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## EMPOWERING THE AUTOMOTIVE SECTOR: THE ROLE OF AUTO ECOSYSTEMS IN ACHIEVING THE AUTOMOTIVE MISSION PLAN (AMP) 2016-2026

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### ABSTRACT

The Indian Automobile Industry produced 23.4 million vehicles in Financial year 2018 valued at about Rs. 4,64,000 crore. Tamil Nadu stands as a leader in manufacturing both passenger and commercial vehicles. Chennai is referred as the “Detroit of India”. The financial efficacies of the Automobile Industries are stable even in pandemic situation. Their financial responsibilities towards their capital structure and their contribution towards the society are non-scalable. The Automotive Mission Plan 2016-2026 propel the Indian Automotive industry to become the engine of the “Make in India” programme, significant contributor to the “Skill India” programme and makes several prescriptions to improve competitiveness, technological advancement, infrastructure investment, and branding. They also concentrate on increased exports, implementing auto-ecosystem, and job opportunities.

**KEYWORDS:** *Automotive Sector, Auto-Ecosystem, Automotive Mission Plan 2016-2026.*

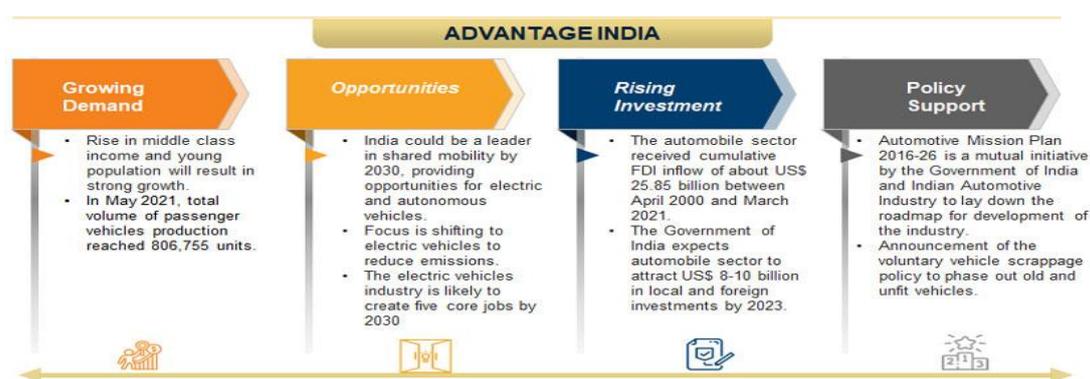
### LINTRODUCTION

The automotive industry consists of wide range of companies and organizations involved in the designing, development, manufacturing, marketing, and selling of motor vehicles. The

term automotive was created from Greek autos (self), and Latin motives (of motion) to represent any form of self powered vehicle. It includes passenger cars; light, medium and heavy commercial vehicles; multi-utility vehicles such as jeeps, scooters, motor-cycles, three wheelers, tractors and auto components like engine parts, drive and transmission parts, suspension and braking parts, electrical, body and chassis parts.[1] According to the Society of Indian manufacturers, annual vehicle sales are projected to increase to 5 million by 2015 and more than 9 million by 2020. By 2050, the country is expected to top the world in car volumes with approximately 61.1 million vehicles on the nation's roads.[2]

The majority of India's car manufacturing industry is based around three clusters in the south, west and north. The southern cluster near Chennai is the biggest with 35% of the revenue share. [3]The western hub near Maharashtra is 33% of the market. The northern cluster is primarily Haryana with 32%. Chennai, is also referred to as the Detroit of India with the Chennai operations of Ashok Leyland Limited, Ford Limited, Hyundai pvt Limited, Renault Nissan pvt Limited Chennai accounts for 60% of the country's automotive exports.[4]

Automotive Mission Plan 2026 makes several prescriptions to improve competitiveness, technological advancement, infrastructure investment, and branding. At present, India is deficient in skills and capabilities in both these areas, namely auto-electronics and design/engineering. AMP 2026 seeks to increase the share of local manufacture of vehicles, components, automotive electronics, light-weighting materials. The mission plan could be reached if the automotive companies are financially viable and focus on prescribed plan provisions.[5]



Source: automobile.com

### Vision and targets

“ To emerge as the destination of choice in the world for design and manufacture of automobiles and auto components with output reaching a level of US\$ 145 Billion accounting

for more than 10% of the GDP and providing additional employment to 25 Million people by 2016 ”[6]

### **Vision Statement**

“By 2026, the Indian automotive industry will be among the top three of the world in engineering, manufacture, and export of vehicles and auto components, and will encompass safe, efficient and environment-friendly conditions for affordable mobility of people and transportation of goods in India comparable with global standards, growing in value to over 12% of India’s GDP, and generating an additional 65 million jobs’[7]

### **AUTOMOTIVE SECTOR**

The automotive sector remains one of the most important drivers of industrial growth, employment generation, and technological advancement in India, and its current progress reflects the ongoing impact of the Automotive Mission Plan (AMP) 2016–2026. In the present context, the industry has demonstrated resilience and expansion through increased production capacity, rising domestic demand, and growing export performance. India has strengthened its position as a global automotive manufacturing hub, supported by a dynamic and interconnected automotive ecosystem that includes manufacturers, component suppliers, research institutions, technology providers, logistics networks, and policy frameworks. [8] This ecosystem has enabled greater efficiency, innovation, and competitiveness, helping firms adopt advanced manufacturing processes and digital technologies.

