



Q3 2023

2210-23-Q3

Quarterly Wrap-Up

Summary & insights of the top trends from the last three months

About SBD Automotive

Management & technology consultants to the automotive industry for over 20 years

Our expertise:

Connected

Autonomous

Shared Mobility

EV

Cybersecurity

Anti-theft



Click to find out more

Our role:

As our industry faces...

We provide our clients with...

Uncertainty



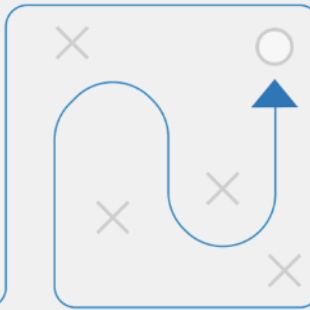
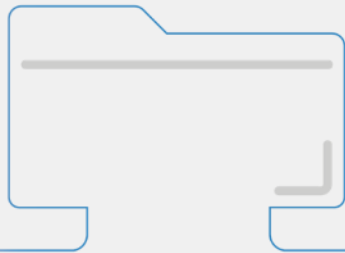
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Insight



Advice



Seeing Beyond Data

Turning data into actionable advice



Research Portfolio



Consulting Services



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2210 - Quarterly Wrap-Up – Q3 2023

About SBD »	2	Major Movers »	32
Introduction »	4	<ul style="list-style-type: none">▪ Seven Automakers Charging Infrastructure Consortium▪ Volkswagen▪ Leapmotor▪ Apple▪ Hyundai Mobis	
Executive Summary »	6		
Top Trends »	9	Everything Else »	39
<ul style="list-style-type: none">▪ AWS makes a splash at IAA Mobility▪ Smartphone dependent in-vehicle ecosystem▪ AI tools utilized by automakers in developing SDV toolkit▪ Automaker activities pick up in the L2+/L3 autonomy space▪ Robotaxi services experience grassroots opposition▪ Autonomous shuttles enable mobility for all▪ Last mile transportation and goods delivery▪ Industry balancing EV infrastructure rollout with EV sales▪ Battery supply chain challenges spur wide-ranging automakers investments▪ Kia Boyz trend continues		<ul style="list-style-type: none">▪ List of News Articles	
		Contact Us »	47



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Introduction

SBD's Quarterly Wrap-up helps you quickly catch-up on **CASES** trends from the **last three months**, providing **insights** from our analysts on the impact of **major announcements**.

How to use this Report

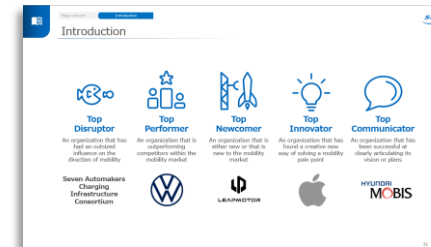
Top Trends

- Trends organized within SBD's **Trend Radar** and categorized by **CASES**
- Related news** explained for each trend along with **data** and **insights**



Major Movers

- Five organizations** picked based on their **impact** over the last quarter
- Announcements** relating to each of the companies **analyzed**



Everything Else

- Complete list of every **major news article** and **announcement** from the last quarter
- Articles organized by **CASES**

Source	Title	Date	Link
Statista	Shellfish invests in 10 mobility startups and one mobility venture fund with goal to attract sustainable mobility	15/06/23	Link
Publicis	EU gets pressure from France to act against Chinese OEM automotive entry	15/06/23	Link
Motorola-Reno	Motorola Reno will use 5G to enhance connectivity for data and AI operations	25/05/23	Link
Audi	YouTube will be available on some Audi models	25/05/23	Link
BMW Group	BMW adds a second OLED display supporting HMI OS 9	22/05/23	Link
LiixTech	LiixTech first implements Global copilot for software developers to use	26/02/23	Link
Automotive World	BlackBerry based carbon emission monitoring system being introduced by Hyundai Motor and Kia	26/02/23	Link
Avintiv Technology	AVT being required to provide technology and fleet/delivery partnership	16/06/23	Link
Continental	AVC partners with Continental to explore SEV	17/06/23	Link
TechCrunch	Massachusetts right to repair law enforced by NHTSA	23/06/23	Link
Westlane	2023 partners with Westlane for EEA development	23/06/23	Link
TechCrunch	GM looks to Google for AI chatbot	29/06/23	Link
Edjeo	Edjeo and partners partner for AI-based EV navigation	28/06/23	Link
The Verge	AVC supports BMW with autonomous vehicle data	05/06/23	Link
Hyundai	Hyundai Pay-to-own service comes to 2024 Kona	06/06/23	Link
TechCrunch	New satellite mobile assistance provided by Apple and AAA	12/06/23	Link
Reuters	EU considers tariffs on Chinese electric vehicles	13/06/23	Link



Executive Summary

High-level summary of what's changed from the last quarter



[Contents
Page](#)



[About SBD](#)



[Contact Us](#)



Executive Summary

Trending companies

Top themes

C

Connected



Automakers that are preparing to introduce new data-intensive connected features will be considering the need for cloud computing. Players like AWS will be the most sought-after partners for these automakers

A

Autonomous



SAE Level 3 is available in Europe and some states in the USA on selected vehicles. Other than Mercedes-Benz and BMW, no automakers have given a date for the introduction of SAE L3 features. Instead, more automakers are planning SAE L2+ (hands-free) driving rollout in Europe and the USA, while Chinese automakers wait for regulatory clearance

S

Shared



AV operators will need to ensure that appropriate access arrangements are made to enable people with reduced mobility to use robotaxis and shuttles

E

Electric



Automakers and charge point operators are working hard to deploy the necessary charging infrastructure to support the steep rise in EV sales. In addition, automakers are collaborating with 3rd party battery suppliers and Charge Point Operators to cater to this requirement

S

Secure



Security vulnerabilities have been discovered in Kia and Hyundai models. Some models had been made without immobilizers and can be easily stolen. Automakers continue to deal with liability impacts from past security decisions



Click on the SBD Automotive portal to learn more



New Reports: 2023 Research Summary

A wide **Research Catalogue** designed to help **automotive professionals** navigate effectively through a rapidly-changing industry

Innovation Outlook

Monitor innovation landscape



Innovation Guide - 201

Tech Giants in Automotive Guide - 212

Start-up Tracker - 202

Market Radar

Track what's new & what matters



Quarterly Wrap-Ups - 2210

SBD Explores - 2200

CES Premium Report - 301

Event Flash Reports - 300

SBD Data Tools

Advanced tools for big data analysis

Vehicle Planner Plus

EV Charging Analysis Platform

Vehicle Evaluations

Analyse & quantify best-in-class usability

UX Vehicle Evaluations - 635

Software-Defined Vehicles (SDV)



