



IHS Markit™

Navigating change:

Technology megatrends in the connected-car age



INTRODUCTION by Egil Juliussen

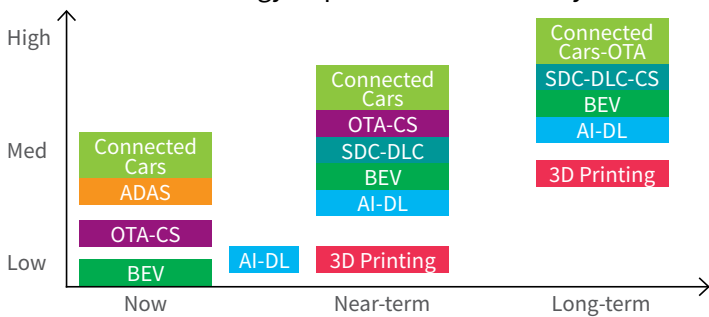
Evolutionary and revolutionary technologies continue to affect the automotive industry. Connected cars have made a major impact, but an “always connected” environment is still forming, with existing uses and important new applications entering the market at every turn. Battery electric vehicles (BEVs) compose just a fraction of the industry today but are destined to have a major effect in the next decade as battery prices decline and these vehicles become more competitive versus combustion engine vehicles. BEVs also have allowed start-up companies to enter the auto industry without mastering combustion engine technology, and more are on the way—especially in China or with Chinese investment.

Autonomous driving has evolved as tremendous technology advances have entered the market, both from large venture capital firms and veteran auto industry suppliers and manufacturers. Future deployment of driverless vehicle fleets will have a dramatic influence on the transportation industry, including mobility as a service and how this will impact personal mobility needs. Both start-ups and auto companies are preparing for these major changes and what they will mean for the industry.

CONNECTED CAR by Colin Bird

Today’s consumers demand their infotainment system have connected features, such as turn-by-turn navigation, Wi-Fi, telematics services, and more. IHS Markit estimates about 40% of all vehicles sold in 2017 will be connected by an embedded telematics system. It is estimated 121 million vehicles globally are equipped with a cellular connection today, a number that will continue to increase in the coming years. By 2022, IHS Markit forecasts nearly a third of the existing global car fleet will be connected through telematics.

Technology Impact on Auto Industry



AI = Artificial Intelligence | DL = Deep Learning | BEV = Battery EV | CS = Cyber Security
 OTA = Over-the-Air updates | SDC=Self-Driving Car | DLC=Driverless Car

The active wireless connection is critical in the autonomous and urban mobility age, as it will be used to keep the vehicle up to date through over-the-air (OTA) updates to software and firmware. OTA updates also have the ability to transform the traditional sales and customer retention model by allowing automakers to provide functional software upgrades (e.g., new navigation and telematics features, etc.) as well as updates

pertaining to software-related recalls, without a dealer visit. Furthermore, telematics and embedded modems are some of the most vulnerable systems for widespread and effective cyber-attacks. As a result, the telematics connection will also be used by cybersecurity providers to monitor security health and to take preemptive action when necessary.

AUTONOMOUS DRIVING by Jeremy Carlson

One of the fastest-growing segments of technology is advanced driver assist systems (ADAS). These technologies are increasingly popular with consumers and regulators alike, as they are seen as vital enablers of long-term goals for “zero fatality” transportation. Automatic emergency braking is squarely in focus, with 20 automakers committing to making the feature standard in all new cars sold in the United States by 2022 and both the US and European new car assessment programs incentivizing the technology.

New uses of camera sensors to augment or replace mirrors are also growing following regulatory changes in Japan and Europe. New vehicles in these markets will soon begin to deploy the latest technology that will increase visibility and safety, but also may boost fuel efficiency while creating new opportunities in vehicle design.

Automated driving and autopilot systems represent the next major growth category, leveraging the latest technology building blocks to deliver added safety, comfort, and efficiency to drivers. The segment is new but will significantly outpace overall ADAS market growth, with a compound annual growth rate of nearly 60% between 2017 and 2022. As these vehicle technologies continue to grow in complexity, ultimately enabling fully autonomous driving systems, new central computing and machine learning needs will further drive the importance of in-vehicle electronics.

MOBILITY by Jeremy Carlson

New mobility service business models represent the latest area of exploration and expansion for automotive companies as they seek to understand potential long-term threats to their core business. Mobility services, including variations of ride-hailing and car-sharing, currently fulfill some transportation needs for some users today. In the future, more people will fulfill their personal mobility needs with multi-modal transportation ecosystems, in which ride-hailing and car-sharing will participate alongside car ownership and public transportation.

As technology in the car and in the cloud continues to gain new and increasingly autonomous functionality, and as urbanization drives larger populations toward dense metropolises, new mobility-as-a-service business models will experience an inflection point. Both essential and occasional users will engage in these services more often, driving further change into the automotive industry with potential long-term impact on new vehicle sales, vehicles in operation, and vehicle and passenger miles traveled.