A key area of current progress is the sector’s shift toward sustainable and future-ready mobility solutions. Increased investments in electric vehicles, green manufacturing, and smart mobility infrastructure align with AMP’s broader vision of modernization and environmental responsibility. Government initiatives promoting skill development, localization of components, and research collaboration have further reinforced ecosystem capabilities. Despite global supply chain disruptions and economic uncertainties in recent years, the automotive ecosystem has adapted through improved resilience, diversification, and innovation-driven strategies.[9]

While some ambitious AMP targets related to output scale and economic contribution are still evolving, the sector’s trajectory indicates meaningful advancement. The ecosystem approach has strengthened partnerships among stakeholders, enhanced productivity, and encouraged policy-industry coordination.[10] These developments have positioned the automotive sector

to respond effectively to emerging technological trends and market shifts. Overall, the current status highlights steady progress toward AMP objectives, with the automotive ecosystem playing a central role in empowering growth, sustainability, and global competitiveness. As the sector moves toward the next phase of long-term planning, the foundations built under AMP 2016–2026 continue to support India’s aspiration to remain a leading force in the global automotive landscape.[11]

### **Current Status of AMP 2016–2026 the Automotive Ecosystem**

1. **Progress toward AMP targets:** AMP 2016–2026 set ambitious goals for growth in manufacturing, exports, job creation, and global competitiveness for the automotive sector. The industry has seen significant growth in production and sales, especially in two-wheelers and passenger vehicles, though not all specific AMP targets (like every vehicle segment forecast) have been fully met so far. [12]

2. **Contribution to the economy:** The automotive industry is currently among the top three automotive producers in the world and constitutes a substantial part of India’s manufacturing output and exports. In FY 2024-25, the sector’s contribution to GDP was around 7 %, reflecting strong growth even if short of the projected 12 % booster envisioned by AMP.[13]

3. **Sales and exports:** Vehicle sales and exports continue to show strong performance — including record monthly passenger vehicle sales, significant two-wheeler deliveries, and increasing component exports (e.g., Stellantis setting a ₹10,000 crore export goal by 2026). These trends reinforce India’s role in global automotive manufacturing and export networks.[14]

4. **Policy and ecosystem support:** Recent central government budgets and policy measures have focused on electric vehicles (EVs), semiconductor initiatives, logistics reforms, and MSME support in the auto sector — aligning with AMP’s goals of modernization and global competitiveness. Vehicle scrappage and recycling policies (linked to AMP’s long-term sustainability objectives) are also being implemented, which could boost jobs and formalize the ecosystem. [15]

5. **Emerging technology and future alignment:** The shift toward EV adoption, digital technologies in vehicles, and advanced manufacturing capabilities is reshaping the automotive ecosystem — a key dimension of AMP’s vision for innovation-driven growth. However, adoption of new technologies (like EVs and autonomous systems) is still evolving and will require continued support across the ecosystem (infrastructure, policy, investment).[16]

6. **Transition to a new mission: AMP 2047:** Recognizing the importance of long-term strategic planning beyond 2026, the government has started formulating Automotive Mission Plan 2047, aimed at growth milestones for 2030, 2037, and 2047 — building on the foundations of AMP 2016–26. This suggests that while AMP 2016–26 is concluding, the ecosystem’s development and objectives are continuing under a broader, future-focused roadmap.[17]

## **INDUSTRY SCENARIO**

The \$118 billion Automobile industry is expected to reach \$300 billion by 2026.

- ❖ □ India’s annual production in FY 2020 was 26.36 million vehicles.
- ❖ □ In the Automobile market in India, Two-wheelers and passenger cars accounted for 80.8% and 12.9% market share, respectively, accounting for a combined sale of over 20.10 million vehicles in FY2020. Passenger car sales are dominated by small and mid-sized cars.
- ❖ □ Overall, Indian automobile export reached 4.77 million vehicles in FY2020, implying a CAGR of 6.94% between FY2016-FY2020. Two-wheelers constituted 73.9% of the total vehicles exported, followed by passenger vehicles at 14.2%, three-wheelers at 10.5%, and commercial vehicles at 1.3%.[18,19]

## **AUTOMOTIVE ECOSYSTEM**

The automotive ecosystem is a dynamic complex of plants, animals, microbes, and physical environmental features that interact with one another. The Ecosystem services are the benefits that humans obtain from ecosystems, and they are produced by interactions within the ecosystem. Ecosystems like forests, grasslands, mangroves, and urban areas provide different services to society. These include provisioning, regulating, and cultural services that directly affect people. They also include supporting services needed to maintain all other services. Some ecosystem services are local (provision of pollinators), others are regional (flood control or water purification), and still others are global (climate regulation). Ecosystem services affect human well-being and all its components, including basic material needs such as food and shelter, individual health, security, good social relations, and freedom of choice and action. The automotive ecosystem is to provide an overview of the Automotive Industry Ecosystem, describing its global dimension, impact on society, business dynamics, organizational structure, future trends, and the importance of the technical staffs inside automotive companies.[20]

The automotive ecosystem refers to the interconnected network of organizations, institutions, technologies, and support systems that collectively enable the production, distribution, innovation, and sustainability of the automotive sector. It extends beyond vehicle manufacturers to include component suppliers, research and development institutions, technology providers, logistics networks, financial services, regulatory bodies, and a skilled workforce. This ecosystem functions as an integrated framework where collaboration, efficiency, and knowledge sharing drive industrial growth and competitiveness. A strong automotive ecosystem ensures smooth supply chains, cost efficiency, product quality, and faster adoption of advanced technologies, thereby strengthening the sector's resilience in a dynamic global market.[21]