Software becoming key in automotive

SDV: E/E Architecture Guide - 401

Software-Defined Vehicle Forecast - 402

SDV: Organization & Strategies - 403

Connected Vehicles

Shift beyond connecting cars to delivering value

Connected Services Guide - 526

Connected Services Guide - LCVs - 546

Automotive App Guide - 531

Digital Cockpit & Infotainment Guide - 616

Mobility Services Guide - 618

Monthly China Head-Unit Guide - 628

A Global China - 216

Connected Car Legislation Guide - 528

Connected Car Forecast - 536

FOTA & SW Delivered Features Guide - 638

Fleet Services & Strategies - 643

Digital Cockpit & Infotainment Forecast - 644

Health & Wellbeing in Automotive - 207

ADAS & Autonomous Vehicles

Deliver affordable & robust autonomy

ADAS Guide - 534

Autonomous Car Legislation Guide - 535

ADAS L0-L3 Forecast - 538

L4 Autonomous Forecast - 815

Autonomous Strategies & Ecosystem - 816

Localization & Map-based ADAS - 817

Electric Vehicles

Transition effectively from ICEs to EVs

EV Guide - 623

EV Charging & Infrastructure Guide - 217

EV Legislation & Incentives Guide - 218

EV Battery Technologies & Ecosystem - 219

Optimizing the EV User Journey - 222

Cyber & Secure Vehicles

Protect your customers & your brand

Digital Key Guide - 712

E-Theft Threat Guide - 554

Cyber Intelligence Guide - 905

Cyber Legislation Guide - 539

Securing the Software-Defined Vehicle - 404



Top Trends

The key trends fuelling the automotive innovation



Contents
Page



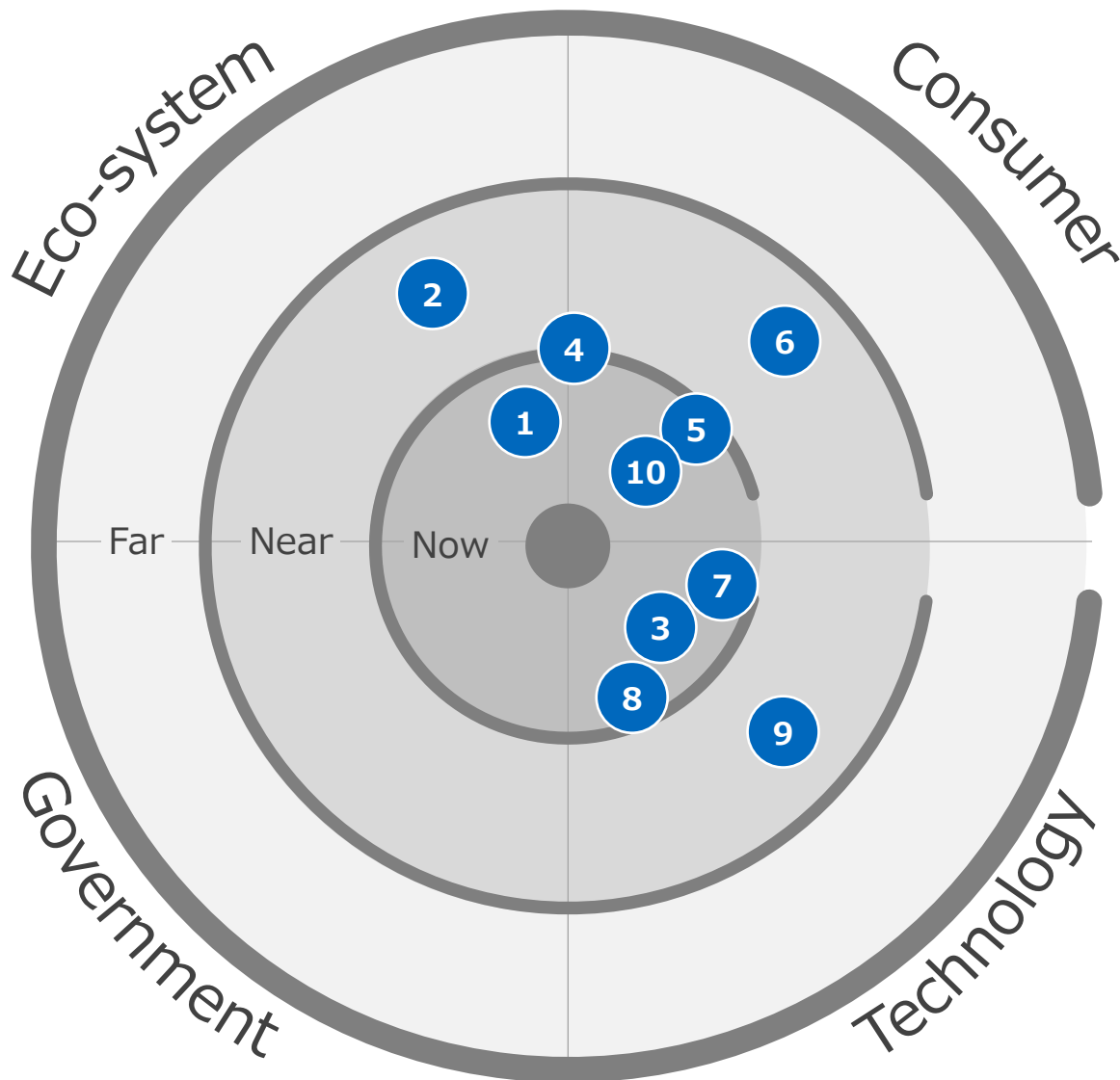
About SBD



Contact Us



Q3 2023 Trend Radar





- 1** **AWS makes a splash at IAA Mobility**
AWS garnering more support from automakers and suppliers
- 2** **Smartphone-dependent in-vehicle ecosystem**
Automakers and tech giants look to deepen the smartphone's role in the vehicle experience
- 3** **AI tools utilized by Automaker in developing SDV toolkit**
GM and Mercedes-Benz are amongst the early movers of AI in automotive
- 4** **Automaker activities pick up in L2+/L3 autonomy space**
ADAS and autonomous systems reach new milestones in Q3
- 5** **Robotaxi services experience grassroots opposition**
Regulatory bumps in the road ahead for robotaxi deployment
- 6** **Autonomous shuttles enable mobility for all**
Shared mobility is being used to provide services to the elderly and those with reduced mobility
- 7** **Last mile transportation and goods delivery**
Global partnerships and expansion in the last-mile delivery space
- 8** **Industry balancing EV infrastructure rollout with EV sales**
Rapid deployment of EV charging infrastructure
- 9** **Battery supply chain challenges spur wide-ranging investment by automakers**
Automakers sourcing battery materials
- 10** **'Kia Boyz' trend continues**
Security vulnerability found in Hyundai and Kia models



Sustainability and electrification remain the central themes at events

The aim of these events is to give businesses the opportunity to showcase their novel mobility solutions and for professionals working in the mobility sector to network. There were dedicated areas for startups to show their products or services.

<p>Event</p>	 <p>IAA Mobility 2023 held in Munich, Germany September 4 - 10</p> <p>The mobility event is held every two years</p>	 <p>NAIAS 2023 held in Detroit, Michigan September 13 – 24</p> <p>The mobility event is held annually</p>
<p>Theme and Focus</p>	<p>Circular economies and sustainable manufacturing methods were on show at IAA Mobility 2023. Chinese automakers and suppliers dominated the show, but underlying the event was a push by automakers and Tier-1s to decarbonize their supply chain and use materials more responsibly. This includes material recycling and not using fresh water.</p>	<p>Mobility innovation is at the forefront of the event where the focus is mostly dominated by the EV introduction and the transformation going on in the industry. Also, the eye-catching highlight of the event was the introduction of the new 'Powering Michigan EV Experience' indoor track which would power up the EV batteries from an external source.</p>
<p>Takeaways</p>	<p>There are multiple benefits to making manufacturing processes more sustainable:</p> <ol style="list-style-type: none"> 1. Reduced consumption of virgin material, and 2. Using renewable energy to reduce energy costs, reduces exposure to fluctuating energy prices. This is particularly important for EU-based manufacturers that import a large amount of energy. Manufacturers will likely choose countries where the prevailing atmospheric conditions are favorable for renewable energy. <p>In addition, SBD noted that suppliers of Tier 1 companies are asked where raw materials for components are sourced, how they are processed, and if company car fleets are EVs or ICEs. Going forward, suppliers will likely be asked for further evidence, and in the long term, ask how sustainability is being improved.</p> <p><i>(For detailed info please refer 3000e – IAA Mobility Event Report)</i></p>	<p>Ford, GM, and Stellantis, amongst others, displayed their complete brand portfolios and their future mobility pledges to be carbon-neutral.</p> <p>Along with the EV track, there was a learning center that offered information on how EVs are recharged, helping attendees understand the different ways of recharging as the number of EV owners rises.</p> <p>Numerous vehicles were debuted. A trend amongst the new vehicles was more technologically advanced autonomous and electrification features. This trend supports the need for manufacturers to remain competitive and ensure that consumers trust and embrace EVs and the newest automotive technology.</p>



1 AWS makes a splash at IAA Mobility: In the news

Amazon Web Services' (AWS) position in the automotive industry is rising and is being recognized by more automotive manufacturers and suppliers. AWS has onboarded a significant number of automakers and other cloud service providers. As the automotive industry undergoes a digital transformation, AWS will provide both automakers and suppliers with more innovative technologies and solutions to help them address industry challenges and grow their businesses.

Amazon working on voice assistant solutions for the automotive partner



BMW and Amazon collaborate on voice assistant solutions

- BMW is developing the **next generation of its voice assistants** together with tech giant Amazon.
- At the IAA, BMW and Amazon with SBD moderation introduced their next-gen voice assistant solutions – **piloted in the new Mini.**
- Amazon will be enabling more functions than BMW's previous in-house developments.

