Report : Auto Industry: India in the changing world order ,2012, KPMG Analysis

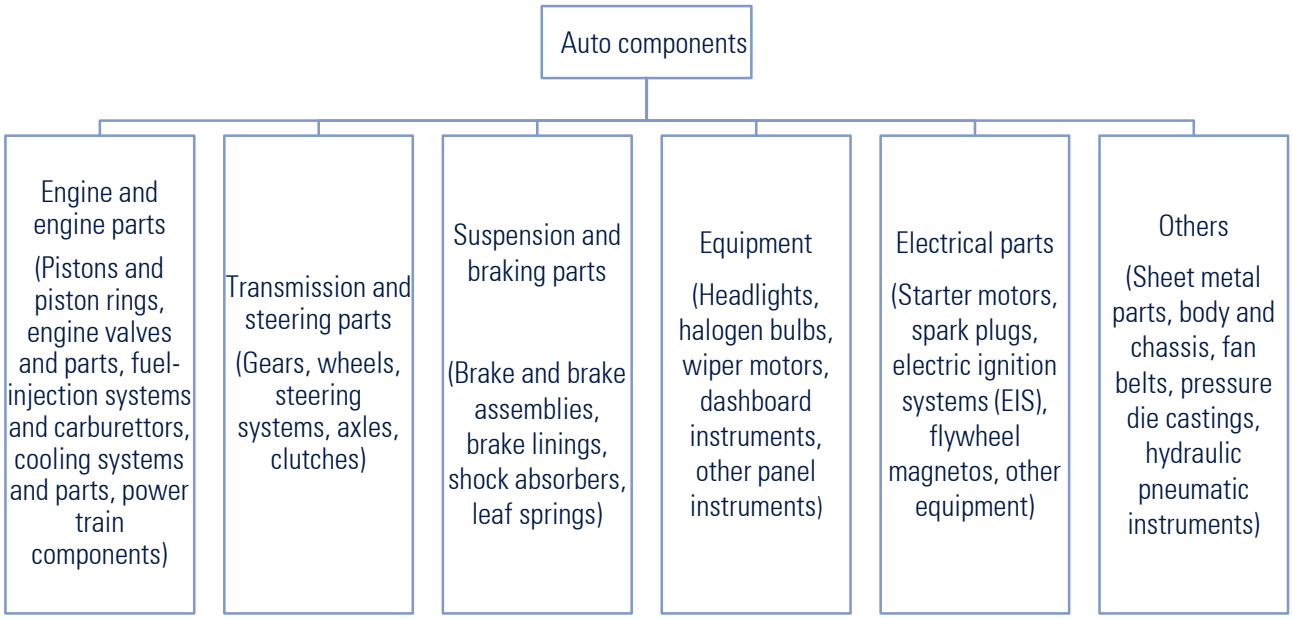
SWOT analysis

Strengths	▪ The purchasing power of the Indian middle class has increased due to rising disposable income. This is likely to fuel consumption in the future, especially in the passenger vehicle segment. Inexpensive labour and the abundance of engineers makes India a suitable destination for foreign companies to set up manufacturing bases. A young population is an advantage, as it boosts the demand for automobiles. Other strengths include increased government spending on R&D and road development, as well as a burgeoning auto component base
Weaknesses	▪ The Indian auto industry currently faces a challenge with the availability of skilled manpower. India is one of the poorest-performing auto industries globally in terms of labour productivity. Further, interest rates are expected to stay high, which does not augur well for the industry, as the bulk of purchasing is done on credit. Delays in infrastructure development due to land acquisition problems and frequent labour conflicts are other issues hampering this sector.
Opportunities	▪ India has one of the least vehicle penetration in world, which is expected to increase in the times to come. Quicker replacements of vehicles would help in boosting demand of vehicles. Although still in initial stage, there is a trend of keeping multiple cars in upper-class and upper middle-class. Increase in productivity is helping the companies to stay profitable. The use of industrial automation in OEM is going to increase which is expected to increase margin at the OEM level. The government has allowed 100 percent FDI in this segment, which has helped in garnering INR44880 crores of FDI in the last 10 years and is expected to continue its impetus at the policy level, including reduction in excise duties and boosting of road network. Further, the number of automobile and engineering SEZ is expected to go up.
Threats	▪ The Indian industry is expected to face intense competition from competing nations, such as China, Thailand and Indonesia. Further, increasing vehicles in roads is causing heavy traffic congestions, which will increase the usage of public transport. Increasing and volatile rate of interest is also affecting purchase decision. Moreover, many manufacturers depend on temporary manpower who are unable to provide the same quality and productivity as provided by a permanent workforce

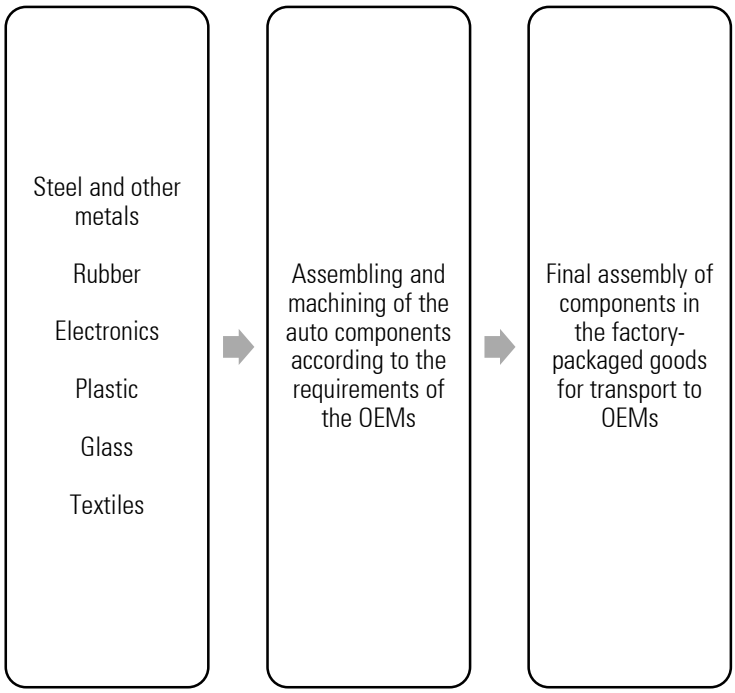
Sub-sectoral overview

Global OEMs are planning to make India a component-sourcing hub for their global operations

Major segments of the auto component sub-sector



Value chain of auto components sub-sector

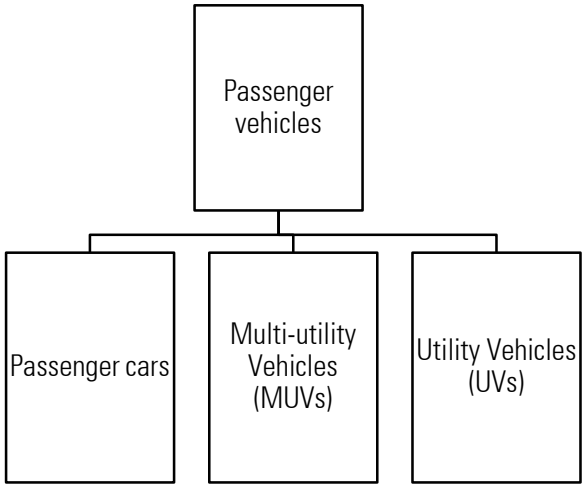


- The raw material components, such as steel, rubber, glass, come from various vendors who are mostly small players. The workforce in this raw material part of the value chain is skilled in fabrication but due to thin margins available at these companies, they prefer to pay high component of their salary, as variable pay, according to the speed and finish of the work.
- Assembling involves training as there are certain standards to be met.
- This training is imparted by the respective OEM's based on the requirements and their specific standards as per market.

