Automotive Industry in India

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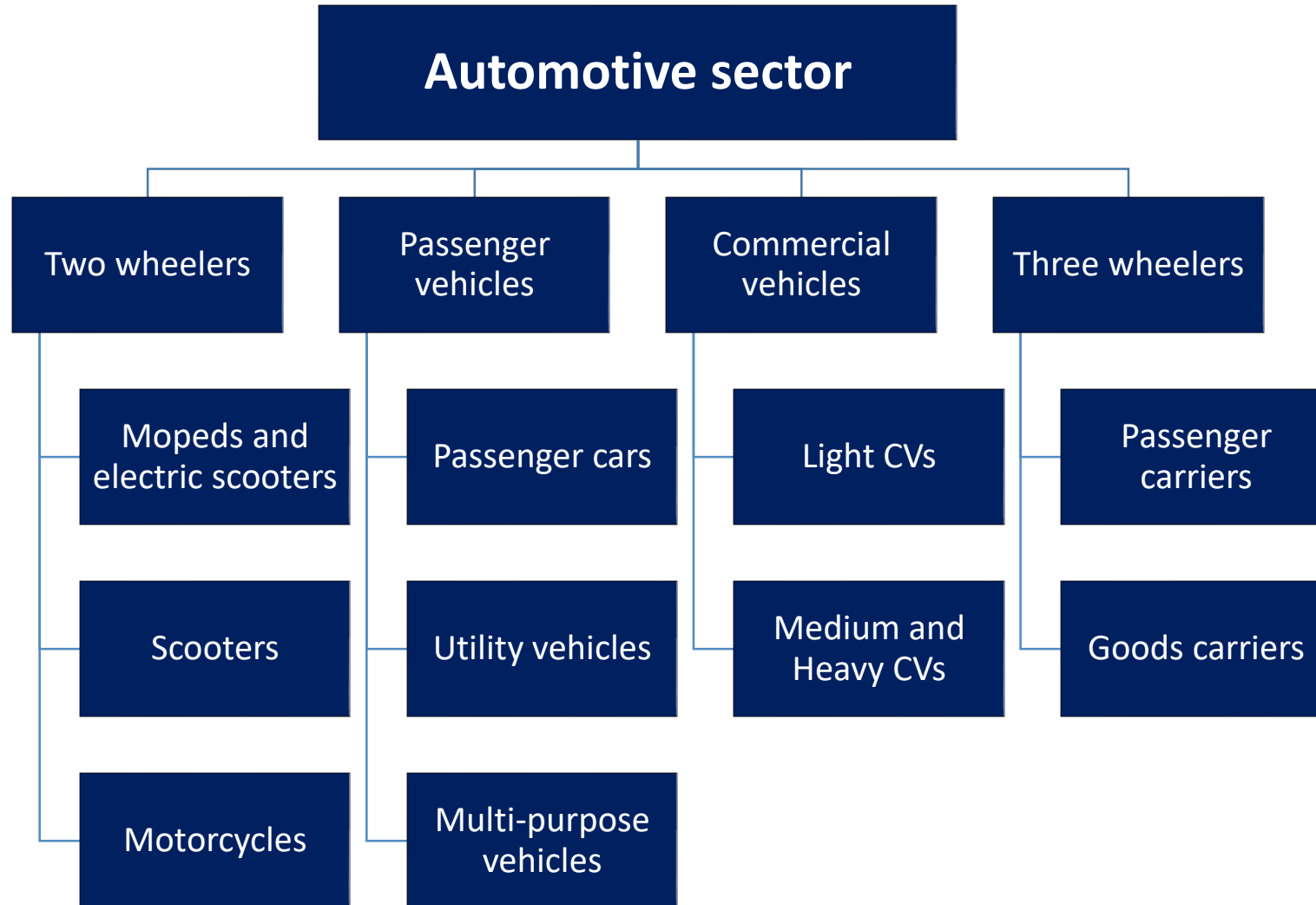Director – Standards & Public Policy

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Outline

- Introduction
- Market segment
- Market Status (Market trends, Key Players & demographic distribution)
- Growth drivers
- Electric Vehicles (EVs) and Intelligent Transport System (ITS)
- Government policy & New initiatives
- Technical regulations & Standardization
- Conclusion

Introduction

❑ Indian Automotive industry is one of the largest and fastest growing in the world.