AWS will be integrated into BMW's platform

- BMW will use AWS cloud software to **manage data from its autonomous vehicles.**
- The software will be integrated into BMW's '**Neue Klasse**' platform, which is due to be launched in 2025.
- AWS will help provide cloud storage from data related to "generative artificial intelligence, Internet of Things and machine learning, and storage capabilities to help accelerate the delivery of highly automated BMW vehicles."

Continental collaboration with AWS

- Virtual Electronic Control Units shorten development time by up to twelve months and help automakers identify issues early.
- Continental's vECU Creator, part of the **Continental Automotive Edge framework**, operates on AWS. AWS is Continental's preferred cloud provider for vECU Creator.
- Going forward, this will allow drivers to integrate the functions they want at any point during the service life of their vehicle. This can be done by **downloading software updates.**

Qualcomm and AWS Commit to Long-term co-innovation

- The collaboration aims to enable **the rapid expansion of software-defined features** and functions in vehicles.
- Qualcomm and AWS will leverage each other's expertise to **provide development tools to accelerate the rollout of autonomous vehicles and software-defined vehicles (SDVs).**
- The combined efforts of the two companies will provide automotive solutions for the future.



CASES

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Other
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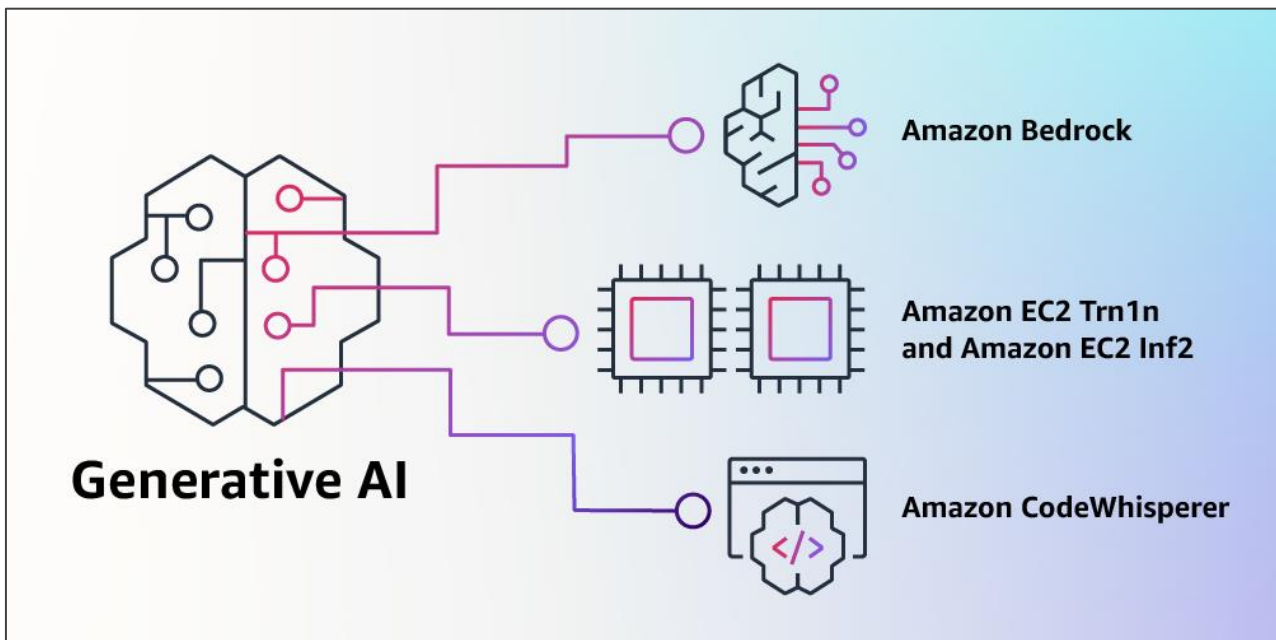


1 AWS makes a splash at IAA Mobility: Going deeper

SBD PERSPECTIVE: AWS is the biggest public cloud vendor in the world, servicing many industries that have computing requirements. While Amazon is a retail-oriented player largely, it is aiming for economies of scale by onboarding more automakers to use its AWS platform. AWS monetizes its cloud infrastructure and platform services to develop technologies with the aim to simplify the software development process. Amazon extends cloud services to the edge and provides integrated development environments for vehicle software developers.

AWS (Amazon Web Services) integrated into the connected car service-suite

(Source: IAA Mobility Event Report)



Building with Generative AI on AWS

Generative AI can be used to streamline organizational information flow

- Reply are using Amazon Web Services to run their Generative AI service. Audi is using the Reply AI service to streamline data sharing. Colleagues at Audi can ask the AI model a question and receive an answer.
- The AI model has access to corporate files and documents and uses these to create answers to questions. Currently, the model uses internal documents, but potentially could be expanded to include external websites and online meeting transcripts.
- The aim of deploying AI is to smooth out data-sharing processes within the organization. Colleagues can ask the model a question and receive an answer. On a wider scale, Audi could use this to identify common questions with a view of reforming areas of the organization to improve information flow.



CASES

USA
China
Europe
Other
Global



2 Smartphone dependent in-vehicle ecosystem: In the news

Chinese automakers are working to develop their own in-vehicle ecosystems to reduce their reliance on smartphone companies. This includes developing their own in-vehicle infotainment systems, navigation systems and other features. With these, the Chinese automakers can better control the in-vehicle experience and provide customers with products and services that are more tailored to their needs.



Apple launches Roadside Assistance via satellite

- Apple is launching a new service, **Roadside Assistance via satellite**, in partnership with the American Automobile Association (AAA).
- Roadside Assistance via satellite allows iPhone 15 and iPhone 14 users to select from **one of several scenarios to text an AAA operator even in places where there isn't a cell signal**.
- Apple says that the success of satellite lock-on will depend on a number of factors, including the weather and obstructions to the antenna.



Polestar is working on its own smartphone

- Polestar is **working with Xingji Meizu, a smartphone company owned by Geely**, to create a specific operating system for Chinese versions of Polestar vehicles.
- It will become a way to highlight all the ways in which Polestar's technology-packed cars are basically just computers on wheels.
- Polestar's electric cars come with native Android software from Google, while Xingji Meizu's use an OS called Flyme, which is based on Android.



Nio releases a smartphone

- The Nio smartphone allows users to connect more seamlessly with the car, such as when transitioning between the phone and the vehicle during online meetings.
- **Nio is the first high-end Chinese electric car brand to release its own smartphone.** Electric car companies in China have sought to make in-car entertainment and mobile phone connectivity a selling point for their vehicles.
- That connectivity allows drivers to sync their personal device settings with the car. Nio also has a standalone mobile app.





2 Smartphone dependent in-vehicle ecosystem: Going deeper

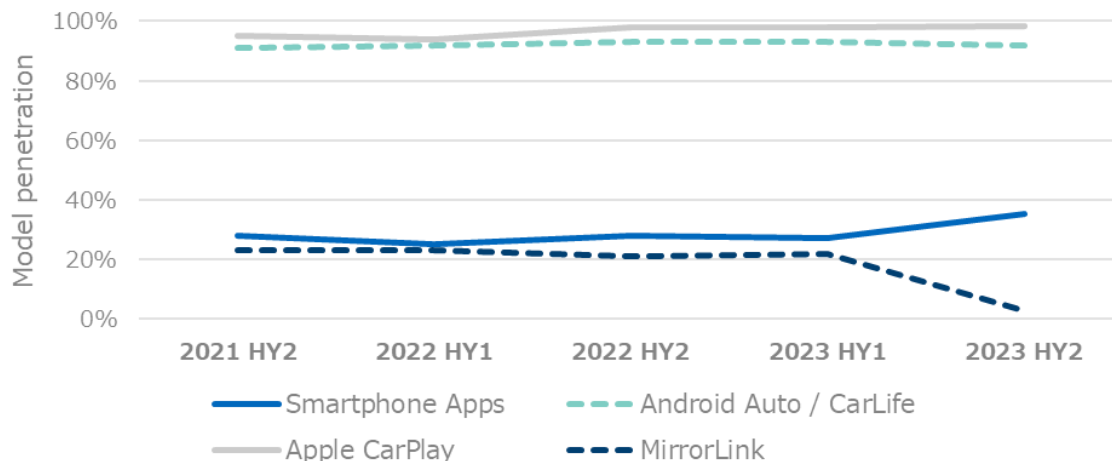
SBD PERSPECTIVE: Smartphones can give assistance with navigation, entertainment, and other functions whilst on the move. The integration of smartphones could enable drivers and passengers to interact more seamlessly with the digital world whilst in a vehicle. There has been increased attention given to improving the in-car digital experience through intuitive content and smartphone integration. Apple CarPlay and Android Auto continue to dominate smartphone integrations in most vehicle models but, despite a high penetration, automakers continue to release their own integration proxies to maintain ownership of the in-car UX