Source: Primary interactions, KPMG analysis

India is emerging as one of the fastest passenger car markets leading to employment opportunities in the manufacturing/operations function

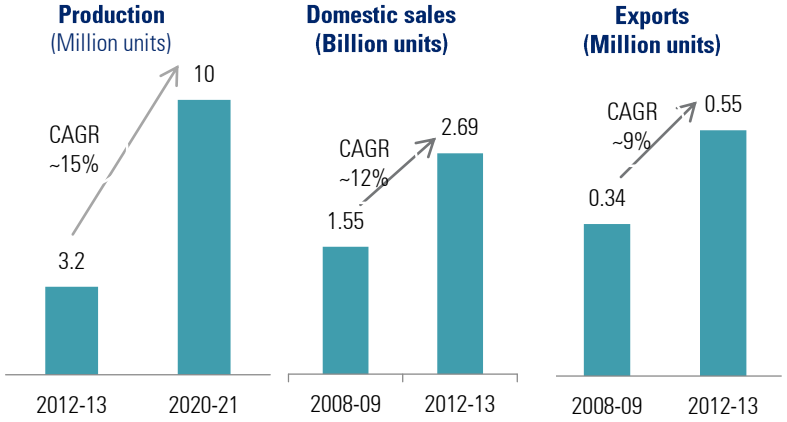
Major segments of the passenger vehicle sub-sector



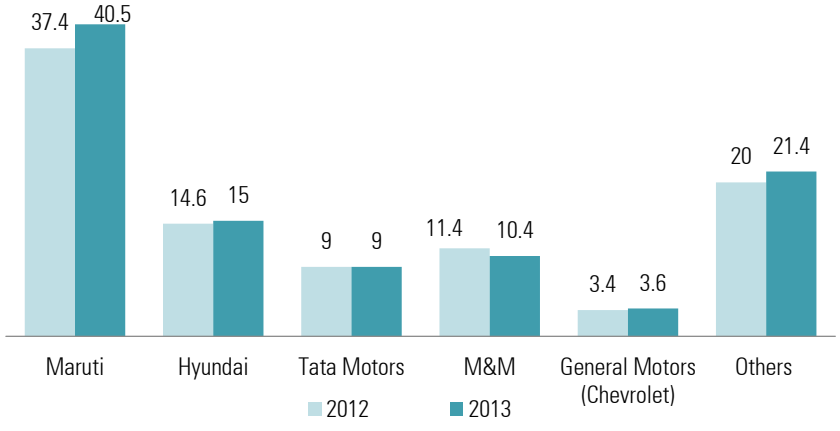
- According to a report 'National Electric Mobility Mission Plan 2020' by the Department of Heavy Industries, small cars represent 75 percent of the total sales of passenger cars in the country.
- The growth of the industry is bound to take place in the future with exports growing and the domestic market keeping up with it. Extremely low car penetration in India, increasing disposable income levels and lowering first-hand lifecycle of cars is driving the growth in passenger cars.

Economic performance

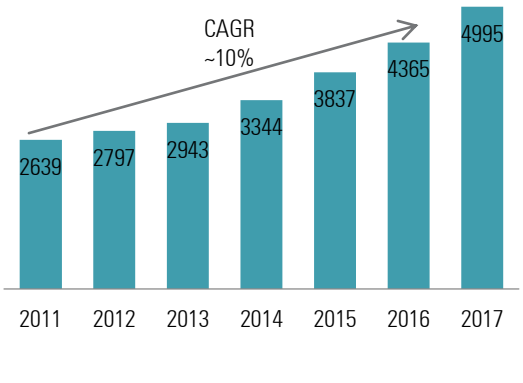
- In the year 2013, OEM's in India were running at low on capacity utilisation and therefore, led to a reduction of temporary/contract workforce.
- Automobile OEMs are now increasing their reach by widening their franchised network. Further, increased focus on standards at service centres has become the differentiator leading to better brand positioning



Key players in the passenger vehicle sub-segment



New passenger car registrations in India ('000)



Source:Society for Indian Automobile Manufacturers (SIAM), KPMG analysis

Preference for diesel vehicles and emergence of Used Car segment are emerging trends in the industry

Key trends

- Evolving preferences of Sports Utility Vehicles (SUV), Multi-purpose Vehicles (MPV)
-
- Increasing market share of diesel cars due to widening gap between the prices of diesel and petrol.
- Growth of the 'used car' segment
- Recognised companies, such as Bosch and Castrol are improving the standards of unorganised garages by bringing reforms, such as usage of job cards and standard maintenance practices.

Innovation

- Focus on research and development activities by the government through National Automotive Testing and R&D Infrastructure Project (NATRIP).
- Driver-less car technology
- Automotive Research Authority of India leading the research activities in India to develop light-weight materials that does not compromise on strength or safety.
- Telematics with machine-to-machine communication —keeps fleet owners updated about their asset utilisation.

Advantage — passenger vehicles

Concerns and challenges

- Increasing fuel prices — one-third of the country's fossil fuel consumption is used for transportation and 80 percent of the transportation consumption is used in road transport.
- India's lesser labour productivity as compared to competing nations —poses an urgent need for both, up skilling the existing manpower as well as skilling the additional manpower requirement.

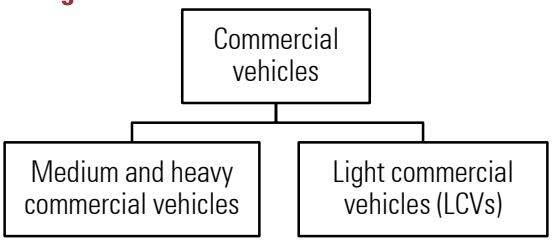
Opportunities

Evolving consumer behaviour of moving from gas guzzlers to fuel-efficient small cars.

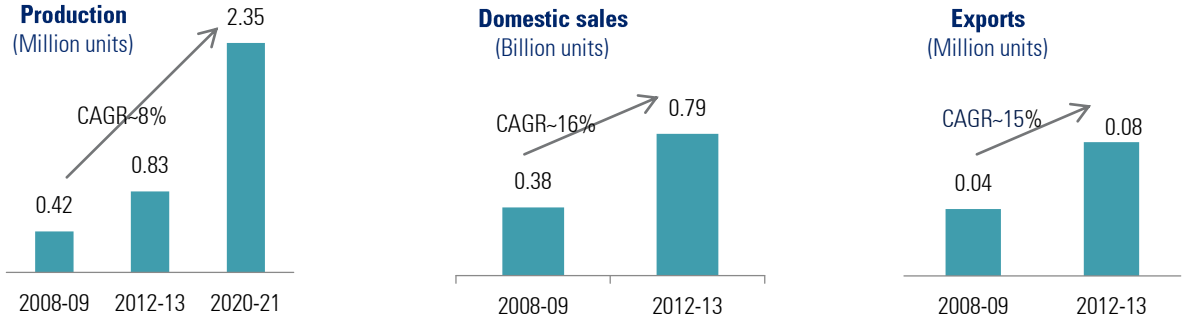
- Increase in sales of passenger vehicles — leading to increased after sales services.
- India — a small-car manufacturing hub globally with OEM's, such as Volkswagen and Nissan, concentrating on small car manufacturing units in India.
- India is emerging as one of the world's fastest-growing passenger car markets.
- Low car ownership in India (18 cars per 1000 people) when compared to other countries, such as China (58), UK (519), Germany (572), Japan (591), Italy (679) the United States (797).

