Ingenious e-Brain

Nurturing Innovations - Fostering Business

IEBS Industry Outlook

Automotive Sector

December 31, 2020

Mega Trends in Automotive Sector

In today's times, where economies are evolving, especially in the emerging markets, the technologies are rapidly changing along with sustainable policies and changing consumer preferences. Digitalization has played a vital role in transforming several industries, and the automotive sector is no exception. Some of the automotive industry's critical megatrends are autonomous vehicles, connected vehicles, electrification in cars, and shared mobility. These trends transform the face of the automotive sector.

Autonomous vehicles

Autonomous vehicles seem remarkably futuristic. It reinvents the concept of driving and personal transportation of **people and goods. Companies like Ford, Mercedes, Audi, Volkswagen, Toyota, General Motors, Tesla, and Google** have already reiterated that **driverless cars** are the automotive sector's future, which holds great growth potential.

Connectivity

Automakers, software developers, and technology providers together are going for a radical transformation in the automotive sector—refining and redefining existing technologies through AI. Connected cars provide an exceptional driving experience. Vehicle to Vehicle (V2V) technology allows vehicles on roads to talk to each other by sharing data on speed, road conditions, and other factors through an Adhoc network.

Electrification in vehicles

Shifting focus towards **reducing carbon emission** from the environment leads to advancement in the electric vehicle. Key players are making a substantial investment in developing and improving electric vehicle production.

The government supports players and customers by providing incentives to promote the segment and cause a substantial shift towards the electric vehicle to benefit the environment.

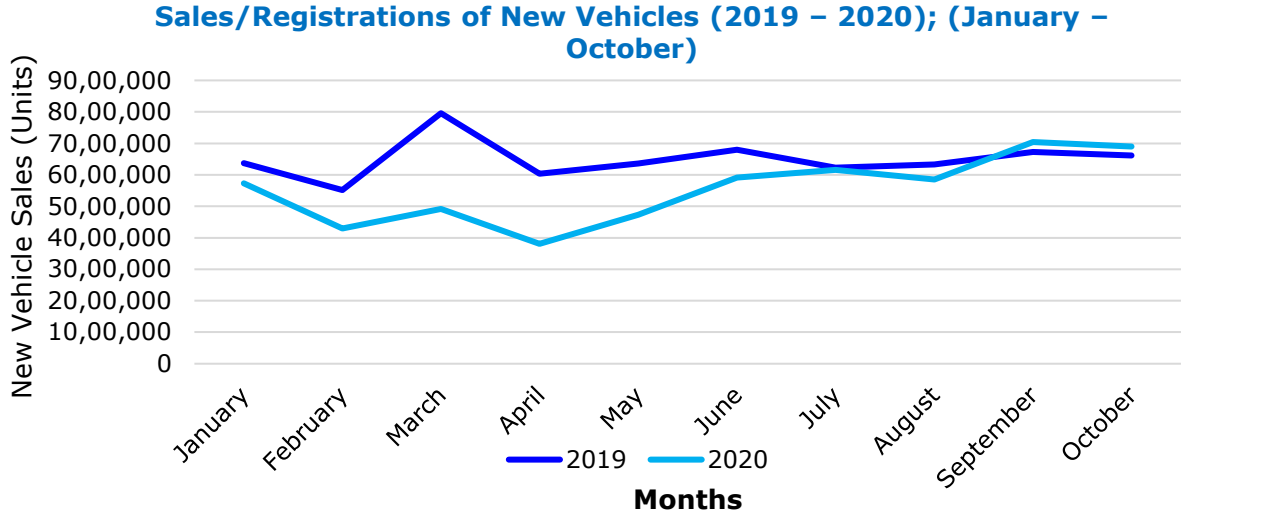
Shared Mobility

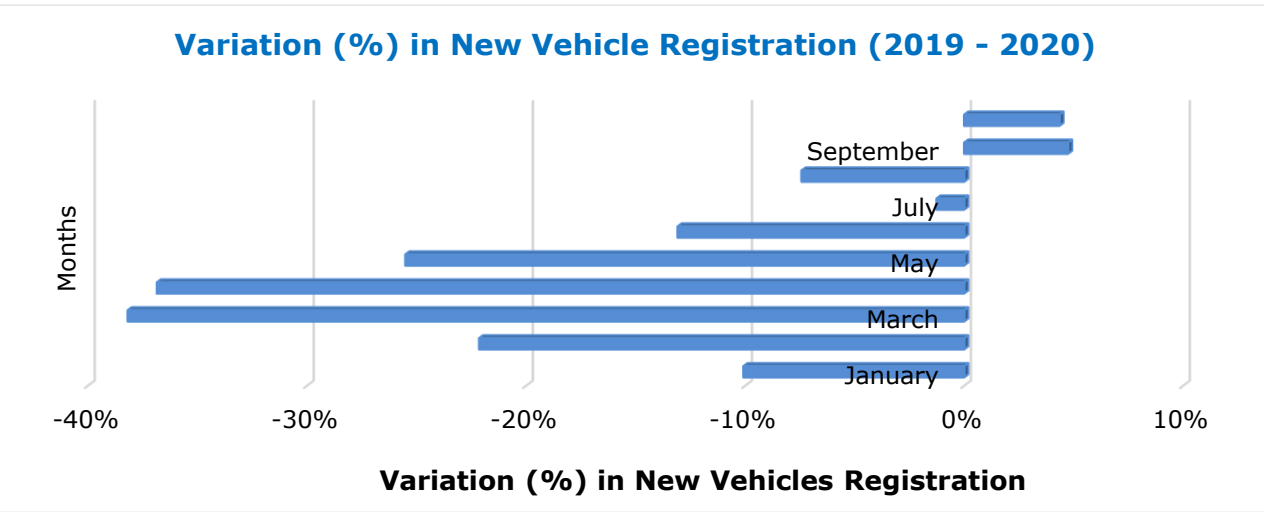
For several years, many big cities have offered **car-sharing facilities.** While these are currently often run as pilot projects or citizen initiatives, the concept of sharing is more **viable economically** with the introduction of autonomous vehicles. An individual will be able to order a car wherever required via a **convenient on-demand service.**

