A STUDY ON THE APPLICATION OF LOGISTICS IN AUTOMOBILE INDUSTRY IN INDIA

A dissertation submitted to the School of Maritime Management, Indian Maritime University in partial fulfillment for the requirements for the award of degree in

MBA- Port & Shipping Management

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DECLARATION

I, Ashiq Abdul Rahman (Reg.No.1903304008), student of School of Maritime Management, Indian Maritime University –Chennai Campus, hereby declare that this project report titled submitted in partial fulfillment of the requirement for the degree of Master of Business Administration in MBA Port and Shipping Management is my original work carried under the guidance of my project guide. It has not formed the basis for the award of any Degree/Diploma of any University/Institution. The information submitted is true and original to the best of my knowledge.

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EXECUTIVE SUMMARY

India was the world's fourth largest manufacturer of cars and seventh largest manufacturer of commercial vehicles in 2019. The growth in shipment of automobile products to foreign shores from India has maintained its pace with hike in the domestic sales in most of the segments in the first quarter of the financial year 2018-19.

The overall demand of automobiles grew by 18 percent in domestic market whereas the exports demand went up by 26 percent. Exports in the passenger vehicle (PV) segment comprising of cars, utility vehicles and vans, have grown around 41 per cent in the first quarter of the ongoing fiscal as compared to the same quarter previous fiscal. In fiscal year2020, over 677 thousand passenger cars were exported from India. It took around seven years for the Indian passenger vehicle market to make the jump in production volume from three million to four million. In 2019, over three million passenger vehicles produced were sold domestically. The outstanding contribution of the automotive industry to technological advance was the introduction of full-scale mass production, a process combining precision, standardization, interchangeability, synchronization, and continuity.

The global automotive logistics market size was valued at USD 141.8 billion in 2019 and is anticipated to grow at a compound annual growth rate (CAGR) of 5.8% from 2020 to 2027. Automotive logistics is referred as warehousing and transportation of finished vehicles and their components and systems in the automotive supply chain. Automotive logistics provide seamless warehousing services and transportation of spare parts, production material, and finished vehicles to ensure a smooth flow of operations. Factors such as the emergence of logistics services, technological advancements, and increasing outsourcing across the globe contribute to the growth of the market. Earlier, automotive logistics was a fragmented activity of transportation and warehousing, which has evolved into integrated logistics management, thereby supporting the market growth over the forecast period.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION TO INDIAN AUTOMOBILE INDUSTRY

In 2020, India was the fifth-largest motorcar market, with ~3.49 million units combined sold-out within the traveler and commercial vehicles categories. it had been the seventh largest manufacturer of business vehicles in 2019.The 2 wheelers phase dominate the market in terms of volume attributable to a growing social class and a young population. Moreover, the growing interests of the businesses in exploring the agricultural markets any motor-assisted the expansion of the sector. India is additionally a distinguished auto exporter and has sturdy export growth expectations for the close to future. In addition, many initiatives by the government of India and major automobile players within the Indian market is predicted to create India a pacesetter in the two-wheeler and hackney coach market in the world by 2020.

Domestic vehiclesmanufacturingimproved at 2.36GR among FY16-20 with 26.36 million cars being syntheticwith inside theU. S. in FY20. Overall, homevehiclesincomeimproved at 1.29GR between FY16-FY20 with 21.55 million cars being offered in FY20. wheelers and passenger motors accounted for 80.8% and 12.9% marketplace share, respectively, accounting for a blended sale of over 20.1 million cars in FY20. Two wheeler incomes stood at 1,426,865 gadgets in February 2021, as compared with 1,294,787 gadgets in February 2020, recording aupward push of 10.20%.

Passenger vehicle (PV) income stood at 281,380 gadgets in February 2021, as compared with 238,622 gadgets in February 2020, registering aincrease of 17.92%. As in step with Federation of Automobile Dealers Associations (FADA), PV income in December 2020 stood at 271,249 gadgets, as compared with 218,775 gadgets in December 2019, registering a 23.99% increase. Overall, car export reached 4.77 million cars in FY20, developing at a CAGR of 6.94% in the course of FY16-FY20. Two wheelers made up 73.9% of the cars exported, observedvia way of means of passenger cars at 14.2%, 3 wheelers at 10.5% and industrialcars at 1.3%.

EVincome, aside from E-rickshaws, in India witnessed aincrease of 20% and reached 1.56 lakh gadgets in FY20 pushedvia way of means of wheelers. According to NITI Aayog and Rocky Mountain Institute (RMI) India's EV finance enterprise is probable to attain Rs. 3.7 lakh crore

(US$ 50 billion) in 2030. A recordvia way of means of India Energy Storage Alliance envisioned that EV marketplace in India is probable to growth at a CAGR of 36% till 2026. In addition, projection for EV battery marketplace is forecast to make bigger at a CAGR of 30% in the course of the equal period.

Premium motorcycleincome in India recorded seven-fold leap in homeincome, attaining 13,982 gadgetsin the course of April-September 2019. The luxuriousvehiclemarketplace is predicted to sign inincome of 28,000-33,000 gadgets in 2021, up from 20,000-21,000 gadgetsoffered in 2020. The accessof recentproducers and new launches is probable to propel this marketplace in 2021.

1.2 HISTORY OF INDIAN AUTOMOBILE INDUSTRY

In 1897, the primary car ran on an Indian road. Through the 1930s, cars were imports only, and in tiny numbers. In embryonic automotive business emerged in India within the 1940s. Geographical area Motors was launched in 1942, long-time contestant Premier in 1944, building Chrysler, Dodge, and edict merchandise, respectively. Mahindra & Mahindra was established by 2 brothers in 1945 and commenced assembly of motorcar CJ-3A utility vehicles. Following independence in 1947, the govt of India and also the non-public sector launched efforts to make an automotive-component producing industry to provide to the car industry. In 1953, an import substitution program was launched, and also the import of absolutely settled cars began to be restricted.

In 1952, the government appointed the primary Tariff Commission, one amongst whose functions was to come back out with a feasibleness set up for the homogenization of the Indian automobile industry. In 1953, the commission submitted their report that suggested categorizing existing Indian automobile firms in keeping with their producing infrastructure, with authorized capability to manufacture an exact range of vehicles, with capacity will increase allowable, as per demands, within the future. The Tariff Commission recommendations were enforced with new policies that may eventually exclude companies those solely foreign components for assembly, still as those with no Indian partner. In 1954, following the Tariff Commission implementation, General Motors, Ford, and Rootes Group, that had assembly-only plants in Mumbai; set to maneuver out of India. The Tariff commission policies, as well as similar

restrictions that applied to different industries, came to be referred to as the License Raj, which tested to be the best undoing of the Indian automotive industry, wherever functionary procedure finished up inflicting demand to outstrip supply, with month-long waiting periods for cars, scooters, and motorcycles.

However, increase was particularly gradual in the Nineteen Fifties and 1960s, because of nationalization and the license raj, which hampered the increase of the Indian personal zone. The starting of the Seventies noticed a few increase potential; and maximum of the collaboration license agreements got here to a cease, however with the choice to keep production with renewed branding. Cars have been nonetheless supposed for the elite and Jeeps have been in large part utilized by authorities' companies and in a few rural regions. By the cease of the decade, a few trends have been made in industrial automobile segments to facilitate the motion of goods. The two-wheeler phase remained unchanged besides for to expanded income to the center magnificence in city areas. There became emphasis on having greater farm tractors, as India became embarking on a brand new Green Revolution; and Russian and Japanese bloc imports have been delivered in to satisfy the demand.

But after 1970, with regulations at the import of automobiles set, the automobile enterprise commenced to grow; however, the increase became specially pushed with the aid of using tractors, industrial automobiles and scooters. Cars nonetheless remained a first-rate luxurious item. In the Seventies, rate controls have been subsequently lifted, placing a aggressive detail into the car marketplace. However, with the aid of using the 1980s, the car marketplace became nonetheless ruled with the aid of using Hindustan and Premier, who bought superannuated merchandise in pretty restricted numbers.

During the eighties, some competition started out to reach at the scene. Of the 30,487 vehicles constructed in India in 1980, all however six got here from the 2 important gamers Hindustan and Premier: Standard had led a shadow life in the latter 1/2 of the Seventies, generating simplest a handful of vehicles to hold their license active. A new contender became tiny Sipani, who had attempted constructing regionally evolved three-wheeled automobiles considering that 1975 however brought the Reliant Kitten-primarily based totally Dolphin in 1982. Nonetheless, all eyes have been on Sanjay Gandhi's Maruti project, which became destined to motive primary upheaval to the Indian vehicle enterprise.

The OPEC oil disaster noticed growth wants to put in or remodel a few automobile to suit diesel engines on medium industrial automobile. Until the early Seventies Mahindra Jeeps have been on Petrol and Premier industrial automobiles had Petrol version options. The Defense zone too had maximum vans on Petrol engines. Eventually transnational automakers, such as, Suzuki associate degreed Toyota of Japan and Hyundai of South Korea, were allowed to speculate within the Bharat market, furthering the institution of an automotive business in India. Maruti Suzuki was the first, conjointly the most winning of those new entries, and partly the results of government policies to push the automotive industry starting in the 1980sAs India began to liberalize its automobile market in 1991, variety of foreign corporations also initiated joint ventures with existing Indian companies. The variability of choices on the market to the buyer began to multiply in the nineties, whereas before there had typically solely been one choice in every worth class. By 2000, there have been twelve massive automotive corporations within the Indian market, most of them offshoots of world companies.