In the present era, the automotive ecosystem plays a crucial role in facilitating innovation and modernization. Partnerships between industry and academia encourage research in areas such as electric mobility, automation, artificial intelligence, and sustainable manufacturing practices. Government policies and infrastructure development provide regulatory support and investment incentives that enhance ecosystem performance. Additionally, digital transformation, including smart manufacturing and connected vehicle technologies, has increased productivity and responsiveness within the ecosystem. The ecosystem also supports employment generation and skill development by preparing the workforce for emerging technological demands. Small and medium enterprises contribute significantly by supplying specialized components and services, promoting economic inclusivity.[22] Furthermore, sustainability initiatives — such as recycling, green energy adoption, and emission reduction — reflect the ecosystem's role in balancing industrial growth with environmental responsibility.

The automotive ecosystem acts as the backbone of the automotive industry, ensuring coordination among stakeholders, fostering innovation, and enabling long-term growth. Its strength determines how effectively the sector adapts to changing market trends, regulatory frameworks, and technological advancements. A well-developed ecosystem not only enhances competitiveness but also positions the automotive industry for sustainable and future-ready expansion.[23]

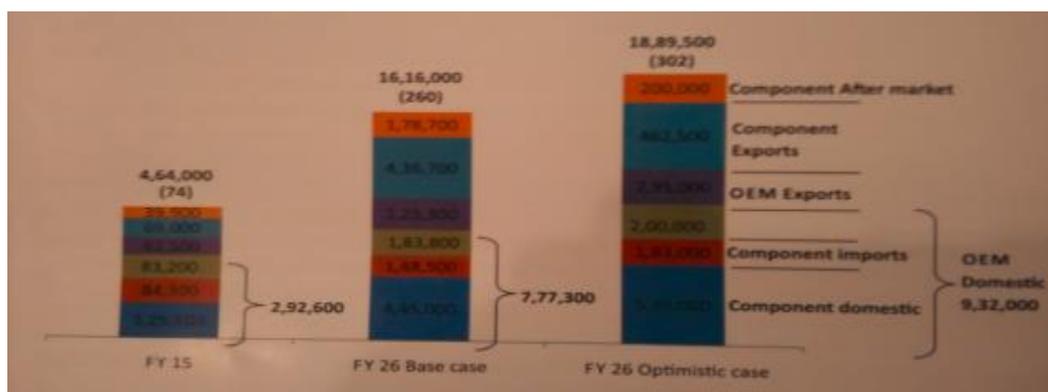
### **The Role of the Automotive Ecosystem in Achieving the Automotive Mission Plan (AMP) 2016–2026**

The Indian automotive sector is expected to grow 3.5 to 4 times of the current value USD 260 billion to 300 billion. The aim is to produce 2.0 to 3.9 million two wheelers and 1.5 to 1.7

million tractors in India, by 9.4 to 13.4 million passenger vehicle by 2026. It aims to create the second fastest growing automotive market in the world and to permanently transform the Indian automotive sector into an automatic machine plan with the make in India initiative and employ 65 billion people. The Automotive Mission Plan is goal to have 35% to 40% of passenger car production and industrial exports by the year 2025-2026 .Indian automobile vehicles BSV rules adopted in 2019 BSV VI rules to be paid to passengers“ vehicle in 2023. Since then the automotive sector has recorded a growth of Rs 5,93,500 crore - Rs 7,32,000 crore.[24]

### Growth Target in AMP2026

The auto component industry continued its high growth 3.5-4 times .current output of Rs 4,64,000 crore as of 2015.This industry crossed a total turnover Rs16,16,000-18,88,500 crore by 2026. Indian Automotive industry is investment of Rs 4,50,000-5,50,000 crore tenure of AMP2026



The automotive ecosystem plays a central role in achieving the objectives of the Automotive Mission Plan (AMP) 2016–2026 by creating a supportive and interconnected framework that strengthens the entire value chain of the automotive industry. AMP was designed to transform India into a global automotive hub through increased production, innovation, exports, and employment generation. The ecosystem — consisting of manufacturers, component suppliers, technology providers, research institutions, policymakers, and skilled labor — enables seamless collaboration that enhances efficiency, quality, and competitiveness. Strong supplier networks reduce production costs and improve reliability, while partnerships with academic and research bodies drive innovation in areas such as electric mobility, automation, and sustainable manufacturing. Government policies within the ecosystem encourage investment, infrastructure development, and skill enhancement,

ensuring that the workforce is prepared for evolving industry demands. Additionally, the ecosystem promotes digitalization and environmental sustainability, aligning industry practices with global standards. By fostering coordination among stakeholders, supporting technological advancement, and strengthening supply chains, the automotive ecosystem acts as the backbone for implementing AMP goals. Its integrated approach helps the sector adapt to market changes, global competition, and emerging technologies, ultimately accelerating progress toward long-term industrial growth and global leadership envisioned under the mission.[24]

