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GROWTH OF AI IN AUTOMOTIVE INDUSTRY AND MANUFACTURING TRENDS

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ABSTRACT

In the automobile industry and the functions of artificial intelligence. During the process of manufacturing, a functional system and sensor-related work can be done with the help of artificial intelligence, which helps monitor the function of the vehicles. And the growth of EV vehicles through the support of AI. Nowadays, it plays an important role in the automobile industry and helps the R&D department to research new products and new developments in the automobile industry. It largely encourages automatic vehicles and expands its sales in the domestic market.

KEYWORDS— *artificial intelligence, sensor-related work, automatic vehicles, automobile industry, domestic market*

INTRODUCTION

In many organisations, the R&D department is crucial. It seeks to innovate and improve products, services and new product development processes. In this sector, we first take market research or product development research. This research report helps manufacture products with the help of advanced technology. This type of research is aimed at gaining a deeper understanding of the market of products and theories. It is often exploratory and not immediately focused on practical applications of the new product development process. Now, artificial intelligence has become an online research tool with the help of artificial intelligence, knowing the market strategies and demand for the new product. Artificial intelligence now reduces the workload of the R&D department because all the reviews and feedback are available with the help of artificial intelligence. It helps the R&D department develop products using scientific technologies and updated automatic versions of the products. AI improves the growth of automatic-based products and services, which are increasingly available 24*7. It offers the service anytime and anywhere, so it will be easily accessible to everyone. Nowadays, AI generates a systematic approach to providing machine-based services to customers. This type of technology accelerates the R&D and new product development department to complete the work more easily and stands for achieving more and more. AI supports the R&D department in developing products or services that satisfy customers' needs today. It can reduce the work pressure on employees in the R&D and new process development sectors. In automatic and system-oriented products or services, any complaints found can be easily sorted out by using artificial intelligence. Many organisations can use artificial intelligence to develop their products and services, manufacture quality products to satisfy customer needs, and supply products worldwide.

Growth of AI in Automotive Industry

- AI plays a crucial role in the automobile and manufacturing industries. It improves the systematically advanced technologies in the automobile sector.
- It can reduce the workforce of the production department, and all the working functions are performed using AI and automatic force.
- Once functions are programmed with AI help, all of their tasks will be monitored and managed by AI. It does not need any personal intervention in the production process.

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source: Roots Cast Customers

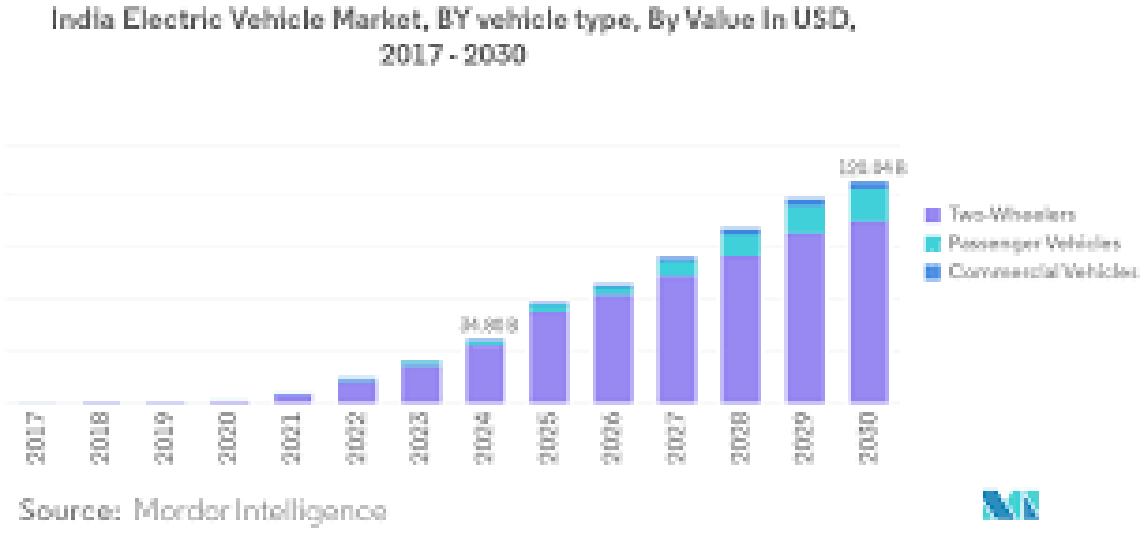
- AI is one of the tools. It approaches a function through systematic monitoring of the production process. If a malfunction occurs, the production process will be stopped.
- Many functions of an organization's R&D department will be carried out with AI support.

Manufacturing Trends in Automotive Sector

India is one of the world's main hubs for the automotive industry. It has a large workforce and good facilities for its sector in India. All types of vehicle parts and spares are manufactured and exported from India to other countries. Industry can be divided into,

- Automotive industry
- auto-component industry

India manufactures many types of commercial and passenger vehicles, as well as their parts, spares, and components. It is the fourth-largest automobile market in the world. Nowadays, electronic-based cars are being introduced, and their demand is expanding domestically and globally. In FY 2023, the Indian EV market is expected to grow at a CAGR of 36% until 2026. EV vehicles are focused on the battery market, which is forecast to expand at a CAGR of 30% during the period.