❑ Accounts for 45% of the country's manufacturing gross domestic product (GDP) and over 7% in country's GDP.

❑ Provides direct and indirect employment to about 32 million people.

❑ Industry trends in FY 18

  • Production: over 29 million vehicles

  • Sales: nearly 25 million vehicles

  • Exports: over 4 million vehicles

❑ Industry Segments: Two wheelers (80%), passenger Vehicles (14%), Commercial vehicles (3%) and Three-wheelers (3%).

❑ Vehicle population: 162.31 million in April, 2018 and expected to 404 million by 2028.

❑ 4th largest motor vehicle manufacturer, 5th largest car manufacturer, 7th largest commercial vehicle manufacturer and largest manufacturer of two wheelers in the world.

❑ FDI received worth around US$ 16.7 billion during period April 2000 to March 2017 (Data released by DIPP)

Market Segments

Automotive sector

- **Two wheelers**
  - Mopeds and electric scooters
  - Scooters
  - Motorcycles
- **Passenger vehicles**
  - Passenger cars
  - Utility vehicles
  - Multi-purpose vehicles
- **Commercial vehicles**
  - Light CVs
  - Medium and Heavy CVs
- **Three wheelers**
  - Passenger carriers
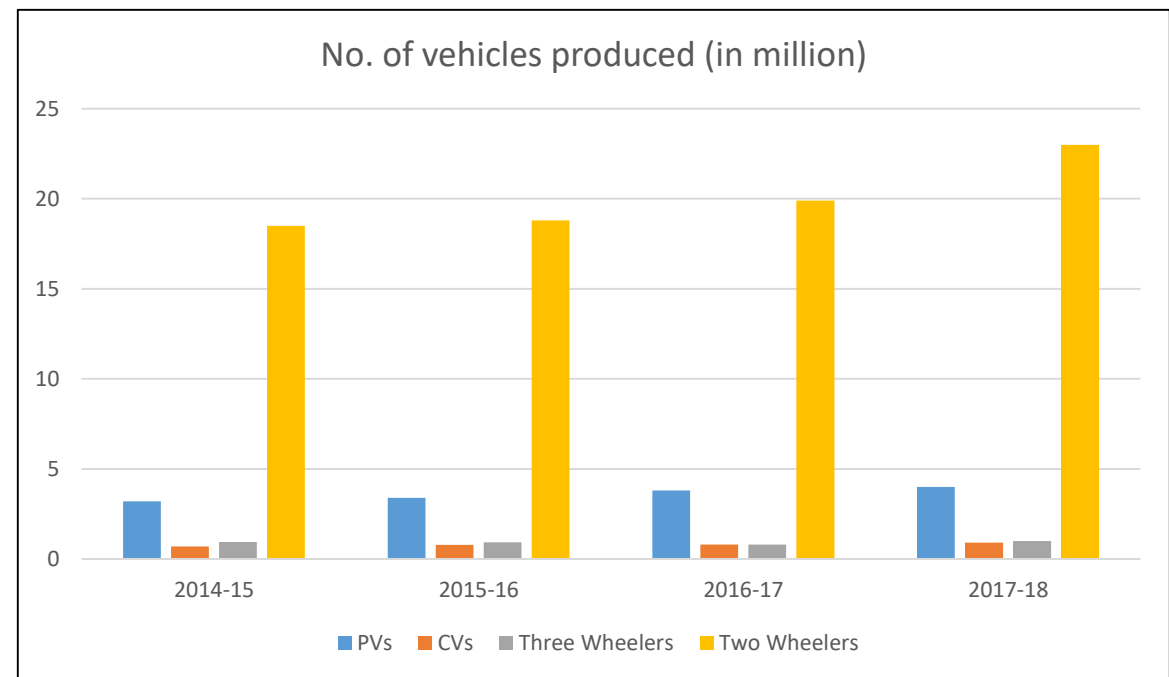 - Goods carriers

Market Status

Market trends, key market players, & Demographic distribution

Production Trends (in million)

According to data released by SIAM:

- Industry produced around 29 million vehicles including PVs, CVs, 2Ws, and 3Ws and in FY18, against over 25 million in FY17, registered a growth of 14.8%.