Integration of smartphones enhance usability of digital cockpits

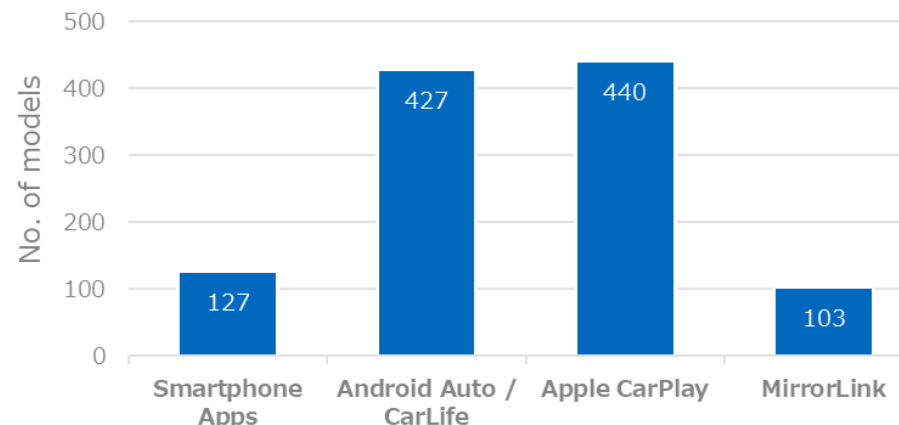
(Source: 616 - Digital Cockpit and Infotainment Guide)

Globally, irrespective of geography, automakers are using relatively low-cost screen mirroring technology to **cater to consumers' rising desire to use smartphone services** whilst in a vehicle. In Europe, screen duplication is growing and the step towards Apple or Google **providing the bulk of connected services** and platforms has already gathered pace. The branded 'proxy' services are still popular **as automakers battle against the tech giants to retain ownership of the in-car UX**, but they seem to be fading away in favor of CarPlay, Android Auto and CarLife.

Smartphone integration trend over the past year



Models offering Smartphone integration (HY2 2023)



CASES
USA
China
Europe
Other
Global



3 AI tools utilized by Automaker in developing SDV toolkit: In the news

Artificial Intelligence is being used increasingly in the automotive sector, not only for virtual assistance but also for software development. For example, software-defined vehicles, compared to current vehicles, will require larger amounts of software to be developed. AI can help with the process of evaluating and implementing the software. AI can also be used to help develop new battery technology and business operations. Mercedes-Benz and GM are among the leaders using this technology to develop new software.



Mercedes-Benz has implemented GitHub Copilot AI into its S/W development

- GitHub Copilot is an AI-powered code completion tool that uses machine learning to suggest code based on previously written code.
- **Copilot is still under completion**, but it is helping reduce code writing by 20%.
- Future plans include using AI for the **development of the Mercedes-Benz Operating System**.



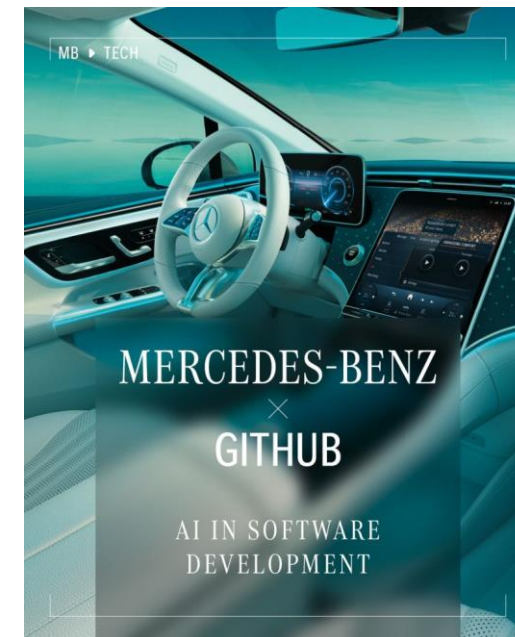
GM invests in AI and Battery materials innovator Mitra Chem

- GM has **invested \$60 million** in the Silicon Valley-based materials innovator as part of Series B of financing.
- Mitra Chem uses AI to help with the **development of advanced battery materials**.
- Iron-based cathode active materials (CAMs) are less expensive and more abundant than traditional battery technologies.
- GM and Mitra Chem are working to use CAMs in the GM Ultium EV platform. The platform can be used for passenger and commercial vehicles.



GM and Google strike AI partnership

- The new partnership will accelerate the **use of AI in GM's vehicles** and business plans.
- Two key areas are being focused on: **Conversational AI and Generative AI**.
- Conversational AI will help improve GM's OnStar virtual assistant. Currently, OnStar can help with navigation, roadside, and general customer issues.
- Generative AI will help GM and Google explore new methods of **improving the customer experience** while creating new business opportunities.





3 AI tools utilized by Automaker in developing SDV toolkit: Going deeper

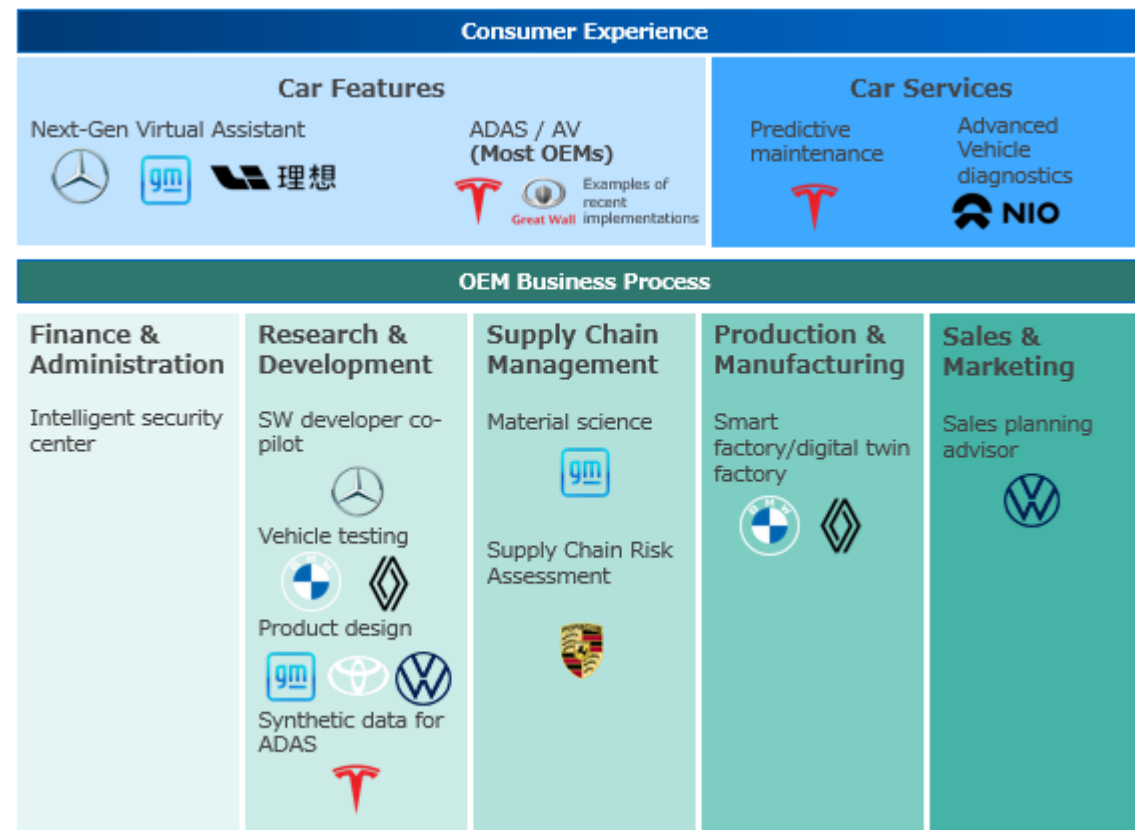
SBD PERSPECTIVE: Generative AI is a subset of deep learning. It can read data, learn from it, and generate new synthetic instances. This form of AI works well in situations that require adaptive outputs. The scope for using generative AI among different business processes is encouraging automakers to reevaluate their AI strategies and applications. This is due to the potential improvements that AI can make in consumer experience and business processes. There are many other use cases for Gen AI, like in-car services and research and development.