Commercial vehicles — directly impacted by the economic slowdown faced by the during 2012–2013

Major segments of the commercial vehicle sub-sector



Economic performance



Source:Society for Indian Automobile Manufacturers (SIAM)

Factors impacting the growth of the commercial vehicle segment

- Economy performance — slowdown in 2012–2013 impacted the industry as the economic activities faced a slowdown, demand for CV's fell.
- Delay in infrastructure projects
- Weak investment sentiment

Key trends

- India is the world's fifth-largest commercial vehicle manufacturer — therefore creating employment opportunities.
- Increasing market share of higher tonnage vehicles for long-distance transportation, which helps in operational efficiency for transporters.

Innovation

- India is fast emerging as a global R&D hub.
- Implementation of telematics is helping the fleet owners keep track of their vehicles.
- Commercial vehicles specially designed for cold storage is helping the logistics companies.

Advantage — commercial vehicles

Concerns and challenges

- Unstable political environment with high influence on the economic activities of the country
- High interest rates — making CV's unaffordable
- The shortage of commercial vehicle drivers would become severe with current training infrastructure.
- Fluctuating fleet tariffs is a major concern as the tariffs fluctuated as much as 21 percent from January to June 2013.

Opportunity

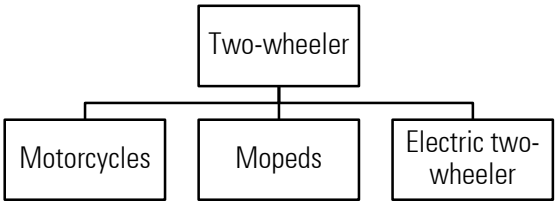
- Increased road network creates opportunity for logistics services in hitherto unserved areas.
- Inter-city road transportation would continue to increase with the increase in population.

Source: Primary interaction, KPMG analysis

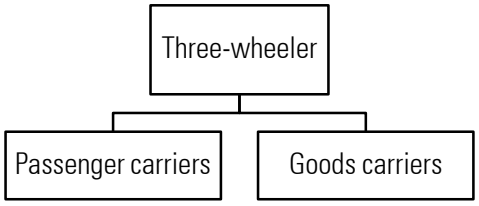
Sub-sectoral overview

Motorcycles and scooters accounted for 72 percent of the registered motor vehicles as of Mar 31, 2011 and will continue to grow

Major segments of the two-wheeler sub-sector



Major segments of the three-wheeler sub-sector



Economic performance — two-wheeler sub-sector

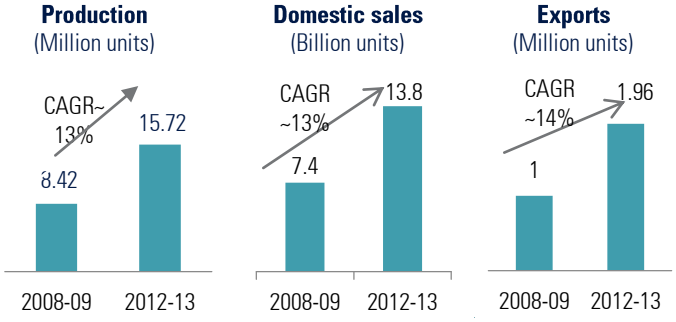
Key players of the two-wheeler sub-sector

Motorcycles key players

- Bajaj Auto
- Hero Motocorp
- TVS motors
- Maruti Suzuki
- Kawasaki
- HMSI

Scooters and scooterettes key players

- Hero Motocorp
- TVS
- HMSI
- Others

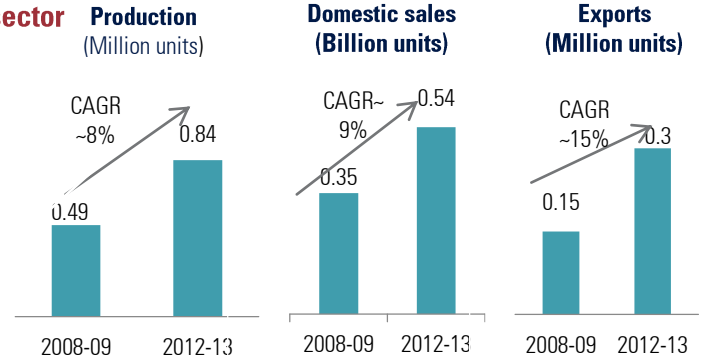


Source:Society for Indian Automobile Manufacturers (SIAM)

Economic performance — three-wheeler sub-sector

Key players of the three-wheeler sub-sector

- Bajaj Auto
- Piaggio
- Mahindra & Mahindra
- Tata Motors
- Force Motors
- TVS Motors



Source:Society for Indian Automobile Manufacturers (SIAM)

- The two-wheeler penetration in India has grown from 14 percent of the population in 2006 to 34 percent in 2013. This is expected to go up to 54 percent in 2022.
- The two-wheeler market has a variety of products catering to various target customers preferring fuel efficiency, performance and style.
- Some players, such as Royal Enfield, have created a niche for itself by focusing on high-powered vehicles and organising riding events, such as Tour of Bhutan, Tour of Rajasthan, for riding enthusiasts.
- A new segment of high-performance bikes is emerging with reputed players, such as Duke and Harley Davidson, opening their showrooms in India.
- The three-wheeler commercial vehicle sub-segment is facing high competition from light commercial vehicles in which Tata Ace and Ashok Leyland Dost have created their niche on roads.

Two and three-wheeler vehicles and tractors

Economic performance — the tractor sub-sector

Key players of the tractor sub-sector

- Escorts Ltd.
- HMT Ltd.
- International Tractors Ltd.
- Sonalika Tractors
- Mahindra and Mahindra Ltd.
- Tractor and Farm Equipment Ltd.,
- VST Tillers Tractors Ltd.

Key trends

- Emergence of a new segment of high performance bikes with 200 cc and above engine capacity — leading foreign players, such as Harley Davidson and Duke, to sell their bikes in India.

Innovation

- Development of the electric two-wheeler — resulting in annual liquid fuel savings of 1.1–1.3 million tonnes annually, by 2020.
- Technology enhancement (battery/motor /battery management system) will allow development of better E2W products without cost compromise — to encourage investment in R&D, which will increase demand for skilled labour.

Advantage — two and three-wheelers and tractors

Concerns and challenges

- Although Kisan credit cards are gaining momentum, a large tractor buyer base is still not served by banks and other credit agencies due to lack of proper papers and consistent income.
- Lack of skilled manpower is affecting the productivity in the tractor segment.

Opportunity

- Increasing women population in riding two-wheeler provides sustainability to growth.
- Higher land prices coupled with increasing rural income due to minimum-support price is enabling famers to buy tractors and other farm equipment.

Source: KPMG analysis

Geographical clusters

Geographical clusters

Tamil Nadu, Karnataka, Haryana, NCR, Jharkhand and Maharashtra are among the largest auto and auto component clusters

There are four major clusters in the automotive industry in India. They are in and around New Delhi, Gurgaon and Manesar in North India, Pune, Nasik, Halol and Aurangabad in West India, Chennai, Bangalore and Hosur in South India and Jamshedpur and Kolkata in East India.

- Haryana ranks first, in India, in the production of passenger cars, motorcycles and tractors and also accounts for 50 percent of total passenger cars and two-wheelers production in India.
- Market leader in car segment, Maruti Suzuki is based in Gurgaon and Manesar in Haryana. The largest two-wheeler manufacturer in India, Hero Honda along with the other large two-wheeler manufacturers, Yamaha and Escorts, are also present in the state.

- Gujarat is emerging as one of the key automotive manufacturing states. Sanand and Vadodara are emerging as new automotive hubs.