- Vehicles Production category wise in FY18:

➢Passenger Vehicles: over 4 million

✓ Utility Vehicles: over 1 million

➢Commercial Vehicles: near 1 million

➢Three Wheelers: over 1 million

✓ passenger carriers: 0.9 million

✓ Goods carriers: over 0.1 million

➢Two Wheelers: Over 23 million

✓ Scooters: over 7 million

✓ Motorcycles: over 15 million

No. of vehicles produced (in million)

Legend: PVs, CVs, Three Wheelers, Two Wheelers
Years: 2014-15, 2015-16, 2016-17, 2017-18

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Sale Trends (in million)

- **According to data released by SIAM** around 25 million vehicles (including PVs, CVs, 2Ws and 3Ws) were sold in FY18 against near 22 million in FY17.

- Vehicles sale category wise in FY18:

➢ PVs: over 3 million
  - ✓ Passenger Cars grew to 2.17 mn units,
  - ✓ Utility vehicles grew to around 1 mn units.

➢ CVs: 0.85 million
  - ✓ M&HCVs grew 0.34 mn units,
  - ✓ LCVs expanded to over 0.5 mn units.

➢ 3Ws: 0.64 million
  - ✓ Passenger carriers grew nearly by 29%,
  - ✓ Goods carriers grew just under 8%.

➢ 2Ws: over 20 million
  - ✓ Motorcycle sales grew to over 12 mn units,
  - ✓ scooters expanded to around 7 mn units.
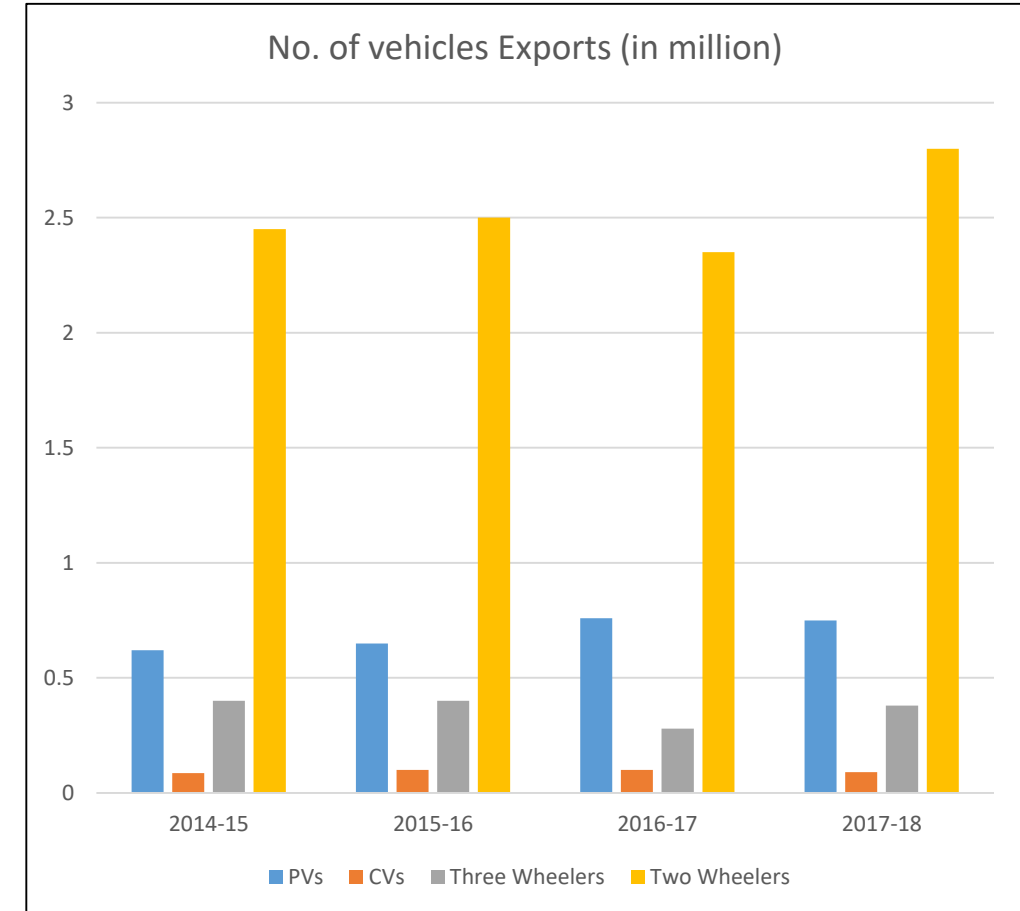 - ✓ Mopeds, declined over 3% to 0.85 mn units.