Exports were slow to grow. Sales of little numbers of vehicles to tertiary markets and neighbor countries began early, and in 1987 Maruti Suzuki shipped 480 cars to Europe (Hungary). When some growth within the mid-nineties, exports yet again began to drop because the outmoded platforms provided to Indian makers by multinationals weren't competitive. This wasn't to last, and these days India manufactures cheap cars for markets across the globe. As of eighteen March 2013, world brands equivalent to nucleon Holdings, protein cluster, Kia, Mazda, Chrysler, Dodge and Geely Holding Group were shelving plans for India thanks to the competitiveness of the market, yet because the world financial condition.

In 2000, consistent with global requirements to lessen vehicular pollution, the imperative authorities' unveiled requirements titled "India 2000", with later, upgraded tips to be referred to as Bharat Stage emission requirements. These requirements are pretty just like the stringent European emission requirements and were carried out in a phased manner. Bharat Stage IV (BS-IV), the maximum stringent so far, turned into carried out first, in April 2010, in thirteen cities—Delhi (NCR), Mumbai, Kolkata, Chennai, Bangalore, Hyderabad, Ahmadabad, Pune, Surat, Kanpur,Lucknow, Solapur, and Agra—and then, as of April 2017, the relaxation of the nation. In 2019, consistent with global requirements to lessen vehicular pollution, the imperative

authorities of India introduced the advent of BS-VI norms to manipulate air pollution, taking impact from 1 April 2020.

1.3 KEY CHALLENGES IN THE INDIAN AUTOMOTIVE SECTOR

- **The ever-expanding Chinese market:** one of the biggest challenges of automakers outside China is the risk of competing with China. In the last fifteen years, China has been the leading automotive market. The volume growth has helped the country to overcome other structural and competitive challenges. The biggest challenge for the planners of the automotive market is to plan a strategy keeping in mind China's outlook.
- **The evolution of connected cars**: connected are the biggest transformational changes in the automotive industry, but it is also one of the biggest unknowns. The concept of connected cars serves as a communication hub that receives and transmits data from its surroundings. However, this technology is still in such a nascent stage that it is creating uncertainties and questions such as who will buy the car, which will deliver these services, whether the current automakers will be able to navigate through all these uncertainties keep plaguing the automotive world.
- **Increased competition:** of all the myriad issues facing the automotive world, one of the pressing problems is the sales demand flattening in mature markets like Europe and Japan and competition rising from other manufacturers. The slowdown is sales is directly proportional to the increasing competition.
- **Balancing the demands of technology and government:** The major global automotive markets have been facing stringent legislation focusing on controlling carbon dioxide emission and other exhaust gas emissions. This is done to improve fuel economy. One of the key challenges in the industry is to make the right power trains and technology choices to cater to changing social preferences in a changing regulatory environment.
- **Consolidation of platforms:** intensifying competition, state regulators and global consumers are making global automakers rethink their platform strategy. The trend towards consolidation of modular architectures or mega-platforms is slowly replacing the earlier rationalization of segments. Hence this is becoming one big challenge for automakers.

1.4 RESEARCH OBJECTIVE

- To identify and understand the implications of global automobile industry.
- To examine the upcoming scope and strategies for upcoming scope in Indian automobile industry.
- To study the export trends of the market leaders (Trend Analysis)

1.5 SCOPE OF THE STUDY

- Indian automobile and auto components industry is on a roll and there is a massive scope for improvement and augmentation of supply chain in this sector.
- India has become a most sought after destination for foreign companies to establish their facilities and form alliances with domestic companies.
- The Indian economy is now gaining momentum in the world of free trade and liberal movements of goods and services between countries.
- Low cost of manufacturing and conducive government support has been the major drivers for foreign companies investing in India. Therefore, efficiency in supply chain will be critical for India's automobile success.

1.6 **DISSERTATION STRUCTURE**

- Chapter 1: Gives an overview of the automobile industry, importance of the study and various other details about the project
- Chapter 2: Gives an overview of various literature reviews for the project
- Chapter 3: This chapter presents a brief introduction about the topic, types of research design, methods of qualitative study, data analysis procedure. It also involves methodological limitations.
- Chapter 4: It provides a detailed study of the automobile industry in India as well as the export details of each vehicle segments.
- Chapter 5: The analysis automotive logistics industry
- Chapter 6: This chapter deals with the conclusion, limitations, and recommendations of the study

CHAPTER 2

LITERATURE REVIEW

1. THE CONCEPT OF LOGISTICS 4.0

Author: GordanaRadivojević

The aim of this paper is to gift trendy provision trends, digitization of logistics and outline of the concept of provision 4.0. The essential elements of that idea are: automatic identification, period of time localization, automatic knowledge collection, property and integration, processing and analysis and business services. The paper presents and describes a number of the foremost necessary provision 4.0 technologies: web of Things, wireless detector network, Cloud Computing, Block chain, huge Data, AI and automation, increased reality, drones, 3D printing and automatic radio-controlled vehicles.

2. VALUE CHAINS, NETWORKS AND CLUSTERS: REFRAMING THE GLOBAL AUTOMOTIVE INDUSTRY

Author: Timothy Sturgeon

We use the 3 main parts of the GVC framework—firm-level chain governance, power and establishments—to highlight a number of the process characteristics of this vital industry. First, national political institutions produce pressure for native content that drives production on the point of finish markets, wherever it tends to be organized across the nation or regionally. Second, in terms of GVC governance, rising product complexness combined with low modifiability and a dearth of industry-level standards has driven buyer–supplier linkages toward the relative form, a governance mode that's additional compatible with Japanese than yank provider relations. The outsourcing boom of the Nineties exacerbated this situation. As work shifted to the provision base, lead corporations Associate in nursing suppliers were forced to develop relative linkages to support the exchange of advanced unmodified data and silent knowledge. Finally, the little range of massively powerful lead firms that drive the automotive trade helps to clarify why it's been thus troublesome to develop and set the industry-level standards that might underpin a additional loosely articulated abstraction architecture. This case study underlines the necessity for an open, scalable approach to the study of world industries.

3. **ASSESSMENT OF BARRIERS IN GREEN SUPPLY CHAIN MANAGEMENT USING ISM: A CASE STUDY OF THE AUTOMOBILE INDUSTRY IN INDIA**

   Authors: Virendra Balon& Mukesh K. Barua

   The look at analyzes the auto industry in India, each to discover the boundaries of green deliver chain and to categories them. To do so, a valid technique of mathematical modeling—interpretive structural modeling— is used. The look at has diagnosed 13 boundaries primarily based totally at the big literature, and has introduced one, almost about professional opinion. It has been observed that six attributes are structured boundaries, 5 are motive force boundaries and 3 are linkage boundaries. The look at holds sizeable implications on the company level, for manufacturing strategies and the inexperienced deliver chain system, mainly in vehicle production firms. The diagnosed courting among those boundaries can also additionally assist agencies conquer them as a way to put into effect an powerful and green inexperienced deliver chain management (GSCM) system.

4. **THE IMPACTS OF CRITICAL SUCCESS FACTORS FOR IMPLEMENTING GREEN SUPPLY CHAIN MANAGEMENT TOWARDS SUSTAINABILITY: AN EMPIRICAL INVESTIGATION OF INDIAN AUTOMOBILE INDUSTRY**

   Authors: SunilLuthra&DixitGarg

   This paper explores the significance of Critical Success Factors (CSFs) to put in force Green Supply Chain Management (GSCM) toward sustainability deliberating the car enterprise of India. The hypothesized relationships of the proposed framework had been examined through reading information amassed from 123 Indian vehicle organizations. This look at tested affects of CSFs to put in force GSCM toward sustainability on present day inexperienced practices carried out through Indian vehicle enterprise and predicted organizational overall performance effects through the use of a couple of regression analysis. The findings factor out that the 'Regulatory' CSF has been diagnosed which performs the maximum critical position in selling the green practices. 'Internal Management' and 'Competitiveness' CSFs gambling an important position toward success of predicted overall performance effects. The gift studies will help the

practitioners/managers to recognize numerous GSCM implementation troubles and to enhance their practices and performances toward sustainable development.

5. **A FRAMEWORK OF REVERSE LOGISTICS FOR THE AUTOMOBILE INDUSTRY**

   Authors: H.K CHAN & FELIX T.S CHAN

   This paper aims at investigation the reverse supplying activities of the auto trade, and to supply a framework for those activities. Firstly, the drivers for reverse logistics during this industry are revisited. Key parts that are valuable and possible for apply or remanufacture are then identified. Supported this investigation, a framework of reverse logistics for the automobile industry is proposed. This is often based on many analysis factors (i.e. worth of reversed products, legislation perspective and value problems). Implementation issues and social control implications are summarized.

