AV TECHNOLOGY: WHERE ARE WE NOW?

An overview created by Walker Consultants

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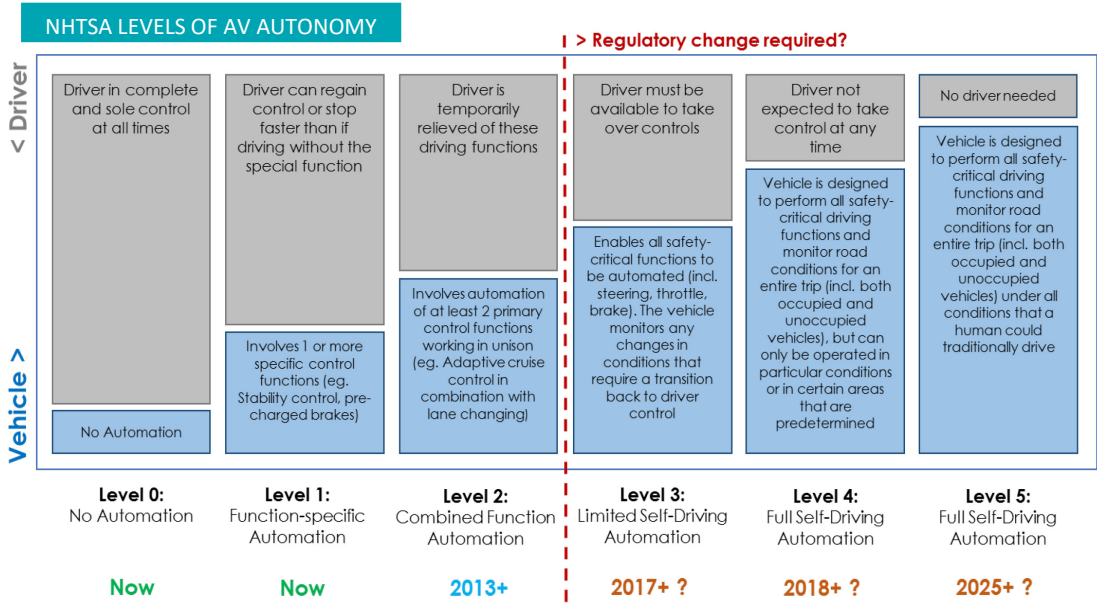
https://images.askmen.com/1080x540/2016/01/08-063228-ces_2016_car_trends_technology.jpg

SUMMARY

The emergence of autonomous vehicles (AVs) has accelerated recently, perhaps due to increased expectations and investments in this technology. Fully autonomous vehicles are currently in the testing phase, but most industry experts believe these vehicles will eventually be available to consumers. Combined with other tangential developments including potential increased growth in electric vehicles; ride hailing services, e.g., Uber and Lyft; subscription-based, flat-fee ride hailing services in lieu of car ownership; and ride-sharing; autonomous vehicles can be expected to complicate the transportation and parking planning landscape.

Image Source: Engineering.com,
http://www.engineering.com/DesignerEdge/DesignerEdgeArticles/ArticleID/12665/The-Road-to-Driverless-Cars-1925--2025.aspx



LEVELS OF AUTONOMY

With the increased research and development in the field of autonomous vehicles and the varying levels of autonomy, the Society of Automotive Engineers, a professional association founded in 1905 by Henry Ford and others, and globally recognized for providing design standards for automobiles and other commercial vehicles, categorized six levels of automation, which have subsequently been adopted by the National Highway Traffic Safety Administration (NHTSA).[1] The above graphic presents these levels beginning at Level 0, with no automation and the driver in complete control of the vehicle, to Level 5, with no driver necessary. Levels 2 through 3, are semi-autonomous vehicles whereas Levels 4 and 5 and fully autonomous.

AV PRODUCT DEVELOPMENT AND TESTING

AV development and progress is occurring rapidly. Audi has announced that it is looking to release a vehicle with fully-autonomous technology by 2021.[2] Furthermore, Google's Waymo currently has more than 100 Level 3 autonomous minivans in Phoenix, as an experimental busing service available to the public.[3]

Companies testing AVs are required by the state of California to log driving and the frequency that human driver intervention is needed. When a human must take over an AV, it is known as a "disengagement". Waymo, Google's AV company, logged by far the most miles in 2016: 636,000 miles of AV driving, with a disengagement just once every 5,130 miles, which was a 19% drop from 2015.[4] A report of Uber's logged miles during one week in 2017 revealed that 20,354 AV miles were logged, but had disengagements more than once per mile. Uber's miles logged were up from 5,000 miles during one week in 2016.[5] GM's Cruise technology logged only five miles in June 2015, but logged 400 miles in June 2016 and was able to go hundreds of miles without a disengagement. Almost all of Tesla's test-driving comes from consumers on the road, the amount of which does not legally have to be disclosed. Nissan's AVs logged a disengagement once every 247 miles, compared to once every 14 miles in 2015.[4]

CONCLUSION

It is easy to see the large investments and research devoted to autonomous vehicles. The range in levels of AVs are a way for producers and consumers alike to understand the benchmark of what it takes to move the technology forward. Recognizing the history behind AVs, and the years of envisioning them, helps us to appreciate what is currently available in mass production. Although Level 5 AVs are not yet in production, the speed at which the technology is being improved to allow for this, is snowballing. We will likely see Level 5 AVs available for purchase, but, ultimately, no one can know if and when they will saturate the market, or to what extent they will change the way people travel.

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ABOUT THE AUTHOR

Walker Consultants is the global leader in providing parking consulting and parking design services. Founded in 1965, we pioneered the field of parking consulting. Today the firm has over 300 employees delivering a wide range of parking planning, design, engineering, and restoration services.

The firm is based in the U.S. with 17 domestic offices and 1 in the United Arab Emirates, is ranked #240 in Engineering News Record's Top 500 Design Firms and #13 in Building Design + Construction's Giants 300 Engineering/Architecture Firms.

We serve a broad spectrum of markets including healthcare, education, government, aviation, residential, retail and commercial development, entertainment, hospitality and athletic venues. This diversity allows our staff the luxury of collaborating with a large cross section of client types and developing best practices for their specific development needs, helping them unlock the potential of their projects.