## II.REVIEW OF LITERATURE

- **SIAM(2011)** The Indian automotive industry has witnessed significant growth during the first half of Automotive Mission Plan 2006-2016 (AMP 2016). The fundamental growth drivers has resulted in decline in growth across vehicle segments except for two wheelers, which posted a CAGR of 4.6%.
- **Pasupathi (2012)** in his study made an attempt to study the Operational Adequacy of Working Capital Management of Selected Indian Automobile Industries.
- **Arvind Saxena (2013)** in his interview told that Hyundai Motors India Limited is positioning their brand by introducing new technology and style in their vehicle.
- **Murlidhar, A. Lok Hande& Rana Vishal S. (2014)** the author tries to evaluate the performance of Hyundai Motors Company with respect to export, Domestic Sales, productions and profit after tax.
- **Krishnaveni , M. & Vidya, R (2015)** author has selected 87 companies out of 242 companies in capital line database to discuss the standard current ratio of automobile industry.
- **HarshadeepChilukuri (2016)** “Financial Statement Analysis of Ashok Leyland Limited, India”. The study analysed the profitability, solvency, efficiency and cash position of the company for the period 2011-12 to 2015-16.
- **SIAM (2016)** the importance of this industry to the national economy can be seen by way of the size of its turnover compared to India’s GDP and contribution across several other parameters.

### **III.OBJECTIVES OF THE STUDY**

The study towards the financial performance and the reach of Automotive Mission Plan 2016-2026 can be attained only when they are ad jointly studied by framing a structured objectives. They include;

- ❖ To examine the trends in the automotive industry in India.
- ❖ To stabilize financial efficiency within the automotive ecosystem and contribute to its sustainable development.

### **IV.RESEARCH QUESTIONS**

1. To what extent is the automotive industry profitable?
- 2 Though the Automotive Industries run with profitability, to what extent they work for the goals of Automotive Mission Plan 2016-2026?

### **V.HYPOTHESES**

H0: The mean operating ratios of the selected automotive companies do not differ significantly during the study period.

H0: The mean net profit ratios of the selected automotive companies do not differ significantly during the study period.

H0: The mean Return on capital employed of the selected automotive companies do not differ significantly during the study period

### **Specialization**

The study includes both Financial and Human Resource based analysis to reveal the financial performance of companies and also the sample companies contribution towards Automotive Mission Plan 2016-2026

### **VI.SCOPE OF THE STUDY**

In the present study, the financial performance of the selected automotive companies in Chennai is evaluated by taking into consideration their financial details for ten consecutive years, from 2011–2013 to 2020–2021. This study suggests measures to maintain and improve profitability, operational efficiency, liquidity, and solvency positions in order to enhance the overall performance of these companies in the future. If companies achieve sustained profitability, their contribution toward the Automotive Mission Plan (AMP) 2016–2026 will be significantly strengthened through increased technological adoption, higher revenue generation, expanded exports, greater job opportunities, and broader economic development.

A strong financial base enables firms to invest in innovation, modernization, and sustainable practices, which are essential for long-term competitiveness. Furthermore, improved financial health supports strategic decision-making, risk management, and operational stability. Such progress not only benefits individual companies but also strengthens the automotive ecosystem, encouraging industry collaboration and policy alignment. Ultimately, financially sound automotive firms can act as catalysts for sectoral growth, helping India progress toward its industrial and economic goals envisioned under AMP 2016–2026.

## **VII.STATEMENT OF THE PROBLEM**

The automotive industry plays a vital role in India's industrial growth, employment generation, and technological advancement. However, the sustainability and competitiveness of automotive companies largely depend on their financial performance and operational efficiency. Many firms face challenges in maintaining profitability, liquidity, and solvency due to market fluctuations, rising costs, and rapid technological changes. These financial pressures can limit their ability to invest in innovation and modernization, which are essential for contributing effectively to the Automotive Mission Plan (AMP) 2016–2026. Despite the sector's importance, there is limited focused research examining the long-term financial trends of selected automotive companies and their implications for ecosystem development. Therefore, this study seeks to evaluate the financial performance of major automotive firms in Chennai to identify strengths, weaknesses, and improvement measures. Understanding these financial dynamics is crucial for enhancing corporate stability, supporting sectoral growth, and strengthening the automotive ecosystem aligned with national development goals.

## **VIII.RESEARCH METHODOLOGY**

Research Methodology is a way to systematically solve the research problem. The research design utilized in this study is descriptive and analytical. The nature of the study relates to analyzing the financial performance.

### **Primary Data**

The primary data is collected from the employees of the sample companies. From each 5 companies 100 respondents were taken and a total 500 samples finalised. The respondent includes management, employers, employees, customers and general public of each companies.

## Sources of Data

Secondary data are collected from the published annual reports of the selected automotive companies in Chennai, text books, journals, magazines and from websites.

## Sampling Design

Among the top ten companies, the four companies Ashok Leyland Limited, Tvs Motors Limited ,Sundaram Clayton Limited,MRF Tyres limited which have their registered office and manufacturing units in Chennai were selected as samples for the study.

## TOOLS FOR ANALYSIS

The data are analyzed using both descriptive and inferential statistics. CAGR, Trend Percentage (2026E),Mean, Standard deviation, Ratio analysis, and have been applied for the analysis of data. The Statistical Package for Social Sciences (SPSS) is also used for analysis.