6. **FINDING THE BEST THIRD-PARTY LOGISTICS IN THE AUTOMOBILE INDUSTRY: A HYBRID APPROACH**

   Author:Amir KarbassiYazdi, Thomas Hanne,& Juan Carlos Osorio Gómez

   The study reviews that economic climate, several firms are considering outsourcing some activities to cut back prices associated to specialize in their core competency; thus, by adopting a competency-focused approach they enhance their probabilities to survive in a very growing and competitive market. Third-Party supply (3PL) may be a system that facilitates supplying activities. First, however, the organizations ought to assess that companies are appropriate for outsourcing. The aim of this paper is to depict a structural system for 3PL choice and validate it in real-world automobile companies. we have a tendency to use the city methodology to work out criteria for 3PL selection and apply analysis by an Area-based methodology for Ranking (EAMR) to rate the candidate alternatives. This method is employed together with a technologist Entropy primarily based approach for deciding the specified weights. Machine analysis shows that criteria and corporations have high priority and supported that candidate alternatives for outsourcing are evaluated. The results counsel however automobile companies choose 3PL companies and portion their work to them.

7. **INNOVATING WITH INFRASTRUCTURE: THE AUTOMOBILE INDUSTRY IN INDIA**

   Author: S. Gulyani

   The review is considered to be the automobile Industry in India. The study shows the trend of demands in the Automobile industry in India. The study is aim to find the demand of automobile parts and automobile in India Infrastructure.

8. **STRATEGY DEVELOPMENT FOR COMPETITIVENESS: A STUDY ON INDIAN AUTO COMPONENT SECTOR**

   Author: Rajesh K. Singh, Suresh K. Garg & S.G. Deshmukh

   The purpose of this study is to analyze different aspects of competitiveness relating to the Indian auto component sector, set within a globalised economy with its attendant pressures and constraints. It examines the strategies adopted for quality improvement, cost reduction, investment and competency development. It also aims to establish the relationship between strategies and the different dimensions of competitiveness. Findings shows A growth-supportive environment, raising funds from the market and a shortage of technical manpower are major constraining factors whereas cost, quality, and delivery time are the main pressures on the auto component sector. The auto component sector is flexible in developing strategies and those strategies relating to cost, quality; investment and competency development are significantly correlated with competitiveness.

9. **COASTAL TRANSPORTATION FOR AUTOMOBILES- BENEFITS**

   Author: Mandowara, Anshul,Sukumaran,Chirakara Akhil &Kishore, Shweta.

   Study suggests that there is a common myth that innovation can't happen on a dayin-day-out basis. However, innovation does not necessarily mean inventing ground-breaking stuff. It essentially means improvising ways and means of doing the same tasks; so as to does it better, in a 'smarter' way. In these modern days, it is important for any industry to raise business excellence and keep innovating to sustain in the market and compete with the competitor's product. In this paper, we will look at the difference between business excellence and business innovation along with characteristics of different types of

innovation. We will then try to relate the business excellence and innovation and will see how innovation can lead to business excellence along with some success stories.

10. JUST-IN-TIME LOGISTICS SUPPORT FOR THE AUTOMOBILE INDUSTRY

Authors: KEN ALTERNBURG DEBBIE GRISCOM JACK HART FRANK SMITH & GARY WOHLER

Study Suggest that JIT drastically reduces investment as well as the total cost of operation. In the early 1980s the U.S. automobile industry realized the advantage adopting JIT would bring. U.S. automakers were carrying $775 worth of work-in-process inventory for each car they built, while the Japanese carried only $150.The very existence of the U.S. auto industry depended on adopting the JIT philosophy. In this article we will cover conditions before JIT, including transportation, supplier relationships, and purchasing methods; the period of change known as the "Japanese Revolution," including how quality was affected; JIT's role in today's environment of transportation, supplier relationships, and quality; the disadvantages of JIT; and prospects for the future.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 RESEARCH DESIGN

The main aim and objective of this research is to know more about the Automotive Logistics Industry, various companies, export, and domestic sales – various financial year export details and its comparison and percentage change in the export of vehicles and vehicle parts from India.

To identify the possibility of research various literatures were referred which is followed by descriptive research which include analyze of automotive logistics past and future.

The research of automotive logistics is taken into considering different time periods:

- Automobile Industry Before 1945
- Automobile Industry after 1945
- After Independence
- After Liberalization
- Then a Base year analysis of 2010 to 2018 which does not have much shock on Automotive Industry.

Segment wise market analysis is also done in automotive logistics. This is classified on the basis of Type Application & Region.

To identify the trend in automotive time series is used and regression is used to estimate the future exporting in Automotive logistics industry in all the categories.

To know the existing competition comparison of the top 5 market drivers in automotive logistics industry is considered. As a continuation of analyses part a SWOT analysis is conducted in automotive logistics in India

3.2 QUANTITATIVE STUDY

Quantitative research is the process of collecting and analyzing numerical data. It can be used to find patterns and averages, make predictions, test causal relationships, and generalize results to wider populations. Quantitative data study includes:

1. **Frequency Analysis**

   Frequency analysis is based on the fact that, in any given stretch of written language, certain letters and combinations of letters occur with varying frequencies. Frequency analysis of data will help to analyze present scenario of auto exporting India.

2. **Regression Model :**

   Linear regression is a statistical tool used to help predict future values from past values. It is commonly used as a quantitative way to determine the underlying trend and when prices are overextended. A linear regression trend line uses the least squares method to plot a straight line through prices so as to minimize the distances between the prices and the resulting trend line. This linear regression indicator plots the trend line value for each data point. It will help to analyze the future exports from India in the Automotive Sector,

3.3 QUALITATIVE STUDY

Qualitative research focuses in understanding a research query as a humanistic or idealistic approach. Quantitative approach is a more reliable method as it is based upon numeric and methods that can be made objectively and propagated by other researchers. Qualitative method is used to understand people's beliefs, experiences, attitudes, behavior, and interactions. It generates non-numerical data. In these qualitative analysis is done with the help of SWOT analysis.

A SWOT analysis is a strategic tool utilized by companies to identify their strengths, weaknesses, opportunities and threats. This qualitative research tool examines internal factors (strengths and weaknesses), and external factors (opportunities and threats). A comprehensive SWOT analysis provides a company with insight into where the business has room to grow, allows a company to capitalize on a competitive advantage and delivers a company with the foresight to identify looming threats so that it can prepare.

3.4 DATA COLLECTION

Data was collected by carrying out both secondary researches. Secondary data sources were newspapers, auto magazines, journals, marketing books, websites etc. This topic being critical and important to all companies worldwide, many articles and research papers were available for

study. Internet was used extensively to extract information about New Product Launch from international journals and research papers. An overview of the Indian Automobile Industry was taken. At the same time, some global trends in the Automobile Industry were also studied and were taken as guiding tools to forecast the future exports of the country. Data for automotive logistics SWOT analysis include Global data's which is collected from UNWTO sites.

3.5 LIMITATIONS OF STUDY

- Secondary data can be general and vague and may not really help companies with decision making.
- Some of the findings and conclusion drawn out of the study are based only on the articles, journals and data got from Internet.
- This research did not analyze all the drivers and dimensions that play a role in globalization and internationalization of the Indian automobile firms.
- Issues with sample and selection, i.e., difficulty in collecting information made to reduce qualitative analysis to SWOT analysis only.
- Time Limit helps you manage your time and resources better by giving you quick project but there can be chances of limiting of study due to such a limited time period.

CHAPTER 4

INDUSTRY ANALYSIS

4.1 AUTOMOTIVE LOGISTICS INDUSTRY

Automotive logistics may be outlined as a class of logistics service that's used for deliverance and value-addition services within the supply chain of car production. This category handles the distribution, deposit, and transportation of automotive components, and also the entire finished self-propelled vehicle itself, through completely different transportation strategies such as roadways, air transportation, and marine transportation or through railroad tracks.

The Automotive logistics marketing research report covers definition, classification, product classification, product application, development trend, product technology, competitive landscape, industrial chain structure, trade overview, national policy and coming up with analysis of the industry, the most recent dynamic analysis, etc., and additionally includes major. The study includes drivers and restraints of the world market. It covers the impact of those drivers and restraints on the demand throughout the forecast period. The report also highlights opportunities within the market at the global level.

It's pertinent to think about that in an exceedingly volatile global economy, we have a tendency to have simply conducted Automotive supplying market forecasts in terms of CAGR, but additionally studied the market supported key parameters, together with Year-on-Year (Y-o-Y) growth, to understand the knowledge of the market and to search out and gift the remunerative opportunities in market.

With respect to production bases and technologies, the analysis during this report covers the assembly time, base distribution, technical parameters, research and development trends, technology sources, and sources of raw materials of major Automotive logistics market companies. Concerning the analysis of the trade chain, the research of this report covers the raw materials and instrumentality of Automotive supplying market upstream, downstream customers, promoting channels, industry development trends and investment strategy recommendations. The a lot of specific analysis additionally includes the most application areas of market and consumption, major regions and Consumption, major Chinese producers, distributors, staple suppliers, instrumentality suppliers and their contact data, trade chain relationship analysis.