No. of vehicles sold (in million)

Legend: PVs, CVs, Three Wheelers, Two Wheelers
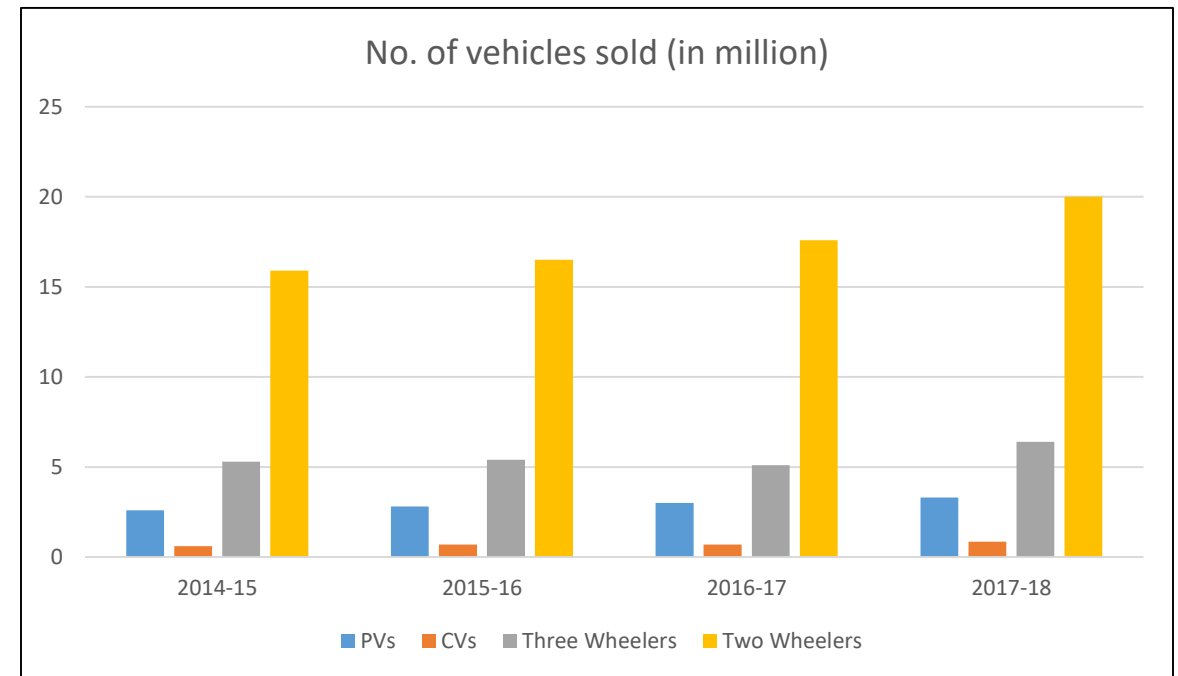
As per SMEV data, Electric Vehicles sales stood at around 56,000 units in FY18 as against about 25,000 units in FY17.

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Export Trends (in million)

- **According to data released by** SIAM, In April-March 2018, overall exports increased by 16.12% to over 4 million against around 3.5 million.

Vehicles export category wise in FY18:

✓PVs exports declined by (-) 1.51% to about o.75mn

✓CVs exports slipped down by (-) 10.53%

✓2Ws jumped over 20% to around 3 mn. Scooters and motorcycles individually touched exports peak at 314,000 (0.31 million) and 2.4 million, respectively.

✓Three Wheeler exports jumped over 40% to around 4 mn.