OUTLOOK

The automotive industry is experiencing technological change like we've never seen before. From evolutionary to revolutionary technology, changes are coming from high-tech and venture capital. These newcomers are risk-takers and disruptors, willing to try new business models and new technologies with the aim of taking market share from traditional auto players. Newcomers and auto industry experts, now more than ever, need the right tools to compete in the market, to navigate the change, to anticipate the risks, and to gain maximum returns for their most successful outcomes. IHS Markit can help. For more information, please visit: IHS.com/automotive

About the authors:

Egil Juliussen, Director Research & Principal Analyst with IHS Markit, leading research in automotive technology, market forecasting and competitive analysis.

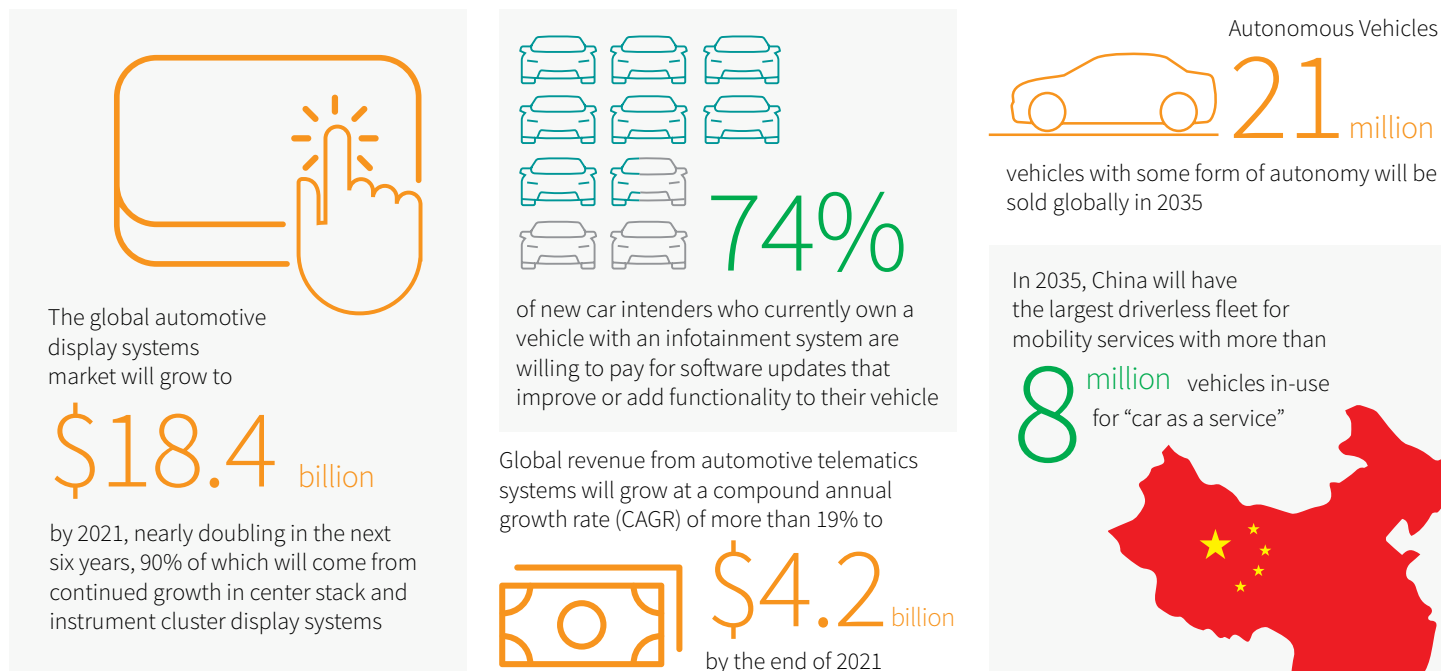
Colin Bird, Senior Analyst with IHS Markit, primarily focusing on Software, Apps, and Services (SAS) and Auto Tech Consumer Sentiments.

Jeremy Carlson, Principal Analyst with IHS Markit in Autonomous Driving and Mobility.

CONNECTED CAR

Are your investments aligned with the latest developments?

The rise of connected cars and autonomous driving is breeding new strategies around mobility and raising concerns about the viability of traditional automotive business models.



IHS Markit can help you navigate the change. Learn more: www.ihssupplierinsight.com | ihs.com/SupplierInsight

CUSTOMER CARE AMERICAS

T +1 800 447 2273
+1 303 858 6187 (Outside US/Canada)

CUSTOMER CARE EUROPE, MIDDLE EAST, AFRICA

T +44 1344 328 300

CUSTOMER CARE ASIA PACIFIC

T +604 291 3600

E CustomerCare@ihsmarkit.com

About IHS Markit

IHS Markit (Nasdaq: INFO) is a world leader in critical information, analytics and solutions for the major industries and markets that drive economies worldwide. The company delivers next-generation information, analytics and solutions to customers in business, finance and government, improving their operational efficiency and providing deep insights that lead to well-informed, confident decisions. IHS Markit has more than 50,000 key business and government customers, including 85 percent of the Fortune Global 500 and the world's leading financial institutions. Headquartered in London, IHS Markit is committed to sustainable, profitable growth.