The analysis during this report also includes product parameters, production process, price structure, and knowledge information classified by region, technology, and application.

4.2 MARKET SEGMENTATION IN AUTOMOTIVE LOGISTICS:

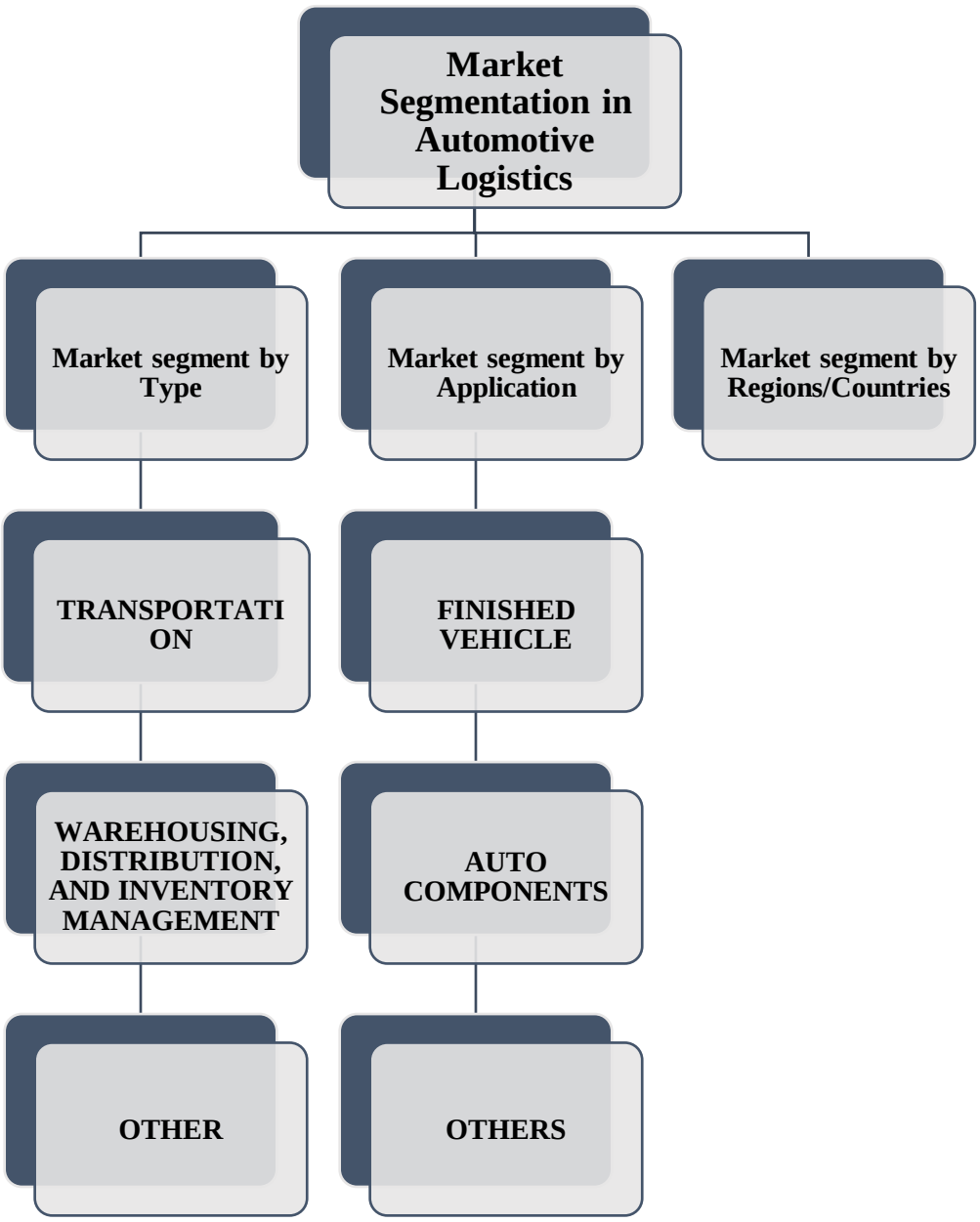


Fig1: Market Segmentation in Automotive Logistics

4.3 THE YEARS CONSIDERED TO ESTIMATE THE MARKET SIZE OF AUTOMOTIVE LOGISTICS ARE AS FOLLOWS:

- History Year: Up to 2018
- Base Year: 2018-2019

4.3.1 HISTORY YEAR: UP TO 2018

4.3.1.1 AUTOMOBILE INDUSTRY BEFORE 1945

Although steam-powered street motors have been produced earlier, the origins of the automobile industry are rooted with inside the improvement of the gas engine in the 1860s and ’70s, mainly in France and Germany. By the start of the 20th century, German and French producers have been joined via way of means of British, Italian, and American makers.Most early automobile companies were small shops, hundreds of which each produced a few handmade cars, and nearly all of which abandoned the business soon after going into it. The handful that survived into the era of large-scale production had certain characteristics in common.The pioneer vehicle producer now no longer most effective needed to resolve the technical and monetary troubles of entering into manufacturing however additionally needed to make a fundamental choice approximately what to produce. After the primary fulfillment of the gas engine, there has been extensive experimentation with steam and electricity. For a quick length the electrical vehicle virtually loved the finest recognition as it changed into quiet and clean to operate, however the boundaries imposed via way of means of battery capability proved competitively fatal. Especially famous with women, electric powered automobiles remained in constrained manufacturing nicely into the 1920s. One of the longest-surviving makers, Detroit Electric Car Company, operated on a normal foundation via 1929.

4.3.1.2 AUTOMOBILE INDUSTRY AFTER 1945

After World War II there was a placing enlargement of motorized vehicle production. Throughout a 35-year amount the full world output accumulated virtually 10-fold. The foremost important feature of this increase was that the majority of it occurred outside the

us. Though Yankee production continued to grow, its share of world automotive production fell from concerning eighty percent of the total to twenty percent. Among individual countries the United States was the leading producer till the recession of the first 1980s. In 1980 Japan, that had had very little automotive producing before the war, became the leading producer, with the (EU) Economic Community (EEC) ranking second. The regained the lead in vehicle production in 1994, since by that point Japanese makers were building a lot of their merchandise in factories within their major overseas markets, like the United States, in response to economic and political pressures in those markets. However, in the early twenty first century, China became the leading manufacturer of cars.

4.3.1.3AFTER INDEPENDENCE

In 1952, the government appointed the primary Tariff Commission, one in all whose functions changed into to pop out with a feasibility plan for the homogenization of the Indian vehicle industry. In 1953, the fee submitted their report, which advocated categorizing present Indian vehicle corporations in keeping with their production infrastructure, with certified ability to fabricate a sure variety of vehicles, with ability will increase allowable, as in keeping with demands, with inside the future. The Tariff Commission suggestions have been applied with new regulations that could subsequently exclude corporations those handiest imported elements for assembly, in addition to people with no Indian partner. In 1954, following the Tariff Commission implementation, General Motors, Ford, and Root's Group, which had assembly-handiest flora in Mumbai, determined to transport out of India.

The Tariff fee regulations, which include comparable regulations that implemented to different industries, got here to be called the License Raj, which proved to be the best undoing of the Indian car industry, wherein bureaucratic pink tape ended up inflicting call for to outstrip supply, with month-lengthy ready intervals for cars, scooters, and motorcycles.

However, growth was comparatively slow within the Nineteen Fifties Associate in Nursing 1960s, because of nationalization and therefore the license raj, that hampered the expansion of the Indian non-public sector.

The start of the Seventies saw some growth potential; and most of the collaboration license agreements came to an end, however with the choice to continue producing with revived branding. Cars were still meant for the elite and Jeeps were for the most part employed by government organizations and in some rural regions. By the tip of the decade, some developments were created in business vehicle segments to facilitate the movement of goods. The two-wheeler phase remained unchanged aside from to hyperbolic sales to the center category in urban areas. There was stress on having a lot of farm tractors, as Bharat was embarking on a brand new inexperienced Revolution; and Russian and Japanese axis imports were brought in to fulfill the demand.

However once 1970, with restrictions on the import of vehicles set, the automotive business began to grow; but the expansion was in the main driven by tractors, business vehicles and scooters. Cars still remained a serious luxury item. Within the 1970s, worth controls were finally lifted, inserting a competitive element into the car market. However, by the 1980s, the automobile market was still dominated by geographical area and Premier, who sold-out superannuated product in fairly restricted numbers. the speed of car possession in 1981 was about one in each thousand voters – intelligible once the annual road tax alone value about the common financial gain of an Bharat n at the time.

Throughout the eighties, some competitors began to arrive on the scene. Of the 30,487 cars inbuilt India in 1980, almost six came from the 2 main players Hindustan and Premier: commonplace had diode a shadow existence within the latter half the Seventies, manufacturing solely some of cars to stay their license active. A brand new challenger was small Sipani, who had tried building regionally developed machine vehicles since 1975 however introduced the dependent Kitten-based Dolphin in 1982. Nonetheless, all eyes were on Sanjay Gandhi' Marti project, that was destined to cause major upheaval to the Indian automobile industry. Till the first 1970s Mahindra Jeeps were on Petrol and

Premier business vehicles had gas model options. The Defense sector too had most trucks on gas engines.