### Tools for Secondary Data Analysis

- Profitability Ratios
- ❖ Operating profit ratio
- ❖ Net profit ratio
- ❖ Return on capital employed

## Implementation Support by Automotive manufacturing companies towards Mission Plan 2016-2026

- 1. Auto fuels and Emission norms:** . AMP 2026 advocates the need for a scientific and transparently conducted study of the causes of air pollution in Indian cities.
- 2. Safety Regulations:** AMP 2026 recognizes the need for articulating a clear roadmap over the next decade that will make Indian vehicles comply with global standards of safety
- 3. Trade Policy :**The trade policy of the Government has a huge impact on the growth and well-being of the automotive industry in multiple ways, and given the large socio-economic footprint off the Indian Automotive industry, AMP 2026 purports to make several inputs .
- 4. Foreign Trade Policy:** The current foreign trade is for a five year period with a provision for mid-term course correction. A similar approach will be adopted for the remainder of the period of AMP 2026

**Table: 4****Primary data from Executives and Employees.**

S.NO	COMPANIES	Total No of Employers & Employees	No. of Samples (Experienced Employers & Employees)
1	Ashok Leyland Limited	1482	100
2	TVS Motors Limited	1232	100
3	Sundaram Clayton Limited	1196	100
4	Rane Madras Limited	1197	100
5	MRFTyres Limited	1200	100
	<b>Total</b>	<b>6307</b>	<b>500</b>

**Ratio Analysis:** Ratio analysis is the process of determining and interpreting numerical relationships based on financial statements. A ratio is a statistical yardstick that provides a measure of the relationship between two variables or figures. This relationship can be expressed as a percentage or as a quotient. Ratios are simple to calculate and easy to understand. The result of ratio analysis is more accurate and it can be used as the basis for future decisions. Now-a-days Ashok Leyland Ltd organizations including automotive companies use this technique widely to evaluate their performance.

❖ **Profitability Ratios:** Profitability is an indication of the efficiency with which the operations of the business are carried on. Poor operational performance may indicate poor sales and hence poor profits. A lower profitability may arise due to lack of control over the expenses. Profitability ratios indicate whether or not the firm earns substantially more than it pays interest for the use of borrowed funds and whether the ultimate repayment of their debt appears reasonably certain. Owners are interested to know the profitability as it indicates the return which they can get on their investments. Following profitability ratios are employed in the present study:

- ❖ Operating profit ratio
- ❖ Net profit ratio
- ❖ Return on capital employed

**OPERATING PROFIT RATIO**

Operating profit is an indicator of operational efficiency. It reveals the overall efficiency of a concern. It establishes the relationship between operating profit and net sales. This ratio is expressed as a percentage. The ratio is calculated with the following formula:

### Operating profit

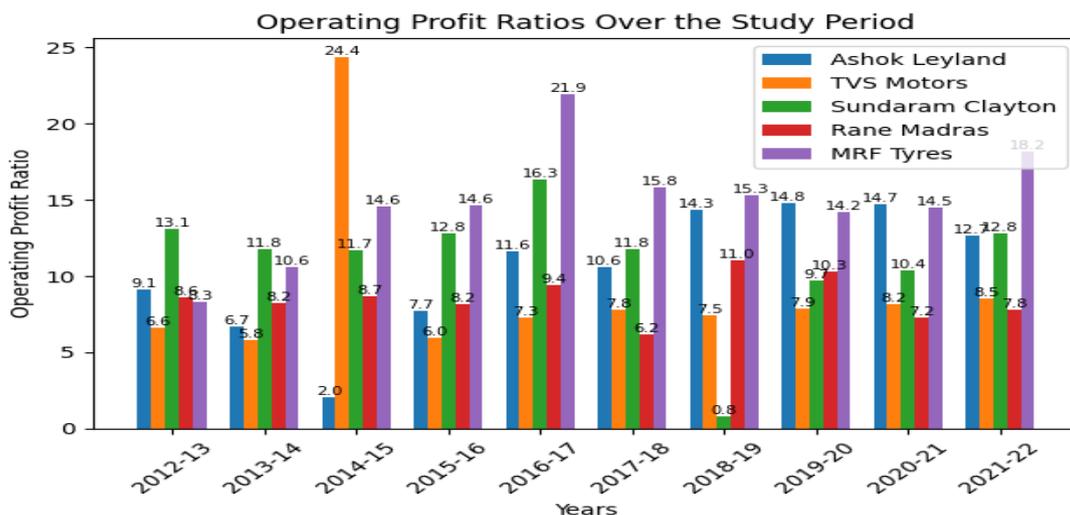
**Formula:**  $\text{Operating profit ratio} = \frac{\text{Operating Profit}}{\text{Net sales}} \times 100$

Gross Profit – (Administration expenses + Selling expenses) The operating profit and net sales over the period of ten years and Compound Annual Growth Rate (CAGR) Estimated Values for 2026, Mean and standard deviation are given in Table 1.1. It is calculated as:

**Table No: 1.1**  
**Operating Profit Ratios over the Study Period.**

Years	Ashok Leyland Ltd	TVS Motors Ltd	Sundaram Clayton Ltd	Rane Madras Ltd	MRF Tyres Ltd
2012-2013	9.14	6.59	13.13	8.60	8.31
2013-2014	6.70	5.79	11.75	8.23	10.62
2014-2015	2.05	24.37	11.71	8.70	14.56
2015-2016	7.72	5.98	12.79	8.18	14.61
2016-2017	11.64	7.29	16.34	9.45	21.95
2017-2018	10.58	7.81	11.78	6.16	15.83
2018-2019	14.34	7.46	0.80	11.04	15.31
2019-2020	14.79	7.87	9.70	10.30	14.17
2020-2021	14.72	8.19	10.40	7.25	14.53
2021-2022	12.65	8.52	12.78	7.78	18.18
<b>CAGR (%)</b>	<b>3.68%</b>	<b>2.90%</b>	<b>-0.30%</b>	<b>-1.11%</b>	<b>9.09%</b>
<b>2026E</b>	<b>20.23</b>	<b>17.43</b>	<b>10.96</b>	<b>10.54</b>	<b>13.43</b>
<b>Mean</b>	<b>10.43</b>	<b>8.99</b>	<b>11.12</b>	<b>8.57</b>	<b>14.81</b>
<b>S.D</b>	<b>4.11</b>	<b>5.48</b>	<b>4.04</b>	<b>1.43</b>	<b>3.71</b>