  ✓ people carriers grew at rate of over 40% 3,76,811 units, while goods carriers expanded nearly 45% to 4,191 units.
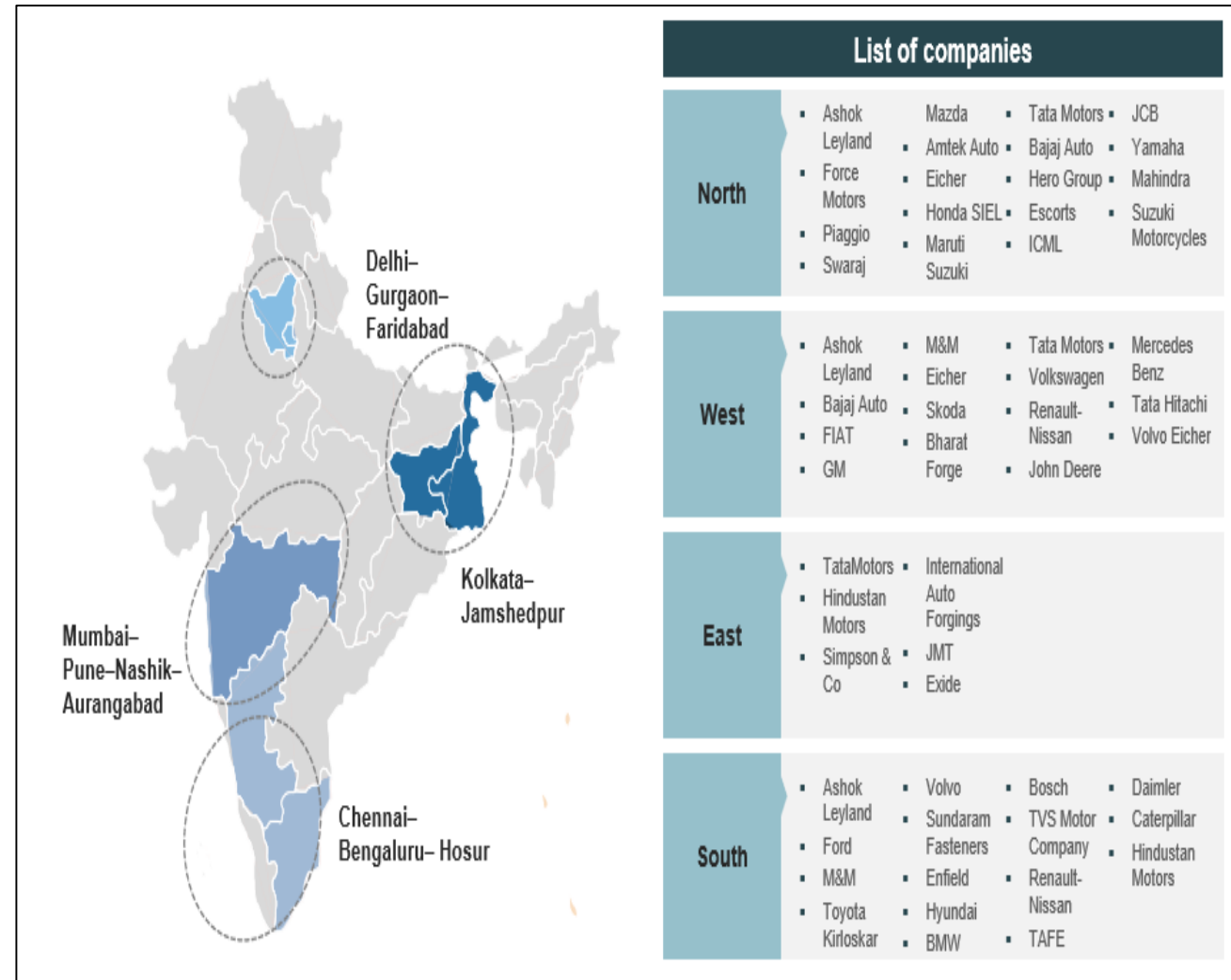

No. of vehicles Exports (in million)

Legend: PVs, CVs, Three Wheelers, Two Wheelers

Years: 2014-15, 2015-16, 2016-17, 2017-18

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Key Market Players

Product	Players (Market share (%))
Passenger Vehicle (PVs)	Suzuki (50%), Hyundai (16%), M&M (7.5%), Tata Motors (6%), Honda (5%), Renault India (3%) etc.
Commercial Vehicles (CVs)	Tata Motors (44%), M&M(25%), Ashok Leyland (19%), Eicher (7%), Force Motor (3%), VECVs (6.5%), Piaggio Vehicle (0.25%) etc.
Two-Wheelers (2Ws)	Hero Motor Corp (36%), HMSI (28%), TVS(14%), Bajaj Auto (8%), Royal Enfield (4%), Yamaha Motor(4%) etc.
Three-Wheelers (3Ws)	Bajaj Auto (58%), Piaggio (24%), M&M (9%), Atul Auto (6%), TVS (2.5%) etc.

