

X-by-Wire Systems Market by Geography, by System Type (Shift-by-wire, Throttle-by-wire, Active Suspension (Suspension-by-Wire), Electronic Park Brake (Park-by-Wire), Fly-by-wire & Other-by-wire technologies), by Vehicle Type (Passenger & Commercial) - Global Market Trends & Forecast to 2014 to 2019

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Abstracts

Since the inception of the automobiles in the year 1886 by Karl Benz, vehicle operations have taken a big leap as the carriage used in the first car was a horse buggy. Steam engines were used in earlier times in order to power the automobiles which were later replaced by internal combustion engine. The turning point for the automobile industry was the introduction of line production by Henry ford, during which the single or two cylinder engines were replaced by four cylinder engines. The car industry saw another big change which came in during the start of the 20th century, when the four wheel brakes, independent suspension, electric ignition systems and other similar highly advanced technology for the period were launched. All these mechanical technologies were overtaken by new and automatic technologies by the end of 20th century like the fuel injection, power steering, all-wheel drive, safety equipments, electronic braking systems, adoption of diesel as a primary fuel for passenger cars, and many others.

With the introduction of new powertrain technologies in the past few decades like turbocharging, fuel injection and others have helped the automobile industry to cope with the stringent fuel efficiency as well as emission norms. Modern vehicles have turned from being completely mechanical to electro-mechanical with reduced human element required to control the vehicle dynamics. The X-by-Wire technologies use electronic components and electrical signals to replace the mechanical components and

linkages. The major X-by-Wire technologies in the modern day are Shift-by-Wire, Throttle-by-Wire, Park-by-Wire (electronic park brake), and Suspension-by-Wire; while Brake-by-Wire (electro-mechanical brake) and Steer-by-Wire are two technologies that are estimated to come up in the market over the course of next 5 to 10 years.

The main functionality of X-by-Wire is completely opposite of that which is used in the drive-by-cable technology. The functioning of the major applications such as steering, braking and throttle are all done using the electrical emulators, actuators and different sensors which gives the signals to the electronic control unit, which further signals the components to perform the function that needs to be performed. The major benefit of the by-Wire technologies is that it not only reduces the overall curb weight of the vehicle but also increases the fuel efficiency by as much as 4%. These technologies also add more precision along with reduced emission levels. All this is achieved as the moving parts in a vehicle are replaced by electronic components which eliminate the wear and tear of mechanical parts and in turn increase the service interval of a vehicle. Apart from these benefits, one of the major drawbacks that these systems have is the reliability issues where these technologies have seen several OEMs issue recalls to correct or to remove these systems from vehicles.

A brief introduction of the different X-by-Wire technologies is as follows—in Shift-by-Wire, the shifting of gear is done by an electronic emulator fixed under the gear lever which in turn is connected to the electronic control unit which signals the transmission to change the gear; in Park-by-Wire, an electronic park brake is used which with a press of a button applies the brakes on the back wheels which was traditionally done using a cable; Throttle-by-Wire uses sensors like throttle pedal position sensor which adjusts the throttle valve once the throttle pedal is pressed by the user using the signals by ECU; and in Suspension-by-Wire, the suspensions of a vehicle automatically adjusts itself depending on the road surface; in Brake-by-Wire, a sensor placed on the brake pedals sends a input signals to the electronic control unit which decides the brake force to be applied on the brakes instead of a traditional brake linkage; and in Steer-by-Wire, the steering is determined using the steering angle sensor and electric motors which are placed on the front axle of the vehicle.

SCOPE OF THE REPORT

The report covers the automotive X-by-Wire systems market in terms of volume. Market size in terms of volume is provided from 2012 to 2019 in thousand units. The automotive X-by-Wire systems market is broadly classified by geography and vehicle type (North America, Europe, and Asia-Oceania), focusing on key countries in each

region. Also the market is given in terms of different by-Wire technologies like Shift-by-Wire, Park-by-Wire (Electronic Park Brake), Suspension-by-Wire (Active Suspension) and Throttle-by-Wire.

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