- Maharashtra has a well developed automotive industry that employs more than 40 percent of the total manpower employed in the sector
- The cluster is located in and around the cities of Nasik, Pune, Aurangabad and Nagpur.
- Some of the major companies present in the state are Skoda, Tata Motors, Mahindra and Mahindra, Bajaj Auto and Mercedes-Benz among others.

- Tamilnadu is home to many large automotive companies and the automotive cluster is located around the capital city of the state, Chennai.
- The state government intends to transform the area into one of the top three automotive hubs in Asia.
- The state is seeing big investments from companies, such as Ford, Nissan, Renault, Ashok Leyland and Hyundai among others.

- The automotive industry is one of the key industries in Karnataka.
- The automotive manufacturers in the state are present mainly around the capital city of the state Bangalore (Hosur), and Dharwad.
- Big automotive manufacturing companies, such as Toyota, Volvo and Tata Motors have established themselves in the state.

Source: Society for Indian Automobile Manufacturers (SIAM) — Automotive Mission Plan 2006-2016

Demographic characteristics of workforce

Major functions sub-sector wise

Major functions in the auto OEMs sub-sector

Passenger vehicles Manufacturers

- Manufacturing/Operations
- Design and Development/Product development
- Vendor Development/Materials Purchase
- Industrial Engineering/Technical Services
- Sales and marketing
- Vehicle service
- Spare part and accessory sales
- Customer relationship
- Logistics and distribution

Commercial Vehicle Manufacturers

- Manufacturing/Operations
- Design and Development/Product development
- Vendor Development/Materials Purchase
- Industrial Engineering/Technical Services
- Sales and marketing
- Vehicle service
- Spares sales
- Logistics and Distribution

Two-wheeler and three-wheeler Manufacturers

- Design and Development/Product development
- Vendor Development/Materials Purchase
- Industrial Engineering/Technical Services
- Sales and Marketing
- Vehicle service
- Spare sales
- Network development

Skill gaps in the Auto OEMs sub-sector

- Insufficient industry knowledge and technical knowledge pertaining to vehicles is limited
- Interpersonal skills, negotiation skills and multitasking skills seems to be lacking
- Insufficient skills for maintaining the required service levels and customer satisfaction levels
- Limited process knowledge for customer service delivery cycle
- Skills to handle sophisticated software for design, such as Pro-e, Catia, unigraphics, etc.
- Programming skills for handling Computerised Numerical Controllers (CNCs)
- Supply chain skillset to understand and apply concepts such as kanban, Just In Time (JIT)
- Skills set to improve production operations such as Total Productive Maintenance (TPM)
- Dealer network development, product design skills, vendor development and management skills are required.

Source: KPMG analysis based on secondary / primary research

Major functions sub-sector wise

Major functions in the Auto components

Auto components

- Manufacturing/operations
- Design and development/Product development
- Industrial Engineering/Technical Services
- Sales and marketing
- Service and warranty

Major functions in the Auto Dealerships

Dealerships

- Sales
- Purchase facilitation
- Driving
- Managing accessories
- Testing, inspection and valuation
- Service Mangers/Service Advisors
- Supervisors, Mechanics

Skill gaps in the auto components sub-sector

- Inadequate understanding of advanced engineering drawings, system design etc.
- Low skill levels at entry-level operators and inadequate training facility in auto component manufacturers.

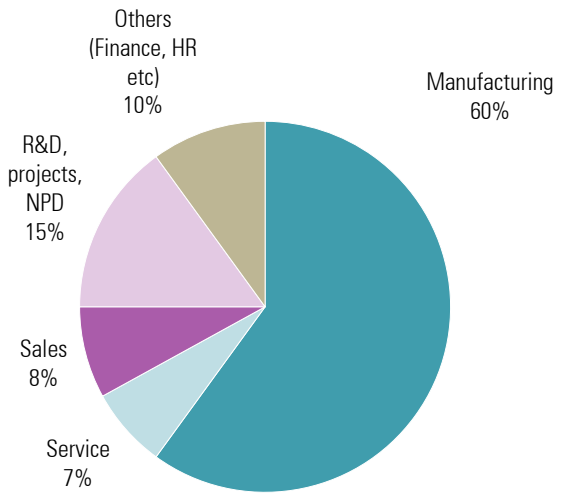
Skill gaps in the dealerships sub-sector

- Inability to assess the completeness of documents submitted my customers leading to delays in processing
- Inadequate product knowledge to be able to effectively answer customer queries
- Insufficient technical knowledge for vehicle service
- Limited IT skills
- MIS reporting skills missing

Source: KPMG analysis based on secondary / primary research

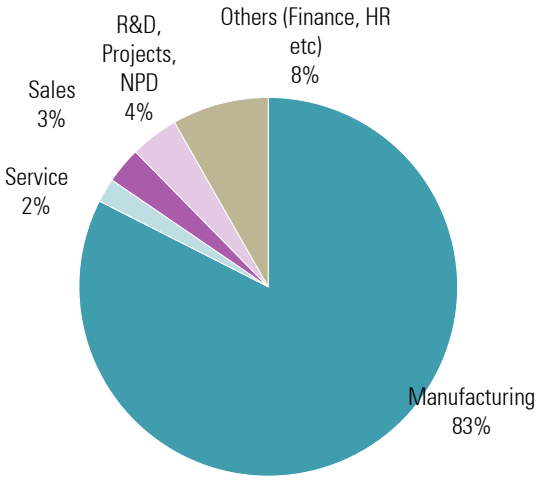
Workforce distributions across functions

Automobile OEM



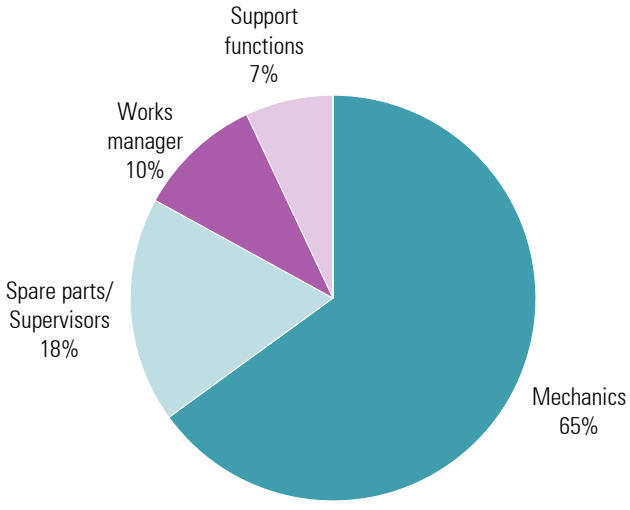
Majority of the OEM employees are employed in manufacturing. Increasing automation would result in slower growth in manufacturing jobs compared to other functions.

Auto components



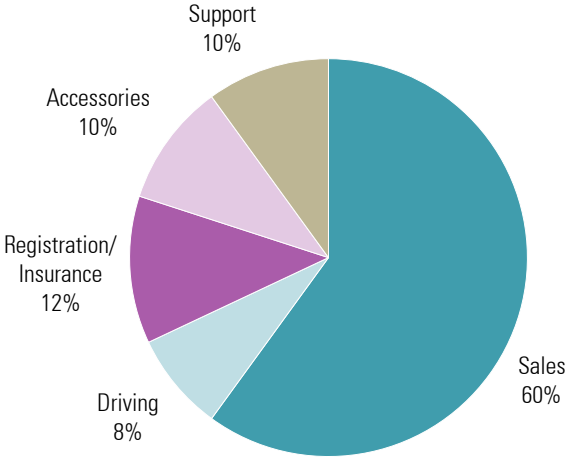
Around four fifths of the auto components employees is engaged in manufacturing activities. Automation will not affect jobs in auto component industry, especially in second and third tier component.