From the tip of the Seventies to the start of the Nineteen Eighties India saw no new models, the country continued to depend upon 2 decades-old designs. The Sipani Dolphin that arrived in 1982 wasn't a heavy contender, with its plastic body and while not rear doors - essential to Indian automobile buyers. this example forced the govt. to encourage and let a lot of makers into fray.

In 1984, the then Prime Minister of India, Indira Nehru Gandhi established the Ordnance plant Medak, close to Hyderabad. It started producing army unit Combat Vehicles christened as Sarath, the backbone of India' mechanized infantry. OFMK remains the sole producing facility of ICVs in India. To manufacture the high-energy engines utilized in ICVs and main battle tanks, Engine plant Avadi, close to Madras was set in 1987. In 1986, to push the motor vehicle trade, the govt. established the urban center motor vehicle aggregation. The 1986 Expo was a showcase for a way the Indian automotive industry was riveting new technologies, promoting autochthonic analysis and development, and adapting these technologies for the rugged conditions of India. The nine-day show was attended by then Prime Minister Rajiv Gandhi.

4.3.1.4 AFTER LIBERALIZATION

Eventually multinational automakers, such as, Suzuki and Toyota of Japan and Hyundai of South Korea, had been allowed to make investments with inside the Indian marketplace, furthering the status quo of an car enterprise in India. Maruti Suzuki became the first, and the maximum a hit of those new entries, and in element the end result of presidency regulations to sell the car enterprise starting with inside the 1980s. As India started out to liberalize its vehicle marketplace in 1991, some of overseas companies additionally initiated joint ventures with current Indian organizations. The style of alternatives to be had to the patron started out to multiply with inside the nineties, while earlier than there had generally most effective been one alternative in every rate class. By 2000, there had been 12 huge car organizations with inside the Indian marketplace, maximum of them offshoots of worldwide organizations.

Exports have been gradual to grow. Sales of small numbers of cars to tertiary markets and neighboring nations commenced early, and in 1987 Maruti Suzuki shipped 480 automobiles to Europe (Hungary). After a few boom with inside the mid-nineties, exports yet again commenced to drop because the superseded structures supplied to Indian producers with the aid of using multinationals have been now no longer competitive. This turned into now no longer to last, and these days India manufactures affordable automobiles for markets throughout the globe. As of 18 March 2013, international manufacturers which include Proton Holdings, PSA Group, Kia, Mazda, Chrysler, Dodge and Geely Holding Group have been shelving plans for India because of the competitiveness of the market, in addition to the worldwide monetary crisis.

India's automobile exports have grown always and reached $4.5 billion in 2009, with the UK being India's biggest export marketplace, accompanied with the aid of using Italy, Germany, the Netherlands, and South Africa.

According to The New York Times, India's sturdy engineering base and understanding with inside the production of low-cost, fuel-green automobiles has resulted withinside the growth of producing centers of numerous car corporations like Hyundai, Nissan, Toyota, Volkswagen, and Maruti Suzuki. In 2008, South Korean multinational Hyundai Motors by exported 240,000 automobiles made in India. Nissan Motors deliberate to export 250,000 cars synthetic in its India plant with the aid of using 2011. Similarly, US car enterprise, General Motors had introduced its plans to export approximately 50,000 automobiles synthetic in India with the aid of using 2011.In September 2009, Ford Motors introduced its plans to installation a plant in India with an annual potential of 250,000 automobiles, for US$500 million. The automobiles had been synthetic each for the Indian marketplace and for export. The enterprise stated that the plant become part of its plan to make India the hub for its international manufacturing business. Fiat Motors had introduced that it'd supply extra than US$1 billion really well worth car additives from India.

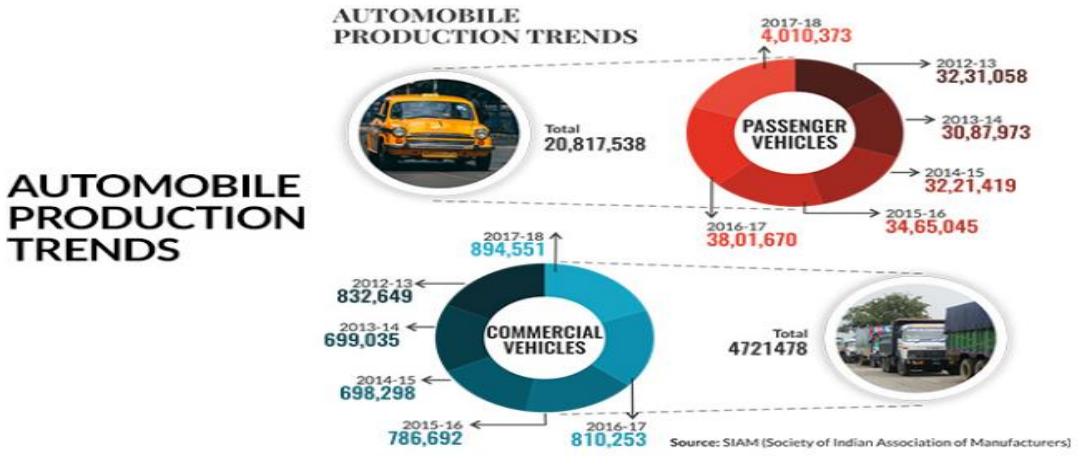
In 2000, in step with global requirements to lessen vehicular pollution, the relevant authorities unveiled requirements titled "India 2000", with later, upgraded hints to be

called Bharat Stage emission requirements. These requirements are pretty just like the stringent European emission requirements and were carried out in a phased manner.

4.3.1.5.1 BASE YEAR: 2018-2019

Bharat Stage IV (BS-IV), the maximum stringent so far, become carried out first, in April 2010, in thirteen cities—Delhi (NCR), Mumbai, Kolkata, Chennai, Bangalore, Hyderabad, Ahmadabad, Pune, Surat, Kanpur, Lucknow, Solapur, and Agra—and then, as of April 2017, the relaxation of the nation.According to SIAM, the overall automotive industry sales dropped by 13.77 per cent, from 2.67 crore units in 2018 to 2.3 crore units in 2019. The numbers further report de growth in almost all vehicle segments.Society of Indian Automobile Manufacturers (SIAM), automobiles sales in 2019 where the lowest India has seen in the last 20 years. The consortium also released cumulative sales figures for last year and they show that the overall automotive industry sales dropped by 13.77 per cent, from 2.67 crore units in 2018 to 2.3 crore units in 2019. The numbers further report de growth in almost all vehicle segments. Let's take a closer look at how the sales numbers for 2019 stack up as compared to 2018.

Fig 2: Automobile Production Trend



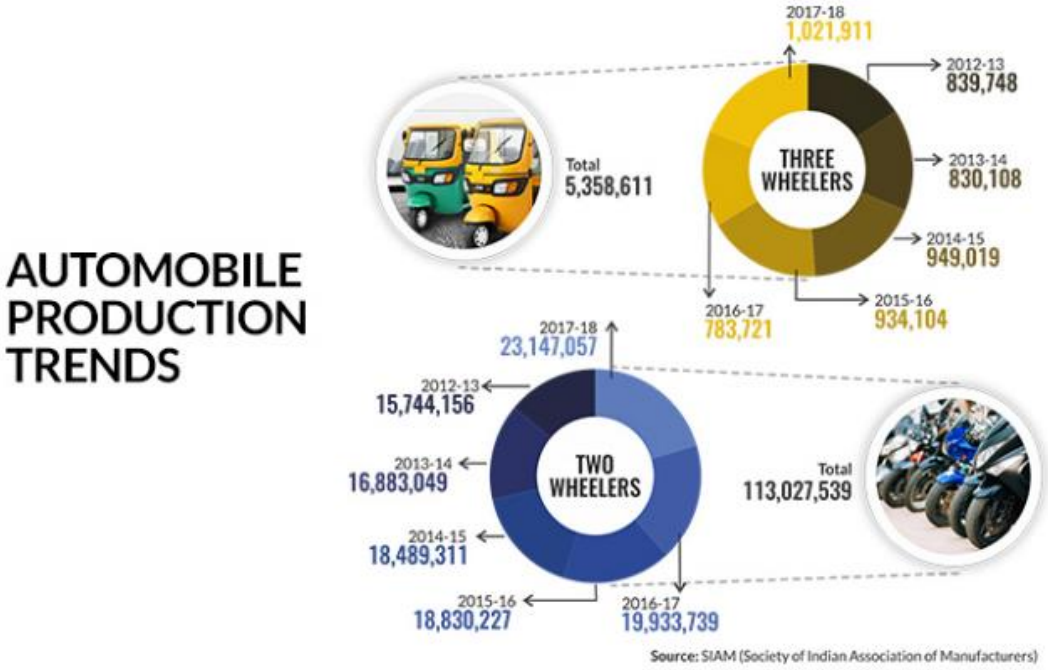


FIG 3 AUTOMOBILE TREND

CHAPTER 5 AUTOMOTIVE LOGISTICS INDUSTRY ANALYISIS

5.1 Analysis Export of Automobile industry of previous year

Beyond manufacturing issues and chip shortages, the industry is confronted with new problems. The majority of automakers are unable to produce enough of their famous brands, resulting in lengthy wait times.