Source: Compiled and Computed from the Published Annual Report



### Interpretation

It is shown in Table 1.1, that operating profit ratios of the five companies fluctuating years by years. The operating profit ratio of MRF Tyres Ltd has the highest CAGR of (9.09) % and negative growth rate of two companies in Sundaram Clayton Ltd (-0.30) and Rane Madras Ltd (-1.11) also. Ashok Leyland Ltd (20.23) has the highest estimated value of operating profit among the five companies. The average of the operating profit of MRF Tyre Ltd is (14.81) and decreased the Rane Madras Ltd is (8.57). The standard deviation of this ratio is (5.48) of Tvs Motor Ltd.

Among the above companies, the operating profit average ratio has positive for MRF Tyres Ltd & Sundaram Clayton Ltd, followed by Ashok Leyland Ltd, TVS Motors Ltd, Rane Madras Ltd which indicates that growth in positive direction during the study period. However, the above table shows us the growth of operating profit ratios for next five years, showing that Ashok Leyland Ltd (20.23) has achieved the highest growth rate.

**Post Implementation (AMP 2016-2026)** It is found in table 1.1 that the operating profit ratios of MRF Tyres Ltd is (18.18) in 2021-2022 highest among that of the Five companies and it is very low in Sundaram Clayton Ltd is (0.80) in 2018-2019 during the study period. Hence, it is concluded that there was significant difference between the Amp 2006-2016 to 2016-2026 during the period of study.

### NET PROFIT RATIO

A ratio of net profit to sales is Ashok Leyland Ltd net profit ratio. It indicates the margin on sales. This is expressed in percentage. The main objective of calculating this ratio is to determine the over Ashok Leyland Ltd profitability. The ratio is calculated with the following formula:

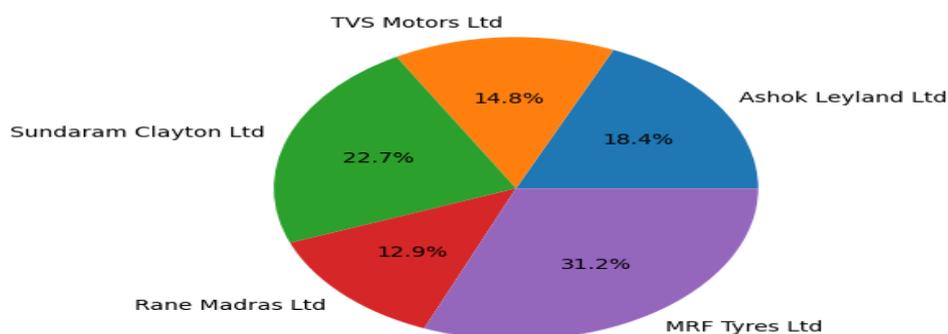
$$\text{Formula: Net profit ratio} = \frac{\text{Net profit}}{\text{Net sales}} \times 100$$

The net sales and net profit over the period of ten years and Compound Annual Growth Rate (CAGR) Estimated Values for 2026, Mean and standard deviation are given in Table 1.2 It is calculated as:

**Table No: 1.2****Net Profit Ratios over the Study Period**

Years	Ashok Leyland Ltd	TVS Motors Ltd	Sundaram Clayton Ltd	Rane Madras Ltd	MRF Tyres Ltd
2012-2013	3.99	3.22	4.69	3.75	4.38
2013-2014	1.17	2.26	3.25	3.33	5.96
2014-2015	4.45	3.02	4.20	2.87	6.13
2015-2016	1.71	3.23	5.03	1.67	7.25
2016-2017	5.79	4.05	9.45	5.67	11.16
2017-2018	6.67	4.23	6.97	1.91	9.84
2018-2019	5.94	4.37	3.34	3.37	7.36
2019-2020	6.26	3.68	6.52	3.44	6.92
2020-2021	1.53	3.60	5.18	2.21	8.72
2021-2022	8.84	5.65	8.44	4.41	10.84
<b>CAGR (%)</b>	<b>9.24%</b>	<b>6.45%</b>	<b>6.75%</b>	<b>1.82%</b>	<b>10.59%</b>
<b>2026E</b>	<b>8.60</b>	<b>2.33</b>	<b>0.27</b>	<b>1.54</b>	<b>6.01</b>
<b>Mean</b>	<b>4.64</b>	<b>3.73</b>	<b>5.71</b>	<b>3.26</b>	<b>7.86</b>
<b>S.D</b>	<b>2.54</b>	<b>0.92</b>	<b>2.09</b>	<b>1.20</b>	<b>2.23</b>

**Source: Compiled and Computed from the Published Annual Reports**

**Net Profit Ratios over the Study Period****Interpretation**

It could be observed from the above table 1.2 presents that Net profit ratios of the five companies fluctuating years by years. The Net profit ratio of MRF Tyres Ltd has the highest CAGR of (10.59) % and lowest growth rate of (1.82) Rane Madras Ltd. Ashok Leyland Ltd (8.60) has the highest estimated value of net profit among the five companies. The average ratio of the MRF Tyres Ltd is (7.86) and a decline of Rane Madras Ltd is (3.26). The standard deviation of this ratio is (2.54) of Ashok Leyland Ltd. However, the above Net profit ratio

shows that MRF Tyres Ltd (7.86) has increased more than the other five companies. The study also found that as Net Sales increase, so does its Net Profit.