Service centres



There are around 369000 service centres in India. Around 300,000 are in unorganised sector. Mechanics is the key job role in this sub-segment and apart from dent removers whose role has reduced due to vacuum dent removers and increased use of fibre, other jobs are expected to go up.

Dealership (New Sales)

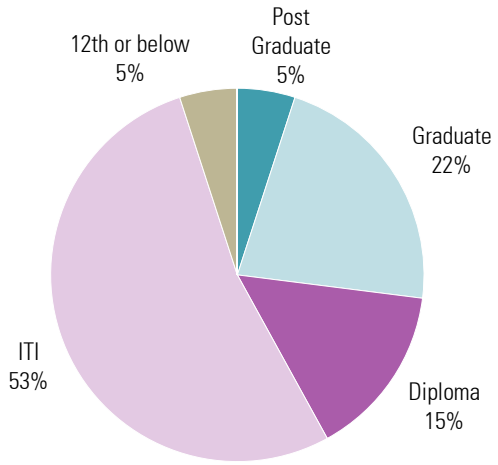


Sales roles is the key job role in terms of volume. Its likely to stay this way in coming decades. However, the skill requirements in these roles would increase as competition increases among OEMs. Further, multi brand OEMs will emerge as one of the better place to work.

Source: Primary Interactions, KPMG Analysis

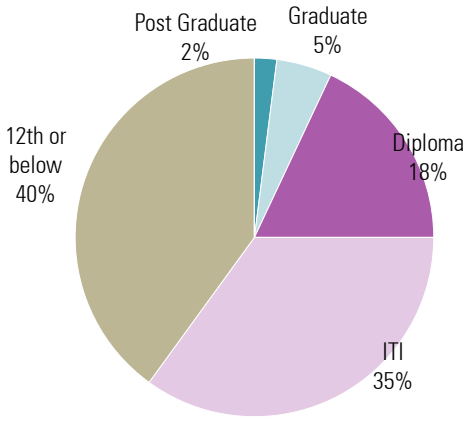
Education qualifications in sub-sectors

Automobile OEM



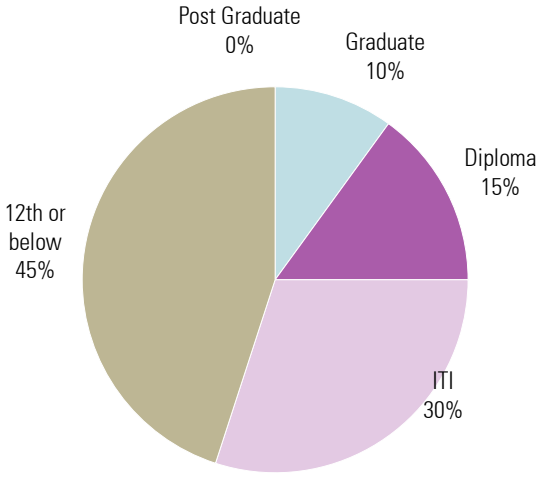
The majority of the automobile OEM workforce is ITI and diploma qualified. Graduates include engineering pass outs who take up managerial roles in production and quality as well as design roles.

Auto components



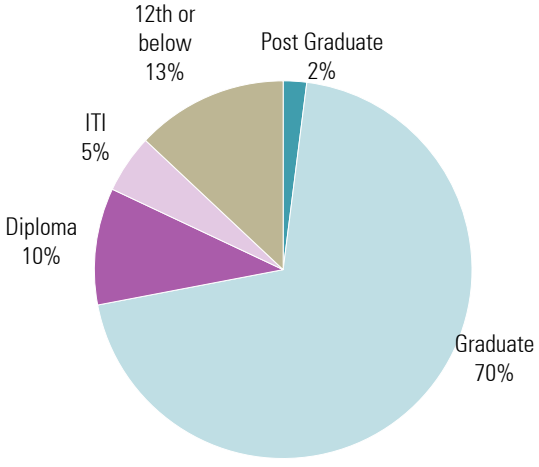
The majority of the workforce in auto components are semi-literate who have not finished their schooling. They are paid poorly in comparison with their OEM counterparts. Further, awareness on safety and defined processes is low.

Service centres



Service centre employees at an entry mechanic level in local garages are mostly who have not completed their schooling. The entry-level salary is low and increases as he becomes self sufficient to diagnose vehicles.

Dealerships (new sales)



Graduates, which form the majority of the workforce, take up various roles in the dealership including sales of vehicle and accessories. Their pay is highly variable depending on the sales achieved.

Source: Primary Interactions, KPMG Analysis

Incremental human resource requirement (2013-17, 2017-22) and skill gaps

Direct employment requirement

Sub-sector	Employment (In million)		
	2013	2017	2022
OEM	1.87	2.04	2.23
Auto component manufacturers	4.81	5.99	7.26
Service centers	2.80	3.10	3.44
Dealerships	1.50	1.68	1.95
Overall sector	**10.98**	**12.81**	**14.88**

Sub-sector	Employment growth 2013-17	Employment growth 2017-22	Employment growth 2013-22
	(In million)	(In million)	(In million)
OEM	0.17	0.19	0.36
Auto component manufacturers	1.18	1.27	2.45
Service centers	0.30	0.34	0.64
Dealerships	0.18	0.27	0.45
Overall sector	**1.83**	**2.07**	**3.90**

The calculation for additional requirement is done on the basis of growth rate of 8.5 percent in OEM and 14.1 percent in auto components till 2017 and a growth rate of 9.2 percent and 15.6 percent thereafter. The labour elasticity is estimated to be 0.25 and 0.4 for auto OEM and components till 2017, which is expected to drop to 0.2 and 0.25 thereafter due to improved production techniques and automation. The baseline employment for each sub-sector is estimated on the basis of primary interactions with industry experts and secondary research from industry bodies.

Source: KPMG analysis

Skill gaps

Manufacturing		
Key roles	**Skill requirements**	**Skill gaps**
Shop head (OEM & auto component)	The shop head should have in-depth knowledge of various production techniques. The head of the shop is also expected to know about the parts and their functioning in an automobile. Other key requirements for the job include the ability to translate the demand requirements into daily production targets and choosing the correct production mix. A shop head should be able to communicate clearly, and supervise and allocate the tasks in an optimally in order to ensure quality and productivity.	May times, the shop head lacks in-depth knowledge of the processes along with the ability to take collective decisions. There seems to be knowledge-deficit of business implications of the decisions being taken by the shop head.
Fitter/ assembler (OEM and auto component)	A fitter should have basic knowledge of the work he is involved in. A fitter is also expected to be literate and follow shop-floor instructions. He should be able to handle basic machines and do basic diagnosis of machines. The ability to grasp the importance of time, material and quality is required. The person should be able to complete the tasks allocated to him with desired level of quality specifications. The fitter should be able to detect and highlight any variations in the production process or raw materials. The person should be able to follow standard operating procedures (SOP).	A fitter often lacks knowledge of the process he is performing and is unable to identify mistakes. Lack of discipline in work and non-conformity to standard operating procedures are issues pertaining to this profession. Lack of clarity of usage and functionality of components he is producing, affects the work.
Welder (OEM and auto component)	A welder should have good knowledge of various metals and their welding techniques. The person should have good skill and practice to ensure good welding finish with the required quality. A steady hand is required in some jobs. Other key requirements for the job involve selection of correct welding technique with setting up of correct temperature and other parameters according to the job in hand. Being able to follow the SOP and work safely in the shop-floor, is also imperative.	A welder often lacks the ability to choose correct welding techniques and to produce the required strength and finish in the joints. Lack of understanding of safety procedures is often observed in this category of employees.