Latest activities in Generative AI

(Source: SBD Explores: Automotive AI Use Cases)

The latest advancements in Generative AI (Gen AI) have demonstrated significant potential across various business processes, prompting automakers to reevaluate their AI strategies and applications.

- AI can support a wide range of business activities, but it can be categorized into two main objectives: consumer experience enhancement and automaker business process optimization.
- Most automakers are prioritizing the integration of AI into vehicle features like Virtual Assistants and ADAS. There are also opportunities for in-car services and automaker business processes, especially in R&D.
- While Gen AI has attracted lots of attention recently, it might not be the best fit for all use cases.
- We anticipate there will be numerous AI initiatives within automakers, spearheaded by diverse teams. This will need high-level prioritization and coordination to ensure maximum efficiency and that the best return on investment is achieved.
- Mercedes-Benz is becoming a leader in automotive AI by investing more publicly in AI, including an employee AI training program.



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USA

China

Europe

Other

Global



4 Automaker activities pick up in L2+/L3 autonomy space : In the news

Modern ADAS and AD systems have achieved new marks in Q3 of 2023. The achievements include a fully autonomous system seeing deployment. Such systems include Mercedes-Benz's automated parking assistant, BMW's L3 autonomous driving approval, and Tesla's autosteer for FSD. Other ADAS advancements include Ford's expansion of BlueCruise with a similar business model to Tesla, delivering vehicles with the necessary hardware as standard fitment and charging users a subscription fee to use it (it is important to note that Tesla offers both a one-time payment and subscription offering for their ADAS features).



Ford makes strides with BlueCruise offerings

- Ford plans on installing BlueCruise hardware as **standard fitment on 500,000 vehicles in 2024** across Ford and some Lincoln models in North America.
- Ford is moving towards a **subscription-based model**, where vehicles come equipped with hardware as standard and owners can choose to subscribe.
- BlueCruise has been approved for use on roads in Germany.



Mercedes-Benz released automated parking on EQE Saloon

- Mercedes-Benz has **released INTELLIGENT PARK PILOT** on the EQE Saloon, EQS Saloon, and previously S-Class models.
- A parking garage at Stuttgart Airport in Germany has been equipped with sensors that connect to the vehicle, allowing for autonomous parking. The sensors are supplied by Bosch.
- The new INTELLIGENT PARK PILOT is one of many features Mercedes-Benz offers relating to parking. **Other features include Memory Parking Assist, Remote Parking Assist, and Active Parking Assist with PARKTRONIC.**



BMW gains approval for L3 ADAS deployment in Germany

- The Federal Motor Transport Authority in Germany has **approved BMW to release their L3 autonomous system.**
- BMW has stated they will roll out their SAE L3 solution **later this year on the 7-series** (L2 hands-free system was approved in June 2023).
- Users will be able to utilize a **hands-off, eyes-off experience below 60km/h.**
- This announcement makes BMW the **second German auto manufacturer** to receive approval of their autonomous system for use in Germany.



Tesla FSD now offers autosteer on city streets

- With an OTA, Tesla is offering **autosteer on city streets** in The USA.
- In addition to this OTA, Tesla has **cut the price of FSD from \$15,000 to \$12,000.**
- Tesla vehicles in China can be equipped with FSD, but functionality is limited to "automatic assisted navigation driving" and "automatic assisted lane change".
- European Tesla vehicles equipped with FSD offer the same features as seen in the North American market, except for autosteer.





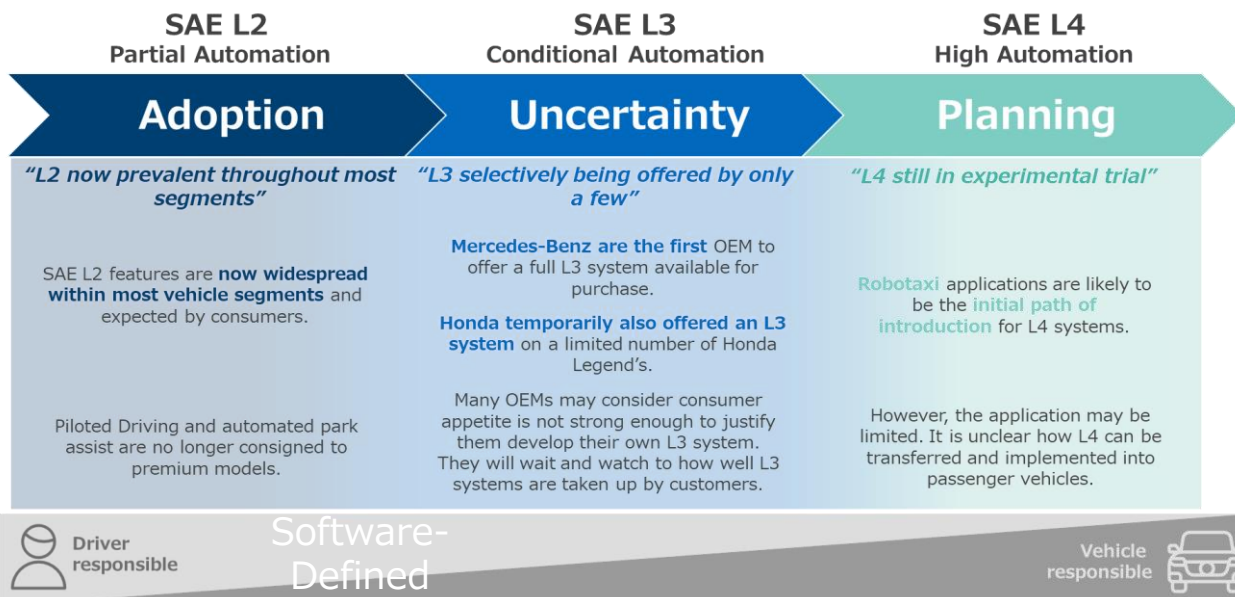
4 Automaker activities pick up in L2+/L3 autonomy space: Going deeper

SBD PERSPECTIVE: Most automakers are expected to introduce a hands-free SAE L2 or SAE L3 Piloted Driving system by the end of the decade. Automakers have focused their efforts on SAE level 2 Piloted Driving systems in recent years. It is evident that only a few of the top premium and advanced automakers are targeting and pursuing L3. SAE L3 systems are expected to be deployed by most Western automakers and leading Chinese automakers by 2030. Some of the automakers such as Ford are also transitioning to a subscription-based model, where hardware is offered as standard, and it gives an option to the owners for ADAS subscription.

Automakers to ramp up SAE L3 deployment

(Source: 816 - Autonomous Strategies & Eco-system- 2023)

Following the example set by Mercedes-Benz, most OEMs plan to bring SAE L2 and 3 hands-free Piloted Driving systems to market by 2030, across the major automotive markets. Mercedes-Benz are the leader in autonomy according to SBD's autonomous scoring system. OEMs who lead in ADAS & autonomy such as Mercedes-Benz, BMW, Audi and Volvo are expected to offer SAE L4 systems by the end of the decade, initially as valet parking features.



	2023 Mustang Mach-E gaining hands-free lane changes with Ford's BlueCruise 1.2 update Ford planned to introduce three new features with its next-generation BlueCruise 1.2 active driver assist, including hands-free lane changes.
	Lucid Air with Level 3 capability to go on sale by 2023 Lucid AIR electric sedan will come as standard with lidar and driver monitoring to support Level 3 self-driving capability, called DreamDrive.
	GM confirms the availability of Ultra Cruise on the Cadillac model Cadillac's Celestiq EV sedan MY2024 will be the first model from GM to get UltraCruise which enables hands-free driving on nearly 2 million miles of US and Canadian roads. It will be powered by long-range lidar, short and long-range radars, mono-cameras and driver-facing camera.
	Honda says it will add hands-free technology to all models sold in the US by 2030 The next generation of Honda Sensing 360 system will be standard on all vehicles sold in the US by 2030 which will realize new functions that reduce driver burden.



