

X-by-wire System - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

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Report description:

The X-by-wire System Market size is estimated at USD 1.07 billion in 2025, and is expected to reach USD 4.33 billion by 2030, at a CAGR of 32.25% during the forecast period (2025-2030).

During the lockdowns, the COVID-19 pandemic compelled about 95% of all automotive-related companies to put their workforces on hold. Globally, the repercussions of the lockdown have been immense and unprecedented due to the halt of manufacturing activities. However, the market started to regain momentum in 2021 as economic activities resumed and vehicle production increased globally.

Over the long term, the emergence of advanced driver assistance systems and the increasing levels of vehicle automation is expected to increase the demand for automotive x-by-wire systems. However, currently, these systems have low penetration rates in the automotive market. The focus of automobile manufacturers on increasing fuel efficiency and reducing the emission level of the vehicle is likely to boost the x-by-wire system market in the future.

Increased integration of vehicular systems in vehicles is also expected to boost the market, coupled with an increase in vehicle electrification in the automotive sector. Increased use of advanced features in vehicles, such as self-driving, cruise control, automatic transmission, lane departure warning systems, and other monitoring systems, is also anticipated to boost the demand for x-by-wire systems in terms of throttle, suspension, braking, and gear shift in the automotive market.

X-by-wire systems are well-established and widely used in Europe and North America. The usage of these systems is also increasing rapidly in Asia-Pacific due to increased consumer spending power, demand for improved safety measures, and the requirement for increased vehicle fuel economy.

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China, Germany, the United States, and Japan are major markets for these by-wire systems. Developing countries, such as Mexico, are projected to witness a rapid demand for these technologies from automotive manufacturers, as seen by the increased manufacturing of x-by-wire systems.

X-by-wire Systems Market Trends

Throttle-by-wire System is Expected to Dominate the Market During the Forecast Period

The adoption rate of electric vehicles is increasing globally. With growing awareness about the ADAS features, key manufacturers that operated only in high-end luxury cars are now entering the entry-level models market to attract customers. Such instances are expected to boost the requirements for throttle-by-wire systems in vehicles.

Throttle-by-wire is gaining popularity due to several benefits over traditional mechanical systems, such as eliminating binding problems in mechanical linkages, improving fuel economy, deploying a modular system, and allowing the ECU to integrate torque management with cruise, traction control, and stability control.

Many automakers, including Audi, Continental, Ford, and Bosch, are focusing on commercializing the autonomous car idea where throttle-by-wire systems play a crucial role in controlling electric motors by sensing the accelerator pedal input and sending commands to the power inverter modules.

In November 2021, China's Great Wall Motors unveiled its intelligent chassis-by-wire based on Smart Coffee System 2.0 based on GEEP 4.0, a completely new electronic and electrical architecture where five core chassis systems related steer-by-wire, brake-by-wire, shift-by-wire, throttle-by-wire, and suspension-by-wire are integrated. It controls automotive motions in the principle of six degrees of freedom.

In line with the growth in autonomous cars and technological developments, governments are also taking necessary steps to maintain the demand in the market. For instance,

From 2020 onward, all newly manufactured cars in the United States should be installed with an automatic braking system, a lane departure warning system, and a parking assistance system. This factor is expected to fuel the market for throttle-by-wire systems.

Based on such developments, the throttle-by-wire segment of the market is expected to witness decent growth over the forecast period.

North America Likely to Play a Significant Role in Market Development

North America is anticipated to hold the largest market share during the forecast period. The rising demand for electric vehicles, especially advanced self-driving cars, is anticipated to boost the market's growth over the forecast period. The market for x-by-wire systems in North America is already well-established, with a high penetration rate.

Several companies are also adopting partnerships, collaborations, and other strategies to stabilize their position in the market.

- In March 2021, Motional announced its plans to use the all-electric Hyundai IONIQ 5 as the vehicle platform for its next-generation Robo taxi. Through its partnership, the company could allow consumers in select markets to book a Motional

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Robo taxi through the Lyft app starting in 2023. Motional's IONIQ 5 would be equipped with Level 4 autonomous driving capabilities, thus creating opportunities for steer-by-wire systems.

- In June 2021, Toyota Mobility Foundation (TMF), Energy Systems Network (ESN), and the Indiana Economic Development Corporation (IEDC) partnered with May Mobility to launch a free autonomous shuttle service in Central Indiana. Autonomous vehicles are expected to create demand for the x-by-wire system in the future.

Such factors are likely to boost the demand for x-by-wire systems in North America. The use of x-by-wire systems is also growing significantly in the Asian-Pacific region due to increased consumer purchasing power, preference for better safety measures, and the need for higher fuel efficiency in the vehicle.

X-by-wire Systems Industry Overview

The market is fairly consolidated, with the key major players, such as Robert Bosch GmbH and Continental AG, holding the majority share in the market. While some key players focus on expanding their presence by acquiring other market participants, forming strategic alliances with other players in the market, and launching new and advanced x-by-wire systems, others are developing various growth strategies to gain a competitive edge over other players.

- In October 2020, ZF launched a new next-generation AKC active rear-axle steering system for mass production. This system could offer a rear steering angle of 10 degrees, and the steer-by-wire technology offers agility for longer electric vehicles.
- In April 2020, Infineon Technologies AG announced the acquisition of Cypress Semiconductor Corporation. With this acquisition, the company could aim to offer a comprehensive portfolio for linking real mechanical parts with the digital world, making way for x-by-wire systems.

Some of the key players in the market are Robert Bosch GmbH, ZF, JTEKT Corp., Infineon Technologies, and Continental AG.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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