Demographic distribution

The majority of India's car manufacturing industry is based around four clusters-

I.   Delhi-Gurgaon-Faridabad-Ghaziabad-Gautama Buddha Nagar in (North),

II. Mumbai-Pune-Nasik-Aurangabad-Thane in (West) and

III. Chennai - Bangalore-Dharampuri-Vellore-Kanchipuram-Thiruvallore in (South)

IV. Kolkata-Jamshedpur in (East).

Source: ACMA, Aranca Research

List of companies				
North	Ashok Leyland Force Motors Piaggio Swaraj	Mazda Amtek Auto Eicher Honda SIEL Maruti Suzuki	Tata Motors Bajaj Auto Hero Group Escorts ICML	JCB Yamaha Mahindra Suzuki Motorcycles
West	Ashok Leyland Bajaj Auto FIAT GM	M&M Eicher Skoda Bharat Forge	Tata Motors Volkswagen Renault-Nissan John Deere	Mercedes Benz Tata Hitachi Volvo Eicher
East	TataMotors Hindustan Motors Simpson & Co	International Auto Forgings JMT Exide		
South	Ashok Leyland Ford M&M Toyota Kirloskar	Volvo Sundaram Fasteners Enfield Hyundai BMW	Bosch TVS Motor Company Renault-Nissan TAFE	Daimler Caterpillar Hindustan Motors

Growth Drivers

Key market drivers

- Government regulations
- Low car penetration & rising family income
- Young population
- Greater Availability of cheaper and easier finance
- R&D
- Stable economy

India is set to witness two major changes in the form of
E-Mobility & Intelligent Transport System (ITS)

E-Mobility

- Government of India (GoI) has set ambitious target of having 100% electric vehicle fleet on road by 2030.

- In order to meet 100% EVs by 2030, GoI has to work upon following issues:
  - ✓ Lack of adequate charging Infrastructure
  - ✓ Shortage of Battery Raw Material
  - ✓ Long charging time
  - ✓ Lack of consumer awareness and price sensitivity

- Presently, pure electric vehicle penetration in India is as below:
  - ✓ barely 0.1 % in private vehicles,
  - ✓ about 0.2 % in two-wheelers and
  - ✓ nearly zero for commercial vehicles.

- Top companies such as Maruti Suzuki, Honda, Suzuki Motors etc. have announced their plans to enter in EVs market in India

Intelligent Transport System (ITS)

- ITS add information and communications technology (ICT) to transport infrastructures and vehicles in an effort to improve their safety, reliability, efficiency and quality.

- ITS is a wholistic system comprising not only Intelligent Vehicles & Road Transport system It also includes railways, aviation and maritime as well.

- In order to successfully implement ITS technology, GoI has to face following issues:

  ✓ **Contractual and procurement issues** such as particular conditions of contract, financial security, flouting of standard procurement norms and problems in concessionaire terms and conditions for PPP designed projects

  ✓ **Technical issues** such as interoperability issues between various components to improper operations

  ✓ **Coordination and planning** for Successful ITS technology implementations

  ✓ **High cost** for ITS safety systems

Government policy & New initiatives

Policy & New initiatives

- 100% FDI & delicensing
- Draft National Auto policy 2018 to promote Green Mobility
- Automotive Mission Plan (AMP) 2016-26
- National Automotive Testing and R&D Infrastructure Project (NATRiP)
- National Electric Mobility Mission Plan 2020 (NEMMP)
  - ✓ Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India (FAME)
  - ✓ Technology Platform for Electric Mobility (TPEM)
- National E-mobility programme aims to provide an impetus to the entire e-mobility ecosystem including vehicle manufacturers, charging infrastructure companies, fleet operators, service providers, etc.
- Green Urban Mobility Scheme
- NITI Aayog along with Rocky Mountain Institute (RMI) released "Roadmap: Transformative Mobility Solutions for All"
- Niti Aayog signed an agreement with international Road Federation (IRF) for designing a policy framework for intelligent transportation systems (ITS) in the country.
- Technical reports
  - ✓ TEC has come out with two technical reports titled "M2M Enablement in Intelligent Transport Systems" & "V2V/ V2I Radio communication and Embedded SIM"
  - ✓ TSDSI has also released a technical report titled "M2M Use Cases for Transportation V0.2.0 20151003 advance for NWG"

National Auto Policy (NAP) 2018 (Draft)

- Govt unveiled draft NAP in February 2018 with a vision to promote Green mobility in the Country.