Source: KPMG analysis

Skill gaps

Manufacturing		
Key roles	**Skill requirements**	**Skill gaps**
Quality checker (OEM and auto component)	The quality checker should have good knowledge of various production techniques. The person is also expected to know and identify all common non conformities from the design. The person should be able to gauge whether the deviation would have any effect on the quality or performance of the vehicle and highlight to the supervisors if needed. The person should also be able to take measurements and draw various quality control charts and have a basic idea of quality tools, such as Kaizen, TQM etc.	Inadequate knowledge about production processes and types of defects is the key issue. Most of the quality checkers still heavily depend on visual inspection and are unable to implement statistical tools to avoid the defects.
Supervisor (OEM and auto component)	A supervisor should have good knowledge of all the production techniques employed in the plant. The person should also have good idea of the product/part which is being produced in his line and its use and functionality in the automobile. The person should be able to allocate resource, including man and material optimally and be able to handle resolve conflicts among operators. A supervisor should be capable of ensuring that the daily production targets are met along with quality conformation. A supervisor is expected to understand quality tools, such as six sigma, Kaizen and is expected to suggest improvements.	Inability to enforce discipline among workmen is a major issue. Further, many times a supervisor is found incapable of resolving conflicts among operators and balance work among them. Lack of technical knowledge is another key problem. Further, insufficient business acumen and ability to find out the root cause of defects are other skill gaps pertaining to this role.
Maintenance personnel (OEM and auto component)	A maintenance personnel should have in-depth knowledge of the machine and its working. The person should be able to identify the root cause of the breakdown quickly and take necessary actions to reduce the downtime. The person should be able to perform preventive maintenance activities and ensure that the machine runtime is not lost. As the activities, which are performed, are not as repetitive as that of a production workman, thus, they are expected to be more careful about safety and strictly adhere to the Standard Operating Procedure (SOP).	Lack of in-depth knowledge of working of machines is a key problem in this domain. Further, documentation of changes in machines is rarely done, which hampers the troubleshooting of the machines. Following safe maintenance procedures while working with electrical breakdown is rare. Insufficient knowledge of best practices, such as lockout-tagout before entering the machine for maintenance purposes.

Source: KPMG analysis

Skill gaps

Manufacturing		
Key roles	**Skill requirements**	**Skill gaps**
Painters (OEM and auto component)	The painter should be able to understand the type of finish needed and select the processes required to get the correct finish. The person should have in-depth knowledge and skills in spray painting and use of spraying equipment. Proficiency in sanding, filling, chiseling and refinishing is expected from a person employed for this role.	Inadequate knowledge of the correct usage of equipment, the temperature needed for drying the paint and the mix of paint is a concern. Lack of perfection results in dripping down of paint or rusting. Use of personal protection equipment is also not seen in second and third tier manufacturers. Automation would see reduced job increase of painters in OEM and tier-I auto component manufacturers.
Module designer (Auto OEM)	A module designer is a skilled designer who is expected to have expertise in using design softwares, such as AutoCad, CATIA, ProE etc. The person should be able to understand the changes in design implications and should be able to integrate the module designs provided by tier-I suppliers. The person is expected to have an in-depth knowledge of manufacturing and assembly processes so that the design is easy to implement and economical to produce. The person should have the basic knowledge of FMEA, DOE etc.	Lack of highly skilled employees adept at handling more than 2 design software. They lack knowledge about manufacturing processes which results in designs that are tough or uneconomical to manufacture. Further, parts start to fowl in running vehicles if the designing is not done with precision. Proper documentation of design changes are not done by most of the employees.
Junior designers (Auto OEM)	A Junior Designer is an entry-level design role and the person is expected to design or modify a part of the module. The person should have knowledge of design software, such as AutoCAD, ProE, CATIA etc. and be able to gauge the impact of tolerances and design on the functionality of the product. An expertise in reading engineering drawing and the ability to perform Finite Element Analysis and Failure Mode and Effect Analysis are required.	Availability of manpower who have significant knowledge in design software is a concern. Further, lack of understanding of production system results in designs that are difficult to manufacture. A junior designer is required to work in this role for some time to develop a good understanding of the requirements of the product.
Vendor development (Auto OEM)	The staff in vendor development should be able to work with vendors to ensure timely availability of materials in plant. This involves clear communication of product specifications and good negotiation skills to ensure best deal in terms of cost, quality and time. Technical knowledge of products and manufacturing is also needed.	Technical knowledge of products and their manufacturing is a concern in this role. Knowledge related to taxation and other commercial norms is also a key issue in this field. Also, inadequate knowledge to gauge financial and technical capability of tier-III component manufacturers is a concern.

Source: KPMG analysis

Skill gaps

Manufacturing		
Key roles	**Skill requirements**	**Skill gaps**
Sales and marketing (Auto OEM)	A Sales and Marketing employee should be able to identify customer preferences and convey it to new product designers. They should be able to engage with various channel partners to ensure good sales of the product. The ability to understand regional requirements and technical knowhow of vehicles is required. The person should be able to maintain good relationship with dealers and take necessary steps for expansion of business.	Lack of knowledge of customers in a particular locality results in spending the marketing budget towards targeting the wrong customer segment is a concern. Further, inadequate forecasting accuracy results in inventory buildup at the dealer end. Old vehicles are sold at significantly less margin. Sometimes, non-availability of vehicles is also a concern as they are unable to provide in-depth insights about future demand of its variants.
Spares/ service (Auto OEM)	A Service Manager should have good knowledge of vehicles and its components. The person should be able to identify the root cause of problems. The person should be able to ensure good service from service centres and spares availability. Further, the ability to handle irritated customers, in case the vehicle is facing frequent issues, is imperative. Knowledge of warranty procedures is also required.	Employees lack technical knowledge to handle the difficult service issues, which get escalated to the service manager. Inadequate capability of handling and ensuring quality service in multiple service centres spread across the region, is also observed. The lack of ability to ensure that mechanics work according to the SOP and job cards is hampering the service quality levels even in authorised service centres.
Technical services (Auto OEM)	A Technical Services manager should have good knowledge of manufacturing processes. The person should be able to implement line-balancing and provide process facility to the line manager. The person should be able to gauge the requirements of the production department and should be able to provide the process designs to implement multiple or all product designs in the available facility. Designs should be such that capital expenditure is minimised.	The lack of knowledge about the business implications of the investments is a concern in this role. The ability to prioritise capital investment projects is missing. Inadequate knowledge about the latest trends in process-line establishment and technical knowhow to integrate different process lines is a concern. Limited understanding of product design and production requirements results in non-incorporation of multiple product designs while finalising the process design.