This chart represents the growth of electricity vehicles in the Indian market by category and also forecasts the future growth of EV vehicles. This type of vehicle is used in cargo, hospitality and passenger vehicles. EV vehicles are an alternative to the traditional culture and are welcomed by customers nowadays.

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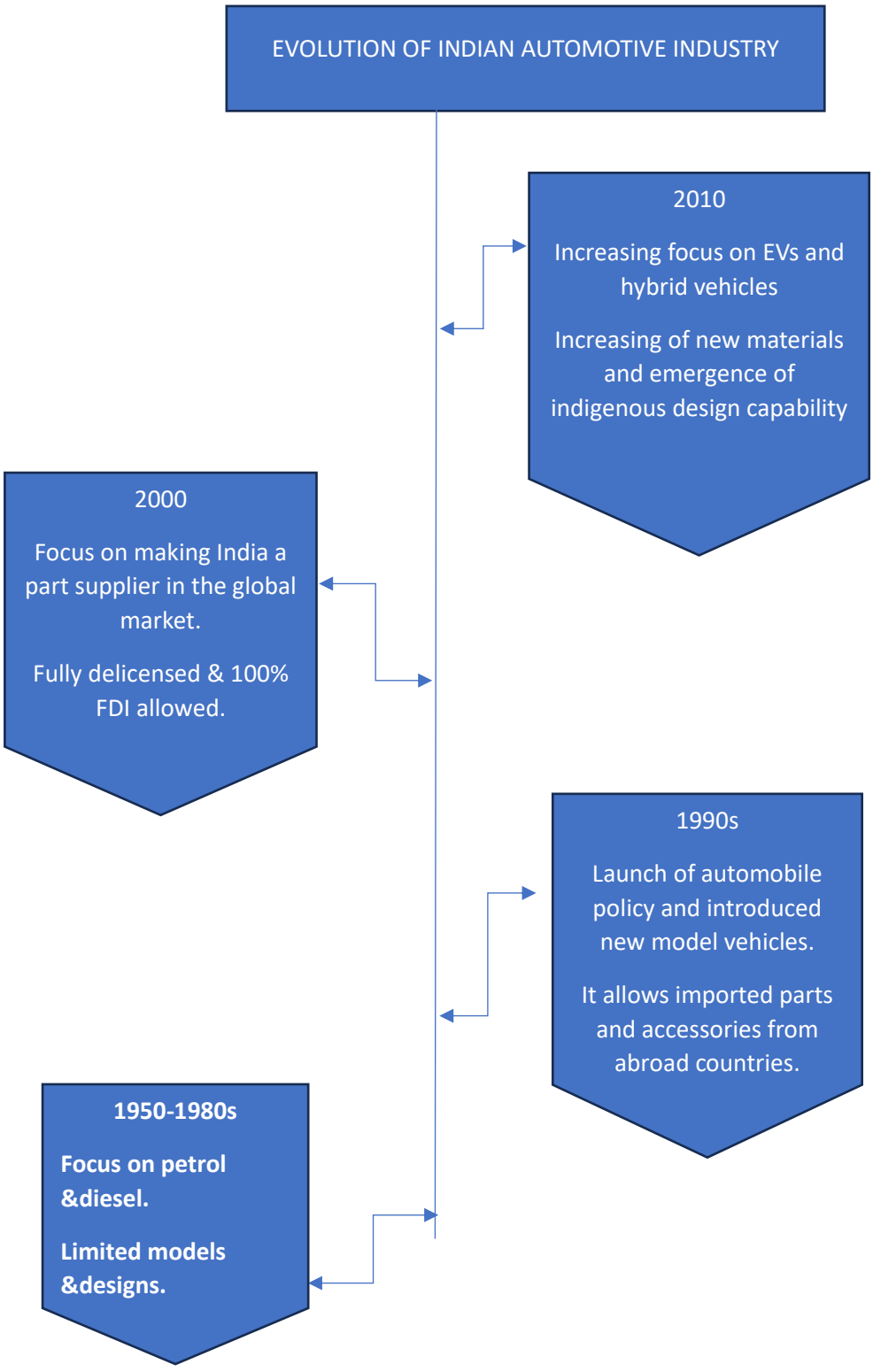
History of Automobile Industry in India



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CONCLUSION

AI has become an important ingredient in the making of cars and is rapidly changing how many things are done in the automotive world. AI has been adopted at every step of production, from design and prototyping to assembly and testing. In automobile applications, one of the core trends in utilizing AI is automation. In manufacturing plants, we see the use of AI-powered robots that require less human involvement yet have made things faster and more efficient. They are able to repeat tasks with more precision and speed than human beings, causing fewer errors and greater-quality products. A final trend is the application of AI to design and prototyping. Automakers can use AI algorithms and simulations to create cars and test them virtually, thus saving the time and money that would be spent on physical prototypes. It not only makes designing faster but also enables the creation of designs that are more complex and advanced. The AI technology also improves vehicle safety. AI in advanced driver assistance systems (ADAS) analyzes the data collected from various sensors and cameras, delivering results in different seconds to prevent accidents. Thanks to these developments, autonomous vehicles will be a permanent fixture on our streets that are more secure and suitable for motorists. In manufacturing, AI is also applied to predictive maintenance and quality control. It can analyze data from the sensors and predict potential malfunctions to avoid downtime and ensure that your production line is creating high-quality products.

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