Key Highlights on Automotive Sector's Performance in 2020

Variation in New Vehicles Sales Registration (2019 – 2020)

Months	2019	2020	Variation
January	6,374,305	5,731,761	**-10%**
February	5,520,649	4,298,046	**-22%**
March	7,961,305	4,921,177	**-38%**
April	6,031,617	3,808,836	**-37%**
May	6,357,032	4,735,129	**-26%**
June	6,801,494	5,911,298	**-13%**
July	6,233,154	6,154,438	**-1%**
August	6,327,806	5,857,496	**-7%**
September	6,728,062	7,047,391	**5%**
October	6,616,547	6,904,735	**4%**
Total	**51,607,362**	**41,418,181**	**-20%**





Emerging Areas or Opportunities in the Automotive Sector

Emerging Areas to Leverage Opportunities in the Automotive Sector

Shift from Conventional Fuel to Green fuel

- Implication of **stringent regulations** towards reducing carbon emission from the transportation sector has led to the **development of green fuel technologies** to generate environment-friendly fuel, which will **minimize the pollution** in the environment.
- Key players in the automotive sector are also making **architectural changes** to adopt **green energies** in the future.
- However, **renewable diesel's most significant benefit** is that it can **directly replace traditional diesel** in **standard diesel engines.**
- Further, **hydrogen fuel cell vehicles** have **a better range** over other electric options.

Shift towards Electric Vehicles to Reduce Emissions

- **Government** supports the **automakers** and the **customers** in the commercial vehicle segment by providing **incentives** to promote the element and cause a substantial shift from the **conventional vehicle segment** to **an electric vehicle** to benefit the environment.
- For instance, the **federal government** offers a **tax credit** of up to **USD 7,500 to its customers.**

Development of Autonomous Vehicles

- Developing a driverless car has been a shared dream for Google, Apple, Tesla, Uber, and Lyft.
- For Uber and Lyft, autonomous car development is a means of cutting costs. Saving money isn't the only benefit offered by autonomous vehicles.
- New Trends are introduced, such as Autonomous Trucking, Industry News/Regulations, Driver Assistance Systems, Safety Systems.
- **For instance,** Knorr-Bremse announced a new two-piston disc brake – **SYNACT®** – designed to handle the higher **steer-axle loads and torque** that European trucks tend to face due to the prominence of cab-over-engine designs.

Policy Updates in The Automotive Sector

Key Policy Updates in the U.S. and Europe in Automotive Sector

Europe: EU Battery Alliance Europe Green Deal

- The **Europe Battery Alliance** is a strategic imperative for **clean energy transition** with an aim is to build up battery technology and production capacity in the EU, which is vital for **low-emission mobility, energy storage, and Europe's economic strategy**.
- EU aims to match the demand with the alliance attracting 100 million Euros investment by 2025.
- **Europe Green Deal:**
- Europe plans to reach **climate neutrality** by **2050**,
- **Reduce transport emission** by **90%** in **2050**
- Support companies to become world leaders in clean products and technologies.

U.S. Electrification Targets

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Europe: CO_2 Emission Performance Standards

- The **European Parliament** and the **Council** Adopted a *new CO2 emission standard* for new passenger cars and vans in the EU, which got functional in 2020 to achieve climate neutrality in the EU by 2050 and at least 55% net reduction in GHG by 2030.
- **Regulation (EU) 2019/631** sets new EU fleet-wide **CO2 emission targets** for 2025 and 2030 for **newly registered passenger cars** and freshly written **vans**.
- Cars: **15%** reduction from **2025** on and **37.5%** reduction from **2030** on
- Vans: **15%** reduction from **2025** onwards and **a 31%** reduction from **2030** on

Major Technology Innovations in The Automotive Sector

Key Technology Innovations in the Automotive Sector

Autonomous Vehicle

A U.S. based startup "**Udelv"** provides autonomous vehicles for last-mile deliveries. It involves an AI algorithm and hyper speed teleoperations to assist humans in unique situations. These vans deliver groceries from nearby stores and send a notification when it arrives.

Connectivity

An **Israel** startup "**NoTraffic"** has developed an AI-powered traffic signal platform that digitalizes road infrastructure management and connects drivers to the roads to manage traffic-related challenges.

Electrification

A German-based startup named "ChargeX" provides EV charging solutions that convert parking spaces into charging stations. The platform called Aqueduct identifies the requirement of power of every car and controls its charging speed.

Shared Mobility

A Singapore based startup "**Beam**" focusses on **e-scooters** to promote **shared mobility** in the Asia Pacific region. The users discover the nearest Beam scooter on the app and park it in visible public spots after the ride.

Block Chain

A British based start-up Cube Intelligence develops a blockchain-based security platform for autonomous vehicles. It uses hash codes and block the attacks or attempts of hacking on autonomous cars and connected cars.

Human Machine Interface

A German based startup "Apostera" offers an advanced driver assistance system (ADAS). It combines Augmented Reality (AR), smart camera and surround view monitoring on turns, slopes and curves and junctions. It aids the driver to be in lane, prevent collision.

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