Passenger vehicle sales rebounded quickly in fiscal 2020-21, dropping only 2.24 percent. However, three-wheeler sales fell by 66 percent in the fiscal year to 2.16 lakh units.

Only passenger vehicles and tractors have shown healthy increase in recent months, albeit this could be due to a variety of variables including last year's low base, the shift from BS-IV to BS-VI, and India's entire lockdown.

Given the increased uncertainties and worldwide supply disruptions that interrupt production schedules, industry experts foresee a harder fiscal year in 2022. The once-in-a-lifetime opportunity with no certainty about production timetables. As the worldwide container problem increases by the day, the biggest challenge is to have efficient manufacturing with shortages of numerous products, much beyond chips a top executive who preferred anonymity stated.

Aside from manufacturing issues, the years 2020-21 will be remembered for market share losses. In the absence of new releases and vehicles, industry leader Maruti Suzuki ceded a large portion of its market share to competitors. Despite the Auto Expo in February 2020, 2020 may be the first year in which the corporation fails to unveil any new product or platform.

Maruti Suzuki posted a market share of 47.71% in the last fiscal against 51% in the corresponding previous fiscal. New players like Kia and MG and the traditional rival Tata Motors seem to have entered into its territory.

Companies	**Total Export During Year**	**Comparison with previous year**

Hyundai	1,04,342 Units	(38.57%)
Maruti Suzuki	94,938 Units	(5.34)
Ford	46,064 Units	(64.96%)
Kia	40,440 Units	88.43%
Nissan	32,390 Units	59.25%
Volkswagen	31,089 Units	44.10%

Export Revenue of Vehicles in India

The cumulative exports of passenger vehicles stood at 4.1 lakh units in FY21 as compared to 6.6 lakh units a year ago, falling by 38.92%.

The notable losers in export are Honda Car India, Ford Motor India, Skoda Auto and Mahindra and Mahindra. They let off their ground to the Korean duo Hyundai-Kia and other new entrants.

5.2 FUTURE TRENDS AUTOMOTIVE LOGISTICS

The global automotive logistics market size was valued at USD 141.8 billion in 2019 and is anticipated to grow at a compound annual growth rate (CAGR) of 5.8% from 2020 to 2027. Automotive logistics is referred as warehousing and transportation of finished vehicles and their components and systems in the automotive supply chain. Automotive logistics provide seamless warehousing services and transportation of spare parts, production material, and finished vehicles to ensure a smooth flow of operations. Factors such as the emergence of logistics services, technological advancements, and increasing outsourcing across the globe contribute to the growth of the market. Earlier, automotive logistics was a fragmented activity of transportation and warehousing, which has evolved into integrated logistics management, thereby supporting the market growth over the forecast period.

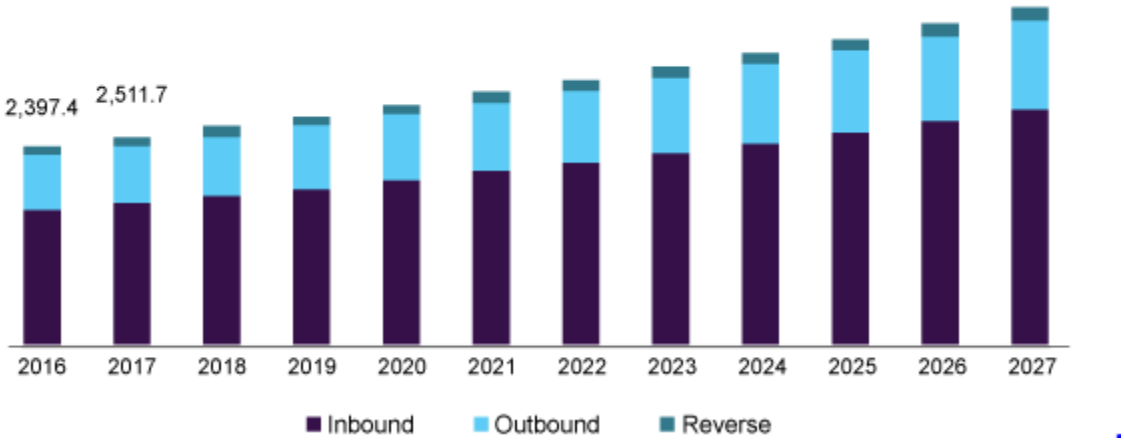


FIG 3Source: Industry Reports

The requirement of an effective customized logistic service as per the automotive industry is emerging as a differentiating factor among logistics service providers, which is also expected to play a crucial role in establishing their competitiveness. Key automotive logistics service providers are also making strategic utilization of technologies, such as Big Data and connected ship, to enhance their supply-chain management processes. These technologies aid in the reduction of labor costs by making use of predictive assessment on routing, thereby eliminating delays in shipments.

The market growth is profoundly dependent on the demand generated for the automobile industry. The automobile industry is expected to witness substantial growth in the future owing to improved standards of living, coupled with rising spending capacity across the globe. This change in lifestyle has led to an increase in automotive sales across emerging economies, which is expected to boost the market growth over the forecast period. Moreover, need for automobile spare parts for massive on the road existing automobile fleet in the aftermarket is expected to drive the market over the forecast period.

Earlier, automobile manufacturers incurred higher cost of inventory owing to the storage of automotive components and systems for long term automobile production. To overcome this challenge, the automobile manufacturers adopted strategies such as Just in time (JIT) and world-class quality, which make automotive logistics an integral part of the production. JIT eliminates the cost related to all sources, unnecessary inventory, and scrap in production. Implementation of

JIT is done with the help of an effective supply chain and an efficient logistics system. Moreover, world-class quality is more focused on the quality of products and services. Implementation of Just in time and world-class quality has significantly boosted automotive logistics demand in recent years and is expected to drive the market over the forecast period.

Activity Insights

The transportation segment dominated the market with a revenue share of 82.2% in the year 2019 and is expected to maintain its lead over the forecast period. Transportation services are one of the critical services in automobile manufacturing. This is because automobile manufacturers source the automobile parts from different companies located across the globe and sell the final finished automobile in another country. Furthermore, production strategies such as just-in-sequence (JIS) and just-in-time present opportunities for logistics service providers.

Warehousing services are expected to exhibit the highest CAGR in terms of revenue over the forecast period. This growth can be attributed to the growing demand for capacity expansion in storage facilities and warehouses. Moreover, increasing demand for automobiles and the need for systematic storage and effortless material handling are anticipated to support the warehouse segment growth by 2027. Furthermore, increasing awareness concerning optimum utilization of spaces throughout supply channels, such as stockyards, storage utilities, and distribution centers, is likely to aid the segment growth.

Distribution Insights

The domestic segment held the largest share of 62.2% in 2019 and is expected to expand at the fastest CAGR over the forecast period. This growth can be attributed to supportive government policies to subsidize manufacturing in countries, such as China, India, and Brazil. The key reason behind implementing this strategy is technology transfer, creation of employment, and contribution to the GDP. Another benefit for the economy was the direct injection of cash and the creation of additional jobs for local suppliers of automotive accessories and spare parts.

Furthermore, shifting preference of automobile manufacturers towards local manufacturing of automobile and automobile parts to minimize operational cost is expected to drive the domestic automotive logistics segment. Moreover, rising logistics cost, inventory cost, and intense

competition have compelled the automobile manufacturers to shift their manufacturing/ assembly plants at a local location. Furthermore, relaxation in import duties and taxes and flexible cost structures of transportation services are fueling the growth of the domestic logistics segment. Moreover, growing logistics activities due to increased consumer demand and huge trucking networks are anticipated to further propel the growth of the segment over the forecast years.

Logistics Solution Insights

The inbound logistics solution segment led the market with a 66.8% share of the global revenue in 2019 and is expected to witness the fastest growth over the forecast period. Increasing emphasis on developing a logistics infrastructure and a public-private partnership model to facilitate ease of transportation from manufacturers to local warehouse is expected to drive the inbound logistics segment by 2027. The inbound logistics include storage, transportation, and dissemination of automobile and spare parts to local warehouses whereas the outbound segment consists of the revenue generated through transportation of automobile and spare parts from the warehouse to end user.

Furthermore, a growing number of government initiatives and increasing investments in the development of roadways transportation networks to enhance freight forwarding have led suppliers to adopt roadways transportation modes. A consistent objective to improve logistics infrastructures and growth in the new road-concession model are boosting the growth of inbound logistics. High cost of transportation through roads owing to road taxes and permits is expected to challenge the growth of inbound logistics through roads. However, the adoption of centralized taxation policy, such as GST in India, is expected to reduce the taxation burden on logistic service providers.