CASES

USA
China
Europe
Other
Global



5 Robotaxi services experience grassroots opposition: In the news

While some developments favor AV ride-hailing companies, they are also encountering significant backlash. Regulators are tightening their oversight of AV operations due to various incidents involving robotaxis. Following the hearing for the approval of 24/7 robotaxi operations in California, the city's transit agency, fire department, and police department have all filed complaints with the California Public Utilities Commission (CPUC), urging The Commission to reconsider the 24/7 service plan.

Robotaxis score a huge victory in California with approval to operate 24/7

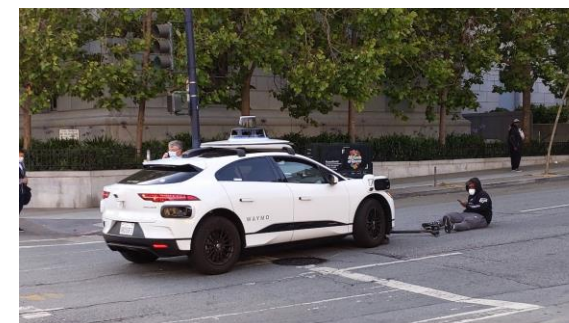
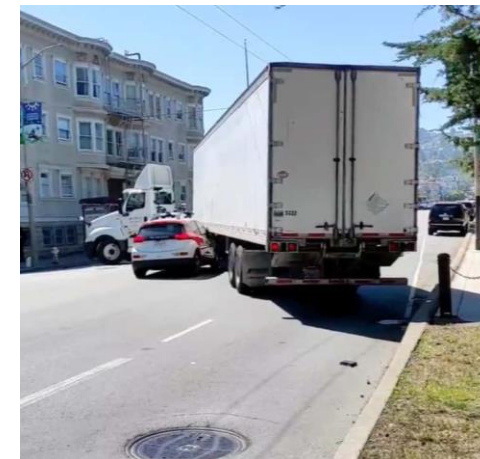
- After a 6-hour hearing, the California Public Utilities Commission voted 3-to-1 in favor of **Waymo and Cruise** operating their paid **robotaxi services 24/7 in San Francisco**.
- The hearing included voices from the **disabled community** pointing out the pros and cons of robotaxis. **Residents** raised their frustrations about taxis breaking down in the middle of busy intersections.
- The commissioners urged that if there are further incidents, they would **limit the number of robotaxis** on the road.

Cruise Robotaxi Collides with Turning Semi-Truck In San Francisco

- A **Cruise robotaxi collided with as semi-truck** in San Francisco when the truck was doing a “swing wide” maneuver.
- Semi-trucks need to “**swing wide**” when turning. It is possible that the Cruise robotaxi wasn’t trained for such a scenario.
- Cruise said that the robotaxi came to a complete stop when it detected that the truck had started to move but the truck continued and collided with the vehicle.

Cruise Ordered by Regulators to Cut Robotaxi Fleet by 50% After Crash

- Within 2 weeks of the CPUC warning that they would limit the number of robotaxis in case of any incidents, a **Cruise robotaxi was involved in a crash with a firetruck**, resulting in a passenger's injury.
- Until the investigation is complete, the California Department of Transport, responsible for overseeing autonomous vehicle deployment within the state, has formally asked for a reduction in **Cruise's operations by 50% and that no more than 50 driverless vehicles are in operation during the day and 150 at night**.





5 Robotaxi services experience grassroots opposition: Going deeper

SBD PERSPECTIVE: The recent backlash about autonomous vehicle operations, specifically robotaxis, resulted in increased supervision by regulators, with potential suspension of robotaxi permits if their operation risks public safety. Following the recent incidents, the government authorities, like the Motor Vehicles Department (DMV), in the USA are also concerned about the crashes and investigating recent collisions involving robotaxis and other vehicles on the road. The DMV has requested that Cruise reduce half of the fleet during the investigation until the implementation of the safety requirements.

Some states introducing more granularity in the AV regulations

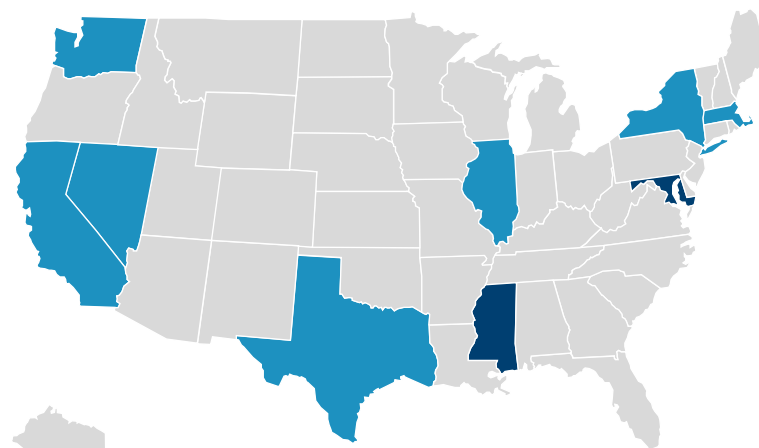
(Source:535 - Autonomous Car Legislation Guide)

Legislation Overview

The federal structure of the USA allows individual states to have their own laws related to autonomous vehicles. As autonomous driving technology develops, states in the USA are beginning to introduce legislation that controls the use of this new technology. The laws are focused on public trials (with or without safety drivers) conducted by companies like Waymo, Cruise, Lyft and Uber in addition to automakers.

As more AV trials take off and also reach their advanced phases, they are influencing the ongoing regulatory work by various states.

State	Additional Information
California	Prohibits AV operations without notifying and prior approval from the DMV
Illinois	Human safety operator must continue to meet all federal and State qualifications
Maryland	Prohibiting an autonomous vehicle converter from holding certain occupational vehicle licenses
Massachusetts	An Act relative to the safety of autonomous vehicles.
Mississippi	FAVE Act allows AV testing w/o safety driver onboard
New York	An act to amend the vehicle and traffic law, in relation to autonomous vehicle driving



State-wise legislative updates Q3 2023



Key Takeaways

As of 2023, only a few AV trials have been conducted in the USA without a safety operator that too within certain speed limits and timing restrictions. Although this is not a major barrier, but it restricts the types of trials that can be conducted on public roads. The AV developers have often stressed the concern about legislation sometimes being 'too prescriptive' in nature, stifling innovation and making it difficult for them to assess and unlock the real benefits of vehicle autonomy.

What's New?

- House Energy and Commerce Committee members have announced a subcommittee legislative hearing titled "Self-Driving Vehicle Legislative Framework: Enhancing Safety, Improving Lives and Mobility, and Beating China." [\(Link\)](#)
- A new senate bill 5080 called "STOP Frontovers Act of 2022" has been introduced to reduce the incidence of child injury and death occurring during low-speed incidents involving motor vehicles, and for other purposes. [\(Link\)](#)
- State of California approves 24/7 robotaxi operations for Waymo and Cruise. [\(Link\)](#)



CASES

USA

China

Europe

Other

Global



6 Autonomous shuttles enable mobility for all: In the news

People with reduced mobility can benefit greatly from shared mobility solutions. We are seeing more companies' direct efforts to help these groups of people obtain safe transportation solutions. Both autonomous and non-autonomous solutions are being implemented today to help support these communities. Other initiatives are looking beyond just vehicle mobility and want to offer end-to-end transportation solutions for some groups.

Mobility service provider offering services for the elderly and those with disabilities



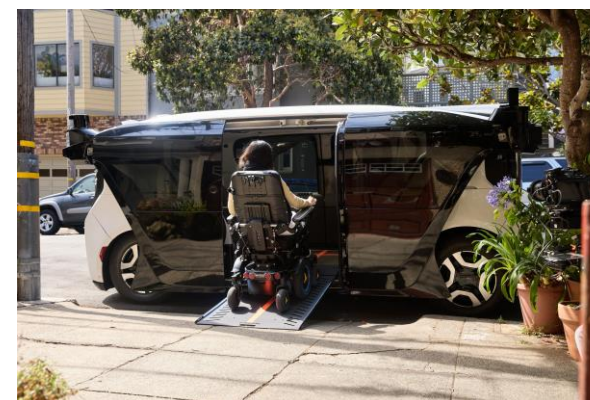
- Feonix is a **non-profit organization** whose mission is to provide transportation for those with reduced mobility.
- Feonix operates by partnering with local transport providers and training volunteer drivers.
- Current operations include areas within **Michigan, Mississippi, Nevada, South Carolina, Texas, and Wisconsin.**
- The organization has supported individuals with 46,491 total trips and 478,590 miles driven.