Source: KPMG analysis

Skill gaps

Dealership		
Key roles	**Skill requirements**	**Skill gaps**
Sales executive/ accessories executive	Good knowledge of the vehicle and understanding of customer requirements is necessary. The person should be able to easily connect with the customers and posses good selling skills. Knowledge of local language is very important. Understanding of value proposition of the vehicle and its USP will help in excelling in this field. Knowledge of accessories and understanding of target customers is useful.	The knowledge of new products and their variants brought by the competitors is limited. Further, inadequate knowledge of customer-value proposition and selling skills is a concern. Understanding the customer's requirements and proposing the correct product helps to improve the sales conversion ratio.
Customer sales manager	Customer sales manager, also known as senior sales executive should be able to lead sales executives. They should have an in-depth knowledge of vehicles and its USP. They should be able to place the product as a superior product in comparison to products offered by other OEMs. Knowledge about automotive finance, insurance and registration of vehicles is also required.	The lack of knowledge about multiple product lines offered and the key selling points, which differentiates OEM from its competitors, results in low performance.
Purchase facilitator	A purchase facilitator should have good relationship with RTO employees, insurance agents and automobile finance companies. They should be ensuring a smooth paperwork for customers to ensure that the customers coming till this stage don't back off. The employee should be able to check papers submitted by the employee to ensure quicker processing from the registration/insurance/ finance office.	The ability to liaise with RTO employees and other persons to get fast approval is limited. Inadequate knowledge about proper filling of application results in delay and rejection of applications.
Dealership manager	The dealership manager should be able to supervise entire staff of the dealership. The person should be able to maintain good relationship with OEM employees to ensure timely availability of vehicles, spare parts and accessories. Making good relationship with high-profile customers, including institutional buyers, fleet owners is key for a person employed in this role. A long-term vision on the products, which will succeed and decision on local promotional activities has to be taken be the dealership manager.	Inadequate knowledge about inventory management and business aspects of running a service centre. The capability of managing a team is limited. Further, the knowledge of how and where to do promotional activities is poor, which results in ineffective use of budget.

Source: KPMG analysis

Skill gaps

Dealership (second-hand)		
Key roles	**Skill requirements**	**Skill gaps**
Second hand vehicles valuator	The second-hand sales valuator should be able to inspect and test the vehicles to come up with a correct valuation. The ability to gauge the demand of a vehicle in second-hand market is key in this profession. Moreover, he should be able to know what repairs have to be done before the vehicle can be sold again.	Lack of gauging correct demand of a particular model in second-hand market is a concern. Inability to correctly gauge the price and demand of repaired components from an old car will fetch in market, is observed.
Second-hand sales executive	A second-hand sales executive should have good knowledge on a wide variety of products offered by different OEMs. The person should know about the pros and cons of the OEM and its brand. The person should be able to approach customers through leads generated by tele-calling, showroom visit and put forward a good sales pitch. Good relationship with RTO and insurance personnel is required.	Limited ability to find a customer for the used car in highly dispersed market makes the role challenging. Further, inadequate capability to estimate the customer perceived value of a used car poses hindrance to effective sales.
Drivers	A test-driver in a used car dealership should have good knowledge of vehicles. The person should be able to help the valuator to come up with correct valuation. The person should have an eye for detail to identify defects in the automobile and should be able to detect the defects that are not easily visible with naked eye.	Drivers lack the ability to estimate the monitory impact of the defects in a used car. There is also lack of skilled people available for this profession.

Source: KPMG analysis

Skill gaps

Service centres (1/2)		
Key roles	**Skill requirements**	**Skill gaps**
Accessories/ electrical fitter	The accessories/electrical fitter should have good knowledge of working of an automobile. The person should be able to diagnose the problem to find the root cause and do fitment work. The ability to follow the steps in the job card is required for good fitment.	Lacks knowledge of various accessories is seen trending in market. Difficulty in identifying real parts from spurious parts is another concern, especially in local workshops. Lack in awareness about impact of quality reduction by usage of spurious parts is observed.
Body shop repair/denter	The denter's job role entails repairing of damaged metallic parts, such as repairing dents as a resultant of accident. The denter should be able to bring a good finish to the vehicle and should be adept in identifying the best way to remove dents in a vehicle with least paint chipping.	Denters may lack the ability to achieve perfection to the finish after removal of dents. Further, the increase in the use of plastics/fibre parts have resulted in reducing the role of denters as most parts have to be replaced nowadays.
Engine/ Transmission technician	The engine/transmission technician is a senior mechanic who has extensive knowledge of automobile and its components. The role requires understanding the functionality of parts and its fitment. The engine technology is advancing fast with the enforcement of norms pertaining to pollution and fuel efficiency. With the increase in engine electronics, special tools are required to diagnose the problems and the technician should be adept in handling these tools. Further, the ability to follow job cards is key in this role.	The engine technology is changing rapidly and most of the non-OEM workshops are unable to perform engine diagnostic tests. Further, the knowledge of using the monitoring tools is limited. The systematic assembly of engine and its parts is not done, which results in further problems in the automobile. Most of the mechanics fails to follow the SOPs.

Source: KPMG analysis

Skill gaps

Service centres (2/2)		
Key roles	**Skill requirements**	**Skill gaps**
Service centre manager	The service centre manager should be able to lead the team at service centre. The person should have in-depth knowledge of vehicles and the service procedures. Knowledge of various warranty clauses is also expected if it an OEM authorised service centre. The onus of profitability of the service centre is on the manager. Apart from ensuring customer satisfaction, the manager needs to reduce variable costs, for example, by deciding whether a part needs replacement or repair.	Lacks ability to maintain discipline among technicians resulting in poor service quality. They are found incapable of standardising and enforcing job cards. Failure of rising customer satisfaction standards and monitor their satisfaction results in them migrating to competitor workshops.
Spare parts operator/ helper	The spare parts operator should have a good knowledge about various spare parts and its usage. The person should be able to keep track of all tools in the workshop. Further, the person should be able to help the mechanics in their job.	Lack of maintaining and forecasting inventory requirement is a concern. Lack of proper inventory results in delayed service to the customers.
Painter	The painter should have expertise in application of paint on the vehicle. The painter should also be adept in other services, such as putting a rust coating or a Teflon coating. They should be very careful about the quality of the finish.	Keeping the painting booth dust free is a concern. Additionally, there is a shortage of skilled painters adept in providing quality finish.

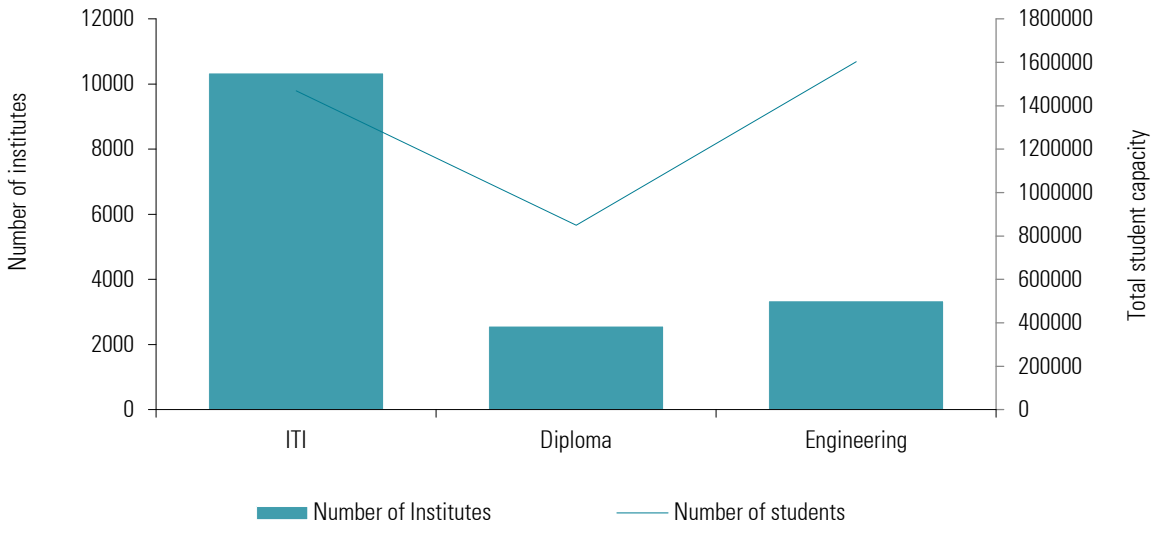
Source: KPMG analysis

Training infrastructure

Select Training Infrastructure

The Federation of Automobile Dealers Association (FADA) conducts frequent training sessions for dealers, sales executives and managers to enable them in making better sales. The Society of Indian Automobile Manufacturers (SIAM) has started an initiative called Society for Automotive Fitness and Environment (SAFE) for conducting refresher driving training classes. Automotive Research Association of India, a research institute working under Ministry of Heavy Industries and Public Services has started training initiatives. Further, it has a forging industry division, which also provides specialised training.