Regional Insights

Asia Pacific captured more than 30.0% share of the total revenue in 2019 and is expected to witness the fastest growth over the forecast period. Economic growth in China and India is strengthening regional market growth. Key factors such as rising e-commerce penetration and economic revival are contributing to the industry growth in India and China. Furthermore, increasing ongoing investments in airways, roadways, railways, and maritime trade across emerging countries, such as China, India, and Japan, are expected to bolster logistics and

warehousing demand over the forecast period. Moreover, the COVID-19 pandemic, which recently spread across Asia Pacific countries, especially China, has profoundly impacted the steady growth of the regional market. However, considering the fact that China is coming close to its recovery phase, it is anticipated the impact of this pandemic on the growth of China's market would be at a lesser rate over the forecast year.

Europe is anticipated to witness slower growth compared to Asia Pacific over the next few years owing to ongoing concerns relating to talent management and labor shortage. However, the sector is expected to be revived on account of substantial investment and tenant demand in the regional automotive logistics industry. Restructuring of supply chain activities and expanding the e-commerce sector is expected to positively impact industry growth over the next few years. However, the COVID-19 pandemic, which recently spread across European countries, especially Italy, U.K., Spain, Germany, is expected to negatively impact the regional market growth.

Key Companies & Market Share Insights

The market is oligopolistic and is dominated by key players. Companies are providing technology-driven services such as real-time tracking of shipments and route optimization. Moreover, key market players are entering into collaborations and engaging in mergers and acquisitions of other automotive logistics companies to capture a greater market share. Furthermore, the market participants are focusing on improving the automation technology to attain a competitive edge among end-users. Some of the prominent players in the global automotive logistics market are:

- BLG LOGISTICS GROUP AG & Co. KG
- CEVA Logistics
- GEFCO
- Hellmann Worldwide Logistics
- Penske Automotive Group, Inc.
- CFR Rinkens
- Expeditors International of Washington, Inc.
- Imperial Logistics
- Kerry Logistics Network

- Nippon Express Co. Ltd.
- Ryder System, Inc.
- Schnellecke group ag & co. Kg

5.3 Recent Trends in Indian automotive logistics

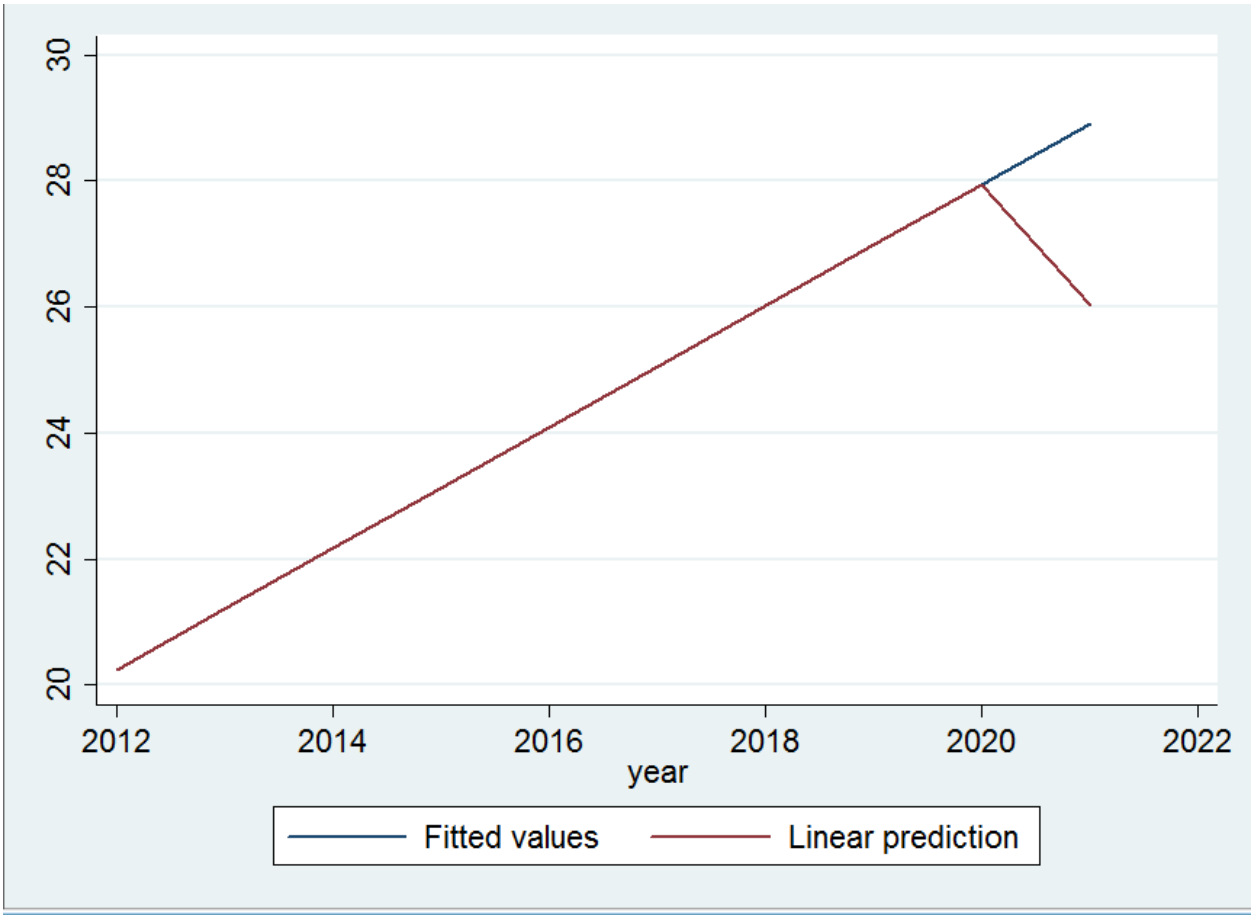


FIG 5

Interpretation:

Supply chain disruptions in the wake of COVID-19 outbreak coupled with weak demand for vehicles in India has upset the logistics of the automotive industry. The survival of the vehicle transport industry depends on the growth of the automotive industry and the industry had started showing a decline long before COVID-19 even reared its head.

THE BS-IV TO BS-VI SHIFT

Earlier this year, the government had set a deadline of March 31 for all automakers to switch from BS-IV to BS-VI emission norms. The notification that was issued, had prescribed that sale and registration of BS-IV vehicles will not be allowed after the March 31 deadline. However, this did not go well for automobile bodies who argued that the lockdown had led to over 15,000 unsold BS-IV commercial vehicles and over 12,000 unsold BS-IV passenger vehicles. The number of unsold BS-IV two wheelers was pegged at over 7 lakh. The India automotive industry has already seen difficult past few quarters due to BS-IV to BS6-VI change revival and this pandemic led lockdown couldn't have been more ill-timed. We are no exceptional and are struggling with low demands, deferred forecast etc. However the OEMs were supportive in releasing all the pending payments on time during lockdown period.

CURBS ON IMPORTS OF CERTAIN PNEUMATIC TYRES

In June, the Directorate General of Foreign Trade (DGFT) issued a notification by imposing curbs on the import policy of certain new pneumatic tires used in motor cars, busses, lorries and motorcycles which was done to promote domestic manufacturing. These curbs would mean an importer would now require a license or permission from the DGFT for imports. Earlier, the imports of these tyres were allowed without any restrictions.

AUTOMOTIVE HUBS IN THE OFFING

There are talks going on about establishing automobile hubs in the northern part of the country. The Indian Railways has been mulling over supporting the sector by providing facility and resources for two proposed automobile logistics hub in the state of Uttar Pradesh. Monica Agnihotri, Divisional Railway Manager, Lucknow Division had expressed the willingness to provide facilities for two proposed automobile logistics hub in Uttar Pradesh under the Lucknow (LJN) division of the Railways. Companies are willing to provide facilities of having proposed auto logistics hub in our division at two locations at Bakshi ka Talab and Barhni,.Comapnies also clarified that in case there is a better focal point than these two locations, then her division would be eager to change the location of the automobile hub. The confluence of the automobile industry and the mode of rail has been untapped in many segments but due to policy interventions and changes, the untapped potential is finally being explored.

FUELLING THE REVIVAL MOMENTUM

With the lockdown opening in the country, the demand for compact small cars mostly by first-time buyers is primary driving the car sales in India in addition to the piled-up demand due to stringent lockdown restrictions in April and May. The need for social distancing has instilled a fear in people, who were earlier dependent on public transport, to buy a car, as top executives at leading automobile companies believe. While urban areas have been more impacted by Covid-19 and the lockdown, industry players say that rural India is witnessing a faster recovery. Manufacturers are expecting the recovery trend to remain strong as the inquiries and booking are rising fast.

Indian automotive industry (including component manufacturing) is expected to reach Rs. 16.16-18.18 trillion (US$ 251.4-282.8 billion) by 2026.