- **Objectives of NAP:**

  - ✓ Increase contribution to GDP To support the growth of industry and comprise a considerable proportion of the manufacturing sector GDP by 2026

  - ✓ Increase exports To scale-up exports to 30-40% of the overall output over the next decade

  - ✓ improve the brand recognition, competitiveness and technological advancement of the Indian automotive industry across the world

  - ✓ Drive employment generation and skill development To become a solid foundation for job creation over the next decade

  - ✓ Increase local R&D investments to drive the R&D efforts towards indigenous research, design and engineering

  - ✓ To promote clean, safe, efficient and comfortable mobility, with a focus on environmental protection and affordability

Automotive Mission Plan (AMP) 2016-26

- Collective vision of DHI and the Indian Automotive Industry

- Objectives:

  - ✓ To grow 3.5 to 4 times of the current value of USD 74 million by 2026.
    - ✓ PVs likely to increase between 9.4 million-13.4 million,
    - ✓ CVs between 2 million to 3.4 million units,
    - ✓ two wheelers to grow to 50.6 - 55.5 million

- To make industry to be the engine of the "Make in India" programme.

- Focus to promote safe, efficient, and comfortable auto vehicles to every person in the country.

- To increase net exports of the Indian automotive by several fold

- Contribute over 12% to country's GDP

- To create nearly 65 million jobs by the next decade

National Electric Mobility Mission Plan 2020

- Introduced jointly by government, automotive industry and academia/research institutes.

  - ✓ Promotion & development of indigenous manufacturing capabilities, required infrastructure, consumer awareness and technology.

  - ✓ 6 million electric & hybrid vehicles per year on the road by 2020.

- **Faster Adoption and Manufacturing of Hybrid and Electric vehicles (FAME) India**

  - ✓ FAME is a part of the National Electric Mobility Mission Plan launched by Department of Heavy Industry (DHI)

  - ✓ To boost eco-friendly vehicles sales in the country.

  - ✓ 4 focus areas i.e. Technology development, Demand Creation, Pilot Projects and Charging Infrastructure.

- **Technology Platform for Electric Mobility (TPEM)**

  - ✓ Joint initiative of DHI and DST

  - ✓ To create a collaborative platform for developers, suppliers, automakers to work together

National Automotive Testing and R&D Infrastructure Project (NATRiP)

- A combined initiative of government of India and number of state governments to set up automotive testing facilities across the country with an investment of Rs 3727.30 Cr. (Approx. 455 euro million).

- Following test centers have been finalized to setup the test facilities as described below:

  - ✓ International Center for Automotive Technology (iCAT): Manesar, Harayana
  - ✓ Global Automotive Research Center (GARC): Chennai
  - ✓ National Automotive Test Tracks (NATRAX) : Indore, Madhya Pradesh
  - ✓ Automotive Research Association of India (ARAI) : Pune, Maharastra
  - ✓ Vehicle Research and Development Center (VRDE) : Ahmednagar, Maharastra
  - ✓ National Institute for Automotive Inspection, Maintenance & Training (NIAIMT) : Silchar, Assam
  - ✓ The National Center For Vehicle Research & Safety (NCVRS) Rae-Bareli

Green urban Mobility scheme

- Formulated by MoHUA to make cities green and more eco-friendly
- Under the scheme, government would focus on followings
  - ✓ Construction of pedestrian pathways, Cycling tracks,
  - ✓ Public bike sharing,
  - ✓ Bus rapid transit (BRT) systems,
  - ✓ Adaption of intelligent transport system (ITS),
  - ✓ Usages of hybrid/electric and non-fossil fuels for public transport.
- Government allotted Rs. 25000 crore (3.33 Euro Billion) to run the Scheme
- Cities with a population of 5 lakh and above are considered for scheme
- ✓ 103 cities have been identified for first phase

Technical Regulations & Standardization

Technical Regulations

- MORTH&S formulates and implements various provisions of MVA and CMVR.