**Post Implementation (AMP 2016-2026)** table 1.2 reveals that the Net profit ratios of MRF Tyres Ltd is (11.16) in 2016-2017 highest among that of the five companies and it is very low Ashok Leyland Ltd is (1.53) in 2020-2021 during the study period. So this conclusion explains to us that the above given automotive mission plan has increased its profit margin at the end of 2016-2026 when the sales increased.

### RETURN ON CAPITAL EMPLOYED

It is calculated by establishing the relationship between the total profit and the capital employed. It is an indicator of the earning capacity of the capital invested in the business. It is used in making capital budgeting decisions. The ratio is calculated with the following formula:

$$\text{Return on Capital Employed} = \frac{\text{Operating Profit}}{\text{Capital Employed}}$$

The operating profit and capital employed over the period of ten years and Compound Annual Growth Rate (CAGR) Estimated Values for 2026, Mean and standard deviation are given in Table 1.3. It is calculated as:

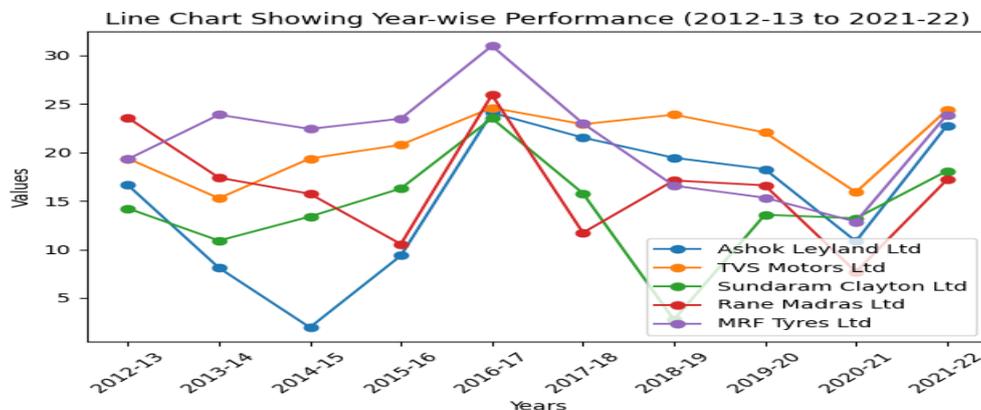
**Table No: 1.3**

#### Return on Capital Employed Ratios over the Study Period.

Years	Ashok Ltd	Leyland	TVS Motors Ltd	Sundaram Ltd	Clayton	Rane Ltd	Madras	MRF Tyres Ltd
2012-2013	16.62		19.36	14.22		23.55		19.29
2013-2014	8.10		15.26	10.90		17.38		23.86
2014-2015	1.96		19.36	13.38		15.72		22.40
2015-2016	9.36		20.77	16.27		10.54		23.46
2016-2017	24.07		24.58	23.50		25.91		30.96
2017-2018	21.51		22.89	15.77		11.71		22.97
2018-2019	19.43		23.87	2.75		17.10		16.56
2019-2020	18.26		22.04	13.57		16.59		15.32
2020-2021	10.83		15.89	13.20		7.68		12.84
2021-2022	22.75		24.35	18.07		17.17		23.85
<b>CAGR (%)</b>	<b>3.55%</b>		<b>2.58%</b>	<b>2.70%</b>		<b>-3.45%</b>		<b>2.39%</b>
<b>2026E</b>	<b>25.85</b>		<b>15.52</b>	<b>5.81</b>		<b>12.41</b>		<b>13.47</b>

Mean	15.29	20.84	14.16	16.34	21.15
S.D	7.33	3.35	5.29	5.54	5.26

Source: Compiled and Computed from the Published Annual Report



### Interpretation

Table 1.3 reveals that returns on capital employed ratio of the five companies differ year by year. The highest CAGR of return on capital employed ratio of Ashok Leyland Ltd is (3.55) % and Negative of Rane Madras Ltd is (-3.45) percent. Ashok Leyland (25.85) has the highest estimated returns on capital employed ratio among the five companies. The average is (20.84) of TVS Motors Ltd. The standard deviation is (7.33) of Ashok Leyland Ltd. The returns on capital employed ratio lie between (5.54) and (5.29) to (3.35) for TVS Motors Ltd during the study period. However, the above table shows that the average score of Return of the Capital employed ratio is gradually increasing for Ashok Leyland Ltd. It explains to us that TVS Motors Limited has achieved a high level of growth.

**Post Implementation (Amp 2016-2026)** From the table 5.3 that the Return on Capital Employed ratio of MRF Tyres Ltd is (30.96) in 2016-2017 highest among that of the five companies and it is very low Rane Madras Ltd is (7.68) in 2020-2021 during the study period. However, it shows us that the net profit at the end of 2016-2026 is increasing compared to last year through the return and capital Employed ratio, the AMP, and the average rate of the Capital Employed ratio is increasing.