5.4 PESTELE ANALYSIS

1. Political

Here are the Political factors affecting the automotive industry:

a) Safety Regulations

It is exceedingly risky to operate a motor vehicle. Although we like to think of aeroplanes as being dangerous, the truth is that you're much more likely to be involved in a vehicle or motorcycle accident than in a plane crash. As a result, governments all over the world impose stringent safety requirements on the automobile sector. These rules not only govern the manufacture of automobiles, requiring particular build standards such as seatbelts to ensure passenger safety, but they also have an impact on people behind the wheel. This makes it more difficult to start a new business in the automotive industry, while also allowing established brands to preserve their market share.

b) Emissions Policies

Aside from controlling the safety aspect of the automotive industry, politicians also take great interest in the environmental consequences of motor vehicles. Almost all cars, motorcycles, and buses are powered by fossil fuels such as petroleum and diesel, which produce a number of environmental pollutants when burnt. A major concern with motor vehicles is that of carbon emissions, i.e. the amount of carbon dioxide produced by driving a vehicle. As such, governments also have a great interest in the emissions statistics of new and existing vehicles. This, along with other environmental concerns, is yet another regulatory hoop for automotive manufacturers to jump through.

2. Economic

Here are the Economic factors affecting the automotive industry:

a) Increasing the Amount of Money Available for Spending

Individuals all throughout the world are earning more money every year as a general tendency. This means they can spend more money on luxury products like electronics and, of course, automobiles! As a result, it's no wonder that demand for automobiles is slowly but steadily increasing. This is especially true in emerging places, such as several African countries, where recent economic advancements have just recently enabled poorer households to own their own automobile. In the end, this rising demand for automobiles will result in more cars being sold, making the automotive industry even more profitable for its participants.

3. Socio cultural

Here are the Socio cultural factors affecting the automotive industry:

a) Popularity of Driving

From a socio cultural standpoint, there's no denying that driving is becoming more popular. Families all over the world are increasingly purchasing one or more automobiles; in fact, owning one or more automobiles is already the standard in industrialised countries like the United States, Canada, and much of the European Union. Part of this is a cultural phenomenon: it's not like many of us couldn't get by on bicycles or buses, but we choose to drive motor vehicles since it's what's expected of us.

4. **Technological**

Here are the Technological factors affecting the automotive industry:

a. Self-Driving Cars

The advancement of self-driving technology is without a doubt the most significant technological revolution affecting the car industry. With some automakers, such as Tesla, already delivering nearly fully driverless vehicles, a significant shift in how we commute is on the horizon. This isn't inherently a good or negative thing for the automobile industry, but it may imply that traditional car makers will need to adapt their business plan to stay competitive.

b. Improved Safety

Aside from the introduction of self-driving automobiles, another significant technological improvement in the automotive industry is, in general, vehicle safety. Wearing seat belts became mandatory only in the 1980s, and it took until the early 2000s for lower-end automakers to begin incorporating airbags into their cars. Not only are industry standards evolving, but so is the underlying technology. Automobile manufacturers have recently begun to incorporate emergency braking assist systems into their vehicles, greatly reducing the risk of front-end collisions.

5. **Legal**

Here are the Legal factors affecting the automotive industry:

a. Copyright Issues

The issue of copyright, it turns out, also impacts the car business. Copyright, trademark, and patent laws can protect certain aspects of a car, from its branding to its shape. It's not often that you hear of legal battles in the automotive industry, but they do happen. In recent decades, a growing problem has been Chinese automakers shamelessly stealing concepts from their Western competitors. For example, Geely, a Chinese automaker, has produced some curiously similar clones of the Rolls Royce Phantom, causing considerable controversy. It's unknown what impact this copying has on the industry as a whole, but it's undeniable.

6. **Environmental**

Here are the Environmental factors affecting the automotive industry:

a) Carbon Emissions

As touched upon earlier, carbon dioxide is one of the most serious Environmental pollutants generated by the automotive industry. It plays a large role in global climate change, by means of the greenhouse effect. Over the last few years, the issue of carbon emissions has gained global attention. We continue to drive motor vehicles on a daily basis, but it's unclear whether governments will be forced to take greater action to stop global warming — and that might involve a complete ban on production or usage of motor vehicles, or at least a switch towards electric vehicles.

b) Final Thoughts

For many of us, the automobile has become an integral part of our daily lives. We can not only afford to buy and fuel our cars in greater numbers than ever before, but we are also implicitly expected to do so. However, driving has major environmental repercussions, and it appears that we may need to consider switching to electric vehicles in order to rescue our world.

CHAPTER 6: FINDINGS SUGGESTION & CONCLUSION

6.1 Findings:

A. Growth And Structure of Auto Component Industry:

Between 1970 to 1984 cars were considered as luxury products, manufacturing was licensed and suspension was restricted, there was qualitative restriction (QR) on imports , the tariff structure was designed to restrict the market. The market was dominated by few manufacturers .The decade of 1985 to 1995 saw the entry of Maruti Udyog in the passenger car segment and Japanese manufacturer also entered the two wheelers and light commercial vehicle segments. Economic liberalization started in 1991 which led to deli censing of the passenger car segment, between 1995 to 2000 several international players entered the market with advanced technology Advanced technology was introduced to meet competitive pressures and environmental and safety imperatives. After 2000 several changes took place in the industry, qualitative restriction (QR) was removed and there was hundred percent FDI through automatic route . Production of indigenous vehicles started in India, this resulted in the growth of domestic market. The other reasons for the growth of domestic ,market was:

- Easy financial facilities available
- Easy credit available

b. Turnover:

The auto component industry has shown a good turnover. The compounded annual growth rate in 2002-03 was $ 5.4 billion which reached to $18 billion in 2007-08. The potential compounded Annual Growth rate is estimated to be around 10.5% by the year 2015 and is estimated to be $ 40 billion by 2015-16.

c. Key interventions undertaken by the government under this plan have been in areas of tariff policy, infrastructure (improved and expanded road network, development of auto wagon rakes, creation of few specialized ports in the private sector), R&D (setting up of NATRiP, upgradation of existing centers), and promotion of electric and hybrid vehicles. Currently, the automobile manufacturing policy in India is being governed by the Automotive Mission Plan 2016-2026 (AMP 26), which lays down the achievements and targets of the industry by 2026.

6.2 Suggestions:

- Poor road infrastructure and traffic congestion can be a bottleneck in the growth of vehicle industry. A balanced and coordinated approach should be undertaken for proper maintenance, upgradation and development of roads by encouraging private sector participation besides public investment and incorporating latest technologies and management practices to take care of increase in vehicular traffic.
- In India, adequate steps are still required to be taken in environmental compliance in vehicle manufacturing. Significant amount of resources are required as investment to undertake R&D programs to address these environmental challenges which may be procure through FDI by presenting a projected sales plan before foreign investors.
- Government should initiate subsidies for logistics of automobile industry becauseThe cost to transport parts within the country is high due to high cost of fuel, and poor turn around of vehicles. The cost of export can be around 5 to 25% depending on the commodity. Ports in India are inefficient and ship turn around times is higher than international standards. A furnished product takes additional week to leave the Indian shores due to various documentation and other port formalities. A container load may cost 3000 US$ to USA. It is inefficient for individual suppliers to export small container loads. The uncertainties in logistics prevent Indian companies to supply just in time. In order to make up for the environmental inefficiencies, warehousing has to be organized which can cost 3 to 4% depending on the countries.

6.3 Conclusion

The automobile industry has in many ways been shaped by the Indian Government's policy and nurtured in the microeconomic environment it helped create. Apart from the direct impact through fiscal policy instruments, the industry policy even influenced firm-level learning processes and shaped technological capability accumulation. While the challenges and gaps are numerous, our study suggests that companies can make strategic and operational investments in processes and technologies that would enable them to drive continuous improvement across their logistics activities. In the near future, demand for infrastructure coupled with the need to optimize costs on a continuous basis together with elimination of risks would drive consolidation of the industry. This would also force organizations to come up with innovative models of infrastructure planning.

First, manufacturers need to focus on a collaborative approach to logistics strategy and planning involving the LSPs. Indeed, our analysis indicates a strong relationship between the level of implementation of processes—such as cost reduction and inventory planning & replenishment—with the benefits achieved from the implementation. Since the automotive industry is well known for its collaboration across the supply chain, we do not anticipate major challenges in this area.
Second, while manufacturers have historically looked at transportation costs as merely the price paid to LSPs, organizations need to move towards "value delivered". Organizations need to look at all components of cost, including cost of acquisition, transportation and logistics costs, duties and taxes, inventory carrying costs, overhead and administration, and risk and compliance costs.
Third, as India moves towards a USD 120 bn automotive industry by 2016 (IBEF), players need to focus and prioritize their technological investments. From a LSP perspective, technology implementation has become essential and players should look at better management of resources through information systems.

Finally, as LSPs collaborate, they need to align with the business requirements of OEMs/component manufacturers and take advantage of the growth opportunities in areas like service parts business where the manufacturers are planning to improve the level of collaboration with LSPs. For example, one of the world's leading manufacturers of construction and mining equipment, diesel and natural gas engines and industrial gas turbines has extended its internal excellence in service parts management and logistics to external customers through the creation of a logistics subsidiary, thereby building a global growth business and capturing a much larger share of the available market for those types of business services. Since its inception, the organization has achieved remarkable success. Today, it operates in over 100 locations across 25 countries managing more than 18 million stock-keeping units (SKUs). The organization believes that massive opportunities remain for creative third-party logistics providers in the $170- billion industry.

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