- MoRT&H has three committees to deliberate and advise the ministry on issues relating to safety and emission regulations, namely –

  - ✓ CMVR- Technical Standing Committee (CMVR-TSC)

  - ✓ Standing Committee on Implementation of Emission Legislation (SCOE)

  - ✓ Automotive Industry Standards Committee (AISC)

- Vehicles manufactured have to comply with relevant Indian Standards (IS) and Automotive Industry standards (AIS).

- Standards are formulated by BIS & ARAI and are considered by CMVR-TSC for implementation.

- India has currently more than 70% safety regulations which are either partially or fully technically aligned with GTRs and UN Regulations.

Bureau of Indian Standards (BIS)

BIS has two Division Council:

- **Transport Engineering Division Council (TEDC)**

  - Covers Standardization in the field of transport engineering including air, water, road and rail transport

  - 28 Technical Committees & published more than 1100 Standards

    - TED27 addresses ELECTRIC AND HYBRID VEHICLES.

    - TED28 addresses Intelligent Transport Systems

- **Electro technical Division council (ETDC)**

  - responsible for Standardization in the field of electrical power generation, transmission, distribution and utilization equipment; and insulating materials, winding wires, measuring and process control instruments and **primary and secondary batteries.**

  - ETD-51 specially for developing EV infrastructure standards. It has published IS 17017 (Part 1) for standardization of Electro-technology in Mobility.

Automotive Research Association of India (ARAI)

- Government approved test agency to carry out mandatory certification testing

- Provides technical expertise in R&D, test, certification, homologation and framing of vehicles regulations.

- ARAI has 6 GR groups (subsidiary technical bodies of WP.29) are:
  - GRPE (India) : Working Party on Pollution and Energy
  - GRSG (India) : Working Party on General Safety Provisions
  - GRRF (India) : Working Party on Brakes and Running Gear
  - GRE (India)   : Working Party on Lighting and Light-Signaling
  - GRB (India)   : Working Party on Noise
  - GRSP (India) : Working Party on Passive Safety

- Published around 140 standards and also drafted several standards that are related to electric mobility including the following:

  - AIS 140 on Intelligent Transportation Systems (ITS) - Requirements for Public Transport Vehicle Operation

  - AIS-138 (Part 1): Electric Vehicle Conductive AC Charging System

  - AIS-138 (Part 2): Electric Vehicle Conductive DC Charging System

  - AIS 131 on Type Approval Procedure for Electric and Hybrid Electric Vehicles introduced in market for Pilot / Demonstration Projects intended for government schemes.

Ministry of Heavy Industries, DHI

- Ministry of Heavy Industries instituted "Committee on Standardization of Protocol for Electric Vehicles" to develop specifications for public chargers for such vehicles

- The committee submitted its report to the Govt. of India in 2017 and has come out with recommendations entailing specifications for AC and DC charging for EVs.

- These standards are called

  - Bharat EV Charger AC-001 and

  - Bharat EV Charger DC-001.

- These specifications are intended to cater to the immediate need of existing and announced electric 2W, electric 3W and passenger cars/vehicles having battery voltage less than 100 V.

- Government of India has also considered the recommendations made by the Committee and has adopted the Report on Bharat Public EV Charger Specifications submitted by the Committee,"

Conclusion

- As the Indian automobile industry aims to be among the world's top three in automobile manufacturing by 2026, e-mobility and ITS by far are the greatest opportunity.

- India should consider signing a memorandum of understanding (MoU) with appropriate countries for a continuous supply of Battery raw materials such as lithium.

- Automotive players must explore ways to reduce battery cost, charging time and to increase driving range.

- Local Standardization requirements in the field of ITS and EVs should be tabled at global standardization platforms for their harmonization.

For additional information on Automotive Standards & Policy initiative covering e-Mobility and Intelligent Transport System (ITS) please click here and download the study report which was released during 3rd Indo European Conference of standards and Emerging Technology, held in April 2018 in New Delhi.

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