## VII. FINDINGS FROM THE ANALYSIS OF PROFITABILITY

### Operating profit ratio

It was found that the operating profit ratio of MRF Tyres Ltd has the highest CAGR of (9.09) per cent. Ashok Leyland Ltd (20.23) has the highest estimated value of operating profit

among the five companies. The standard deviation of this ratio is (5.48) of Tvs Motor Ltd. However, the above table shows us the growth of operating profit ratios for next five years, showing that Ashok Leyland ltd (20.23) has achieved the highest growth rate. The operating profit ratios of the selected companies differ significantly during the study period.

### **Net Profit Ratio**

It could be observed that during the study period, The Net profit ratio of MRF Tyres Ltd has the highest CAGR of(10.59)percent and lowest growth rate of (1.82) Rane Madras Ltd. Ashok Leyland Ltd (8.60) has the highest estimated value of net profit among the five companies. The average ratio of the MRF Tyres Ltd is (7.86) and a decline of Rane Madras Ltd is (3.26). The standard deviation of this ratio is (2.54) of Ashok Leyland Ltd. However, the above Net profit ratio shows that MRF Tyres Ltd (7.86) has increased more than the other five companies. The net profit ratios of the selected companies do not differ significantly during the study period.

### **Return on Capital Employed Ratio**

It reveals that returns on capital employed ratio the highest CAGR of return on capital employed ratio of Ashok Leyland Ltd is (3.55) per cent. Ashok Leyland (25.85) has the highest estimated returns on capital employed ratio among the five companies. The average is (20.84) of TVS Motors Ltd. The highest standard deviation is (7.33)of AshokLeyland Ltd during the study period. However, the above table shows that the average score of Return of the Capital employed ratio is gradually increasing in Ashok Leyland Ltd. It explains to us that TVS Motors Company Limited has achieved a high level of growth. Hence ,it was concluded that mean return on capital employed ratios of the selected companies do not differ significantly during the study period.

### **Limitations of the Study**

The present study is subject to certain limitations that should be considered while interpreting the findings. First, the study is restricted to selected automotive companies located in Chennai, namely Ashok Leyland Limited, TVS Motors Limited, Sundaram Clayton Limited, Rane Madras Limited, and MRF Tyres Limited; therefore, the results may not fully represent the entire Indian automotive industry. Second, the sample size includes only 500 experienced employers and employees, which, although structured, may not capture the full diversity of opinions and operational realities within each organization. Third, the study relies on financial and survey data covering a specific ten-year period, which may not reflect sudden

economic or industry changes occurring outside this timeframe. Additionally, responses from participants may be influenced by personal perceptions or organizational bias. Finally, external factors such as market fluctuations, policy changes, and technological disruptions, which significantly affect the automotive ecosystem, are beyond the direct scope of this study. Hence, the findings should be interpreted within these contextual boundaries.

## **IX.SUGGESTIONS**

Under this study, the following recommendations are found suitable for the improvement of the functioning of selected automotive companies in Chennai.

- A study on profitability and operational efficiency was carried out in selected automobile companies in which sales volume should be increased in order to increase profitability. It has been studied that the profit can be increased through the Automotive Mission Plan in which the new technology method should be adopted. In order to increase the net profit of the automobile companies, the net sales should also be increased with new strategies. In automobile companies, when cars, two-wheeler commercial vehicles, spare parts and tyres are manufactured and sold, the operating efficiency ratio can be increased only by reducing the cost of sales incurred in them and thus the total profit can be earned.
- Effort should be made by all companies to increase the productivity of automobile spare parts, electric, electronics, light weight products and research design and production of vehicles machinery. Through which it is recommended to increase the employment of semi-skilled and low-skilled workers in the automotive industry.

## **X.CONCLUSION**

Financial Strength of Indian Automobile Industry Pre- and Post-Initiative Implementation study are being conducted through Automotive Mission Plan 2016- 2026. The present study sheds light on the financial aspects. Although there are many shortcomings in it, they are mentioned at appropriate places. Recommendations are also given to identify the shortcomings and improve them. Hence the institutions under study have well-established goodwill but some specific analysis shows a weak situation in some areas. This study has found that various measures are being taken to improve the financial performance of the companies and more attention should be paid to the investment in inventory.

- Indian automobile has a lot of scope for both two wheeler and four wheelers due to development in infrastructure of the country.
- The growth rate of Indian automobile is so fast that by 2021.

➤ The Indian auto market it still untapped the majority of the people in country don't own a four wheeler and all the major auto companies are trying to increasing their sales by several moves.

### **FUTURE RESEARCH**

Future research should concentrate on developing comprehensive and empirical frameworks to assess how automotive ecosystems contribute to meeting the Automotive Mission Plan (AMP) 2016-2026 objectives in terms of production growth, job creation, technological advancement, and global competitiveness. Longitudinal and data-driven studies are needed to investigate the performance relationships between OEMs, suppliers, MSMEs, startups, and policy entities in the ecosystem. More research might look into regional ecosystem development across emerging automotive clusters and their function in minimizing geographical differences in industrial growth. Furthermore, future research should look into the adoption of electric mobility, digital technologies, Industry 4.0, and sustainable manufacturing practices within the automotive ecosystem to better understand their impact on innovation and resilience. The importance of government policies, public-private partnerships, and infrastructural assistance in improving ecosystem collaboration necessitates further investigation. Furthermore, including consumer behavior, market dynamics, and global supply chain disruptions into ecosystem-based research would result in a more comprehensive view. Such multimodal study will aid in developing evidence-based policies to improve ecosystem efficiency and ensure the automobile sector's long-term prosperity and sustainability after AMP 2026.

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