The Twelfth Five-Year Plan has given due importance to the rising fatality in Indian Highways. It has provision for creating five Institutes of Driving Training and Research (IDTR). Apart from IDTR, there are provisions for 15 Regional Driving Training Centre (RDTC). These institutes will deliver courses for driving heavy commercial vehicles.



The central government provided training to 80,000 commercial vehicles drivers in 2011 at an expenditure of INR120 crores. This initiative is expected to continue as the shortage of drivers prevails in India.

The course content followed in the majority of ITI' s is outdated, which results in them producing industry-unfit workforce. Further, some of the courses, such as radio technician have lost relevance in changing technology. The requirement for diploma certification in engineering is growing and the quality of education being provided is not sufficient. Further, sufficient focus on soft skills is not being given. Diploma educated persons take up supervisory roles in shop-floor, which requires them to interact with workmen on a daily basis and the job demands high skill for maintaining discipline and ensuring productivity and quality in work.

The number of qualified engineering graduates exceeds the number required in the industry. But their skill-level in terms of knowing the functioning of automobile for production/quality department or in-depth expertise in designing software is low. Further, engineers prefer to work in IT sector than in not-so-good working environment of the auto component/raw material sector, although automobile OEMs manage to get good quality engineers.

Select training infrastructure

Many private companies have shown initiatives and joint hands with ASDC for providing courses in this domain. Most of the commercial vehicle manufacturers have started providing courses on commercial vehicles drivers and other allied courses. The major commercial vehicle manufacturers have understood that the crisis for commercial vehicle drivers would only get worse and it is important for the drivers to be professionally trained.

The automobile OEM and tier-I auto component manufacturers employ high capital expenditure in their plants and expect high productivity. Many of these companies have their own training infrastructure and they provide specialised training to the new employees as well as refresher courses to the existing workforce.

Although there are many private engineering colleges, the number of private institutes providing education in Diploma/ITI is limited. Most of the existing demand is fed by the government institutes which are not effectively run to provide industry-fit employees. Further, the courses are not updated with the change in technology implemented at the plants.

NSDC training partners	
Training institute	**Capacity in lakhs**
GRAS Hospitality	0.30
Pratham	2.50
Centum (Work Skills)	30.08
Laurus Edutech	3.93
Future Sharp	0.70
TVS	0.43
Gram Tarang 2	0.22
Jetking	9.00
Skill Source	4.20
Aptech	0.39
Don Bosco	2.75
CAP WDI	1.28
Involute	1.41

NSDC training partners	
Training institute	**Capacity in lakhs**
NSHM Skills	0.23
Amass Skill Ventures	1.55
IEM	0.44
Extramarks	0.67
JBM Auto	0.54
Utkal Skills (SSEPL)	0.12
Mahindra Namaste	0.3
IMS Proschool Pvt. Ltd.	0.08
NTTR	0.82
Sanskriti Institutions	0.40
Foresight Edutech Pvt. Ltd.	0.22
Apollo Technical	1.38
Premier centre	0.90

The number of private institutes remains less due to higher investment required for establishing capacity for courses related to manufacturing. Further, the scope for manufacturing courses is restricted to locations where automobile and auto component clusters are located. The rural population does not see it as a lucrative option since the cost of living at these locations is high. Moreover, the course fees is generally higher as compared to other courses offered in other sectors.

Source: KPMG analysis

Case study -TVS training and services

With a vision to create technically competent and proficient individuals of global standards, TVS has set up two institutes in Chennai. Although TVSTS has been operating only since 2010, the parent company was in this field with Centre for Polytechnic and Advanced Training for 10 years and has trained more than 10,000 people in last six years. The training centres provide quality training for various job roles pertaining to various sectors. With an ambitious aim of training 1.3 lakh persons, automotive sector is one of the key focus area for TVSTS.

The courses provided for this sector includes Service Trainings, Dealer Development Programme, Engine and Vehicle Test Bed Maintenance, Assembly techniques. There are other courses, such as Industrial Automation, Industrial Manufacturing and Welding. These are key courses that would find immense potential in up-skilling the auto sector workforce. The training centre works on a student-fee driven model and has expansion plans to establish seven centres across Tamil Nadu, Karnataka and Uttarakhand.

Benefits for employees

- Increased earnings due to higher productivity and skill sets
- Placement opportunity in leading OEM and auto component manufacturers
- Safe working environment reduced risk of illnesses due to occupational hazards
- Improved skill sets leading to better employability
- Opportunity to learn from experienced faculty with more than 10 years of shop-floor experience.

Benefits for employers

- Consistency in productivity of the finished product
- Reduction in sheet metal losses and therefore, decrease in variable costs
- Higher productivity of workers leading to increased plant productivity
- High retention of workman/operators with reduced workforce turnover enabling capacity building
- Attracting young talent
- Reduction in 'Cost of Poor Quality'

Source: KPMG analysis

Recommendations for stakeholders

Recommendations for stakeholders

- Recent years sales and intense competition in the market has forced manufacturers to concentrate on better automotive designs.

Recommendation 1: Promotion of trainings for developing automotive design and related skills

- Although it is a niche segment, jobs in this area would be extremely critical to the competitiveness of the firm and the employees can expect a premium in salary.

- The pressure to follow increasingly stringent pollution control norms and better fuel efficiency has resulted in implementation of high electronics and sensors in engine and powertrain.
- These engines need both high skilled personnel and high end equipment to monitor and diagnose.

Recommendation 2: Promotion of courses providing new skill requirements in Service centres

- Jobs in automobile service centre is not career many aspire to pick up. But, recent changes in vehicles has forced only well trained persons to repair the vehicles who are very short in number.

- Manufacturing provides a plethora of job roles requiring different levels of skill. Further, the majority of manufacturing in India happens in clusters, which creates scarcity of skilled manpower in these clusters. Apart from technical skills, lack of knowledge of safety and soft skills needs immediate attention

Recommendation 3: Promotion of manufacturing related courses in auto clusters

- Promotion of courses related to manufacturing in clusters would have immense potential for satisfying job demands in varying levels of skills.

- Small and Medium Scale Enterprises have immense potential in auto component industry and its supporting raw material industry

Recommendation 4: Promotion of small and medium scale enterprises

- Promotion of SME sector including lower tier automobile company will create jobs at entry level and strengthen the auto component base of India.

- Electric vehicles finally got the much needed impetus it needed with the launch of NEMMP last year. Continued subsidy on electric vehicles is needed to make it competitive

Recommendation 5: Promotion of research in electric vehicle design and production

- If the government pursues it mission of selling 6–7 million electric vehicles till 2020, a lot of jobs is expected in this domain. At present, only a handful of electric vehicle designs are available.

- Frequent strikes have been a perennial issues in many automotive companies.

Recommendation 6: Promotion of soft skills related courses for shop floor employees

- Although it is a niche segment, jobs in this area would be extremely critical to the competitiveness of the firm and the employees can expect a premium in salary.

- Driving heavy commercial vehicles needs good training as it is not easy to drive for long hours during night.

Recommendation 7: Promotion of training for commercial vehicle drivers

- Initiatives, such as SAFE from SIAM should be encouraged and scaled up to bridge the already existing gap in numbers

सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP

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