May Mobility to offer self-driving shuttles in Detroit

- May Mobility, a company based in Ann Arbor Michigan, will **bring their autonomous vehicles back to Detroit.**
- This program is part of a **\$2.5 million contract** between the city of Detroit and May Mobility.
- The program aims to provide individuals older than 65 years of age, and those living with disabilities, **free transport to doctor offices, stores, and other locations.**
- Existing May Mobility operations elsewhere include a wheelchair ramp enabled minivan as part of fleet.

Introduction of Wheelchair-CRUISE Accessible Robotaxi by Cruise

- Cruise, backed by General Motors, will introduce a **wheel-chair accessible robotaxi** that will serve disabled passengers.
- The program will involve three years of collaboration between Cruise, GM, and partners in accessible vehicle design, including BraunAbility and Q'Straint, along with input from an advisory council on accessibility.
- The program will undergo closed-course testing in October 2023, with pilot testing planned for 2024, pending regulatory approval and user feedback.



Wheel-chair accessible robotaxi



CASES

USA

China

Europe

Other

Global

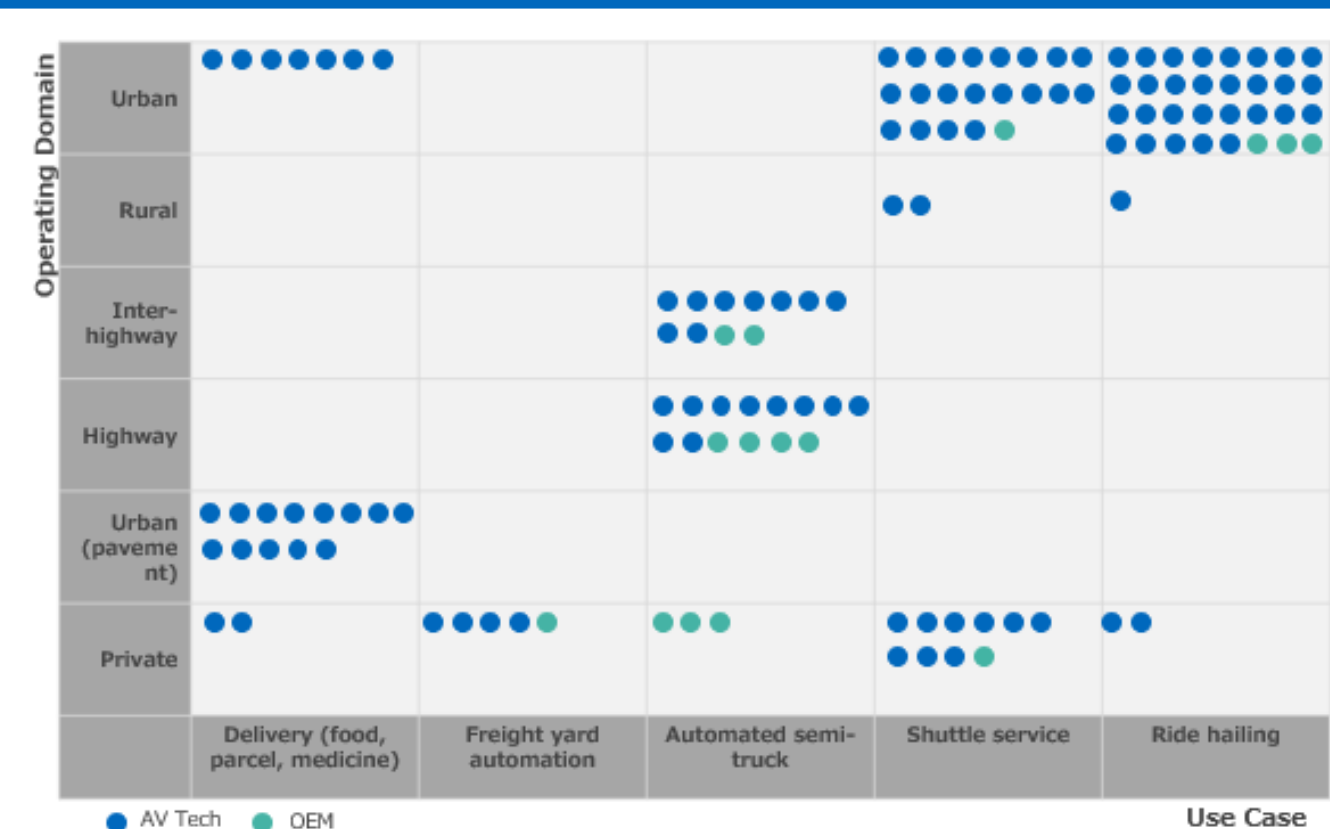


6 Autonomous shuttles enable mobility for all: Going deeper

SBD PERSPECTIVE: With fewer mobility options available for the differently abled and elderly citizens, the autonomous shuttle is viewed as one big relief. However, merely developing AV shuttles will not solve the problem as these vehicles can be hard to enter and exit and may not easily accommodate walking aids or wheelchairs. Aside from the hardware and software suite required to enable autonomous driving, the AV robotaxi and shuttle operators will need to fit the necessary support system to aid elderly people or those with physical disabilities.

L4 trials – by type/operator

(Source: 814 - Autonomous Guide for L4 Vehicles and Trials)



Key Highlights

- Except for the L4 automated trucking space, automaker activity is limited in other segments of L4 pilots. Commercial truck makers like Volvo, MAN Trucks, Scania, and Daimler have been conducting autonomous truck pilots in various regions.
- The non-automaker operators, referred to as **'AV Tech'** on the graph, are involved in all the segments and have partnered with automakers on various projects, most notably in the **autonomous taxi and autonomous public transport (buses) trials**.
- GM-backed, Cruise and Hyundai-Aptiv joint-venture, Motional are two of the most notable projects in the autonomous mobility space where automakers are actively involved.
- Automakers are non-existent in the last-mile autonomous delivery projects, indicating a lack of interest in this space.



CASES

USA

China

Europe

Other

Global



7 Last mile transportation and goods delivery: In the news

Autonomy in last-mile delivery and public transportation is on the rise. Companies are expanding either through partnerships or by entering new markets. Some companies are aiming for markets such as Germany where SAE level 4 autonomy is approved on public roads.



BrightDrop EVs are Headed to Mexico

- BrightDrop is introducing its electric vans to **Mexico** following their launch in Canada.
- They are set to launch two models in Mexico: the BrightDrop **Zevo 400** and BrightDrop **Zevo 600**.
- The electric vans are built at GM's CAMI Assembly plant in Ontario, Canada. BrightDrop electric vans will become available for customer orders in Mexico later this year.



Webfleet and VEV announce strategic partnership

- Webfleet, Bridgestone's fleet management solution, has entered a partnership with new e-fleet solutions provider VEV to accelerate commercial EV fleet adoption.
- In addition to supporting ongoing operations of Webfleet, VEV provides **initial site electrification, charge point infrastructure installation and EV sourcing and financing**.
- Webfleet telematics data will enable fleet managers to monitor real-time range, energy consumption, and live mechanical status.



Schaeffler and VDL Groep to team up on self-driving shuttles

- Schaeffler and VDL Groep are jointly exploring the development and production of a new generation of **self-driving shuttles for public transport**.
- **Mobileye** will provide autonomous driving systems for the shuttle vehicles.
- The shuttles could be using Schaeffler's '**Rolling Chassis**', which combines a fully electric powertrain, steer-by-wire system, and battery in a modular solution.
- **Germany** could be the first country where the shuttles will begin its operations.





7 Last mile transportation and goods delivery: Going deeper

SBD PERSPECTIVE: Many automakers and EV start-ups are planning to launch their own self-driving and public transport services. Industry collaboration is key to delivering autonomy. Automakers have formed deep ties with suppliers to leverage their expertise. Mobility providers and tech companies are taking a different strategy by starting at SAE level 4. It remains that Mobility-as-a-Service players are still experimenting with the technology through extensive trials both private and public. The question, of whether a viable business case for this technology exists, is also an outstanding issue yet to be resolved.

Toyota, Aurora, DENSO: Collaborate to develop electric autonomous taxi

(Source: 816 - Autonomous Strategies & Eco-system Guide)

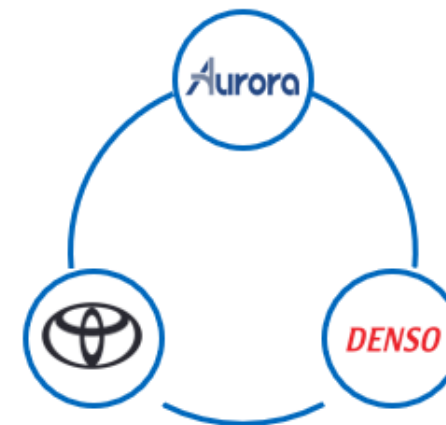
Collaboration Detail

- Toyota have partnered with DENSO and Aurora (AV start-up) to develop a fleet of autonomous taxis.
- The autonomous taxis will be based on the Toyota Sienna and be equipped with Aurora's self-driving technology. Denso will support the production of the autonomous driving components.



SBD Analysis

- Aurora's self driving technology has been proven in many years of testing and development. Toyota will benefit from having access to this technology and a route to introducing SAE L4 functionality into the market. Aurora will benefit from partnering with a major automaker as this will give them access to a large fleet of vehicles from a well-established manufacturer.
- To bring this technology and service to market at scale, both Aurora and Toyota will need the support and experience offered by DENSO in order to produce and manufacture the required components.
- On their own, each player would struggle to meet all of the production, logistical, technological and resource demands of introducing autonomous technology.





8 Industry balancing EV infrastructure rollout with EV sales: In the news

The biggest fear of the adoption of electric vehicles (EVs) is still “Range Anxiety”. Automakers are responding to this by increasing range and improving vehicle efficiency. The need for more accessible chargers, and more powerful chargers is growing with the rising sales of EVs. Infrastructure capacity, to support the chargers, will also need to grow to keep up with demand.

The Index compares all federal states of the U.S. (including Washington D.C.) and the EU-27, plus Norway, Switzerland and the UK.



HERE and SBD partner to provide analysis of EV infrastructure

- Published an interactive index that shows the developing state of electric vehicle (EV) demand and infrastructure readiness across the USA and Europe.
- The **HERE-SBD Automotive EV Index** highlights, since 2020, USA state-level and European country-level leaders and laggards based on various critical metrics including the number of charging points (Electric Vehicle Supply Equipment), vehicle registrations, geography, and road network length.

BMW, Ford & Honda launch ChargeScape JV

- ChargeScape is an equally owned company connecting electric utility providers, automakers, and **EV owners in the USA and Canada**
- It allows EV owners to charge at grid-friendly times and support the grid during peak demand.
- It is expected to be operational **from early 2024**.

Seven automakers unite to create an EV charging network

- This joint venture will create a new charging infrastructure of **at least 30,000 charge points**.
- The focus is to deliver a great customer experience of **high-speed charging and reliability** while being in convenient locations with local amenities.
- The first stations are scheduled to **open in the summer of 2024**

BP opens Gigahub in the UK

- BP’s first Gigahub **opens with 180 chargers** in Birmingham, UK, near the M42 motorway.
- Of the 180 chargers **30 are 300kW fast chargers** while the rest are 7kW.
- The company **plans to have 70,000 EV chargers** in operation in the UK by 2030.
- The Gigahub uses 100% renewable energy and shows BPs commitment to EVs.



CASES

USA

China

Europe

Other

Global

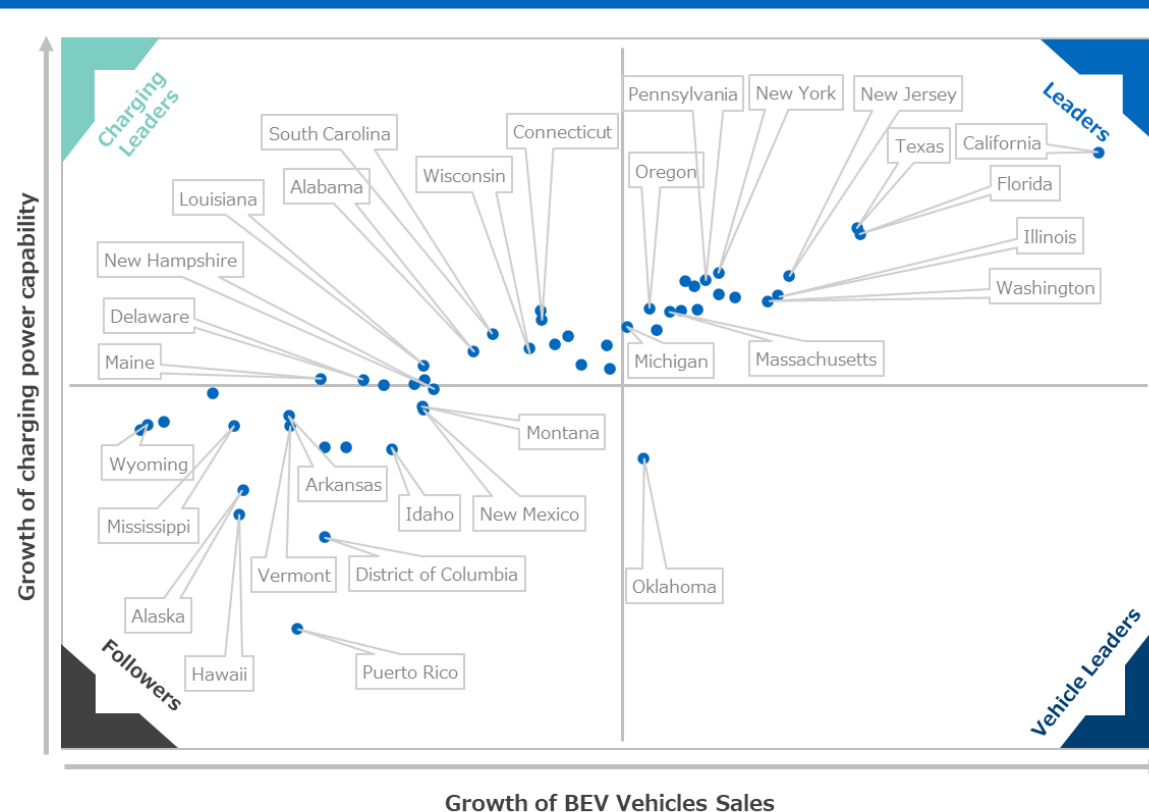


8 Industry balancing EV infrastructure rollout with EV sales: Going deeper

SBD PERSPECTIVE: Automakers are developing their charging networks for electric vehicles for several reasons. Firstly, it helps alleviate range anxiety for potential customers, as having control over the quality and availability of charging stations ensures a reliable and convenient charging experience. This makes electric vehicles more appealing and addresses a significant concern for buyers. Secondly, developing charging networks gives automakers a competitive advantage by differentiating themselves from competitors. In addition to focusing on the quality of their vehicles, they can now also emphasize the quality of their charging infrastructure, attracting more customers in the growing electric vehicle market.

US States Leaders and followers between 2021 and 2022

(Source: 217 EV Infrastructure Guide)



Note: The scatter chart does not show all state names to prevent overlapping.

Leaders

- As of early 2023, California remained at the forefront among other states in the USA by showcasing consistent growth in both the registration of BEVs and the development of charging infrastructure
- In terms of BEV sales volumes, California continues to maintain its leadership position, surpassing 100,000 BEV registrations in 2022, representing an increase from the previous year.

Charging Leaders

- With a 78-megawatt (MW) growth, Connecticut has made significant strides in expanding its charging network.
- Following closely behind Connecticut, South Carolina has also made noteworthy progress in EV charging infrastructure, adding 61 MW to its network.

Vehicle Leaders

- Despite an increase of 3,950 registered BEVs in Oklahoma from 2021 to 2022, the growth in charging power was modest, with a gain of just over 7,000 kW.
- The implementation of additional incentives and regulations by the government could potentially lead to a surge in these states' adoption of electric vehicles.

Followers

- States in the USA with smaller populations, such as Alaska and Hawaii, emerge as followers in the adoption of BEVs due to their unique geographic locations and conditions.
- In 2022, Alaska witnessed an increase of 225 registered BEVs compared to 2021, while Hawaii saw a growth of 219 BEVs during the same period.



CASES

USA

China

Europe

Other

Global



9 Battery supply chain automaker investments: In the news

A complicated network, ranging from raw material miners to cell manufacturers for automakers, makes up the battery supply chain for electric vehicles (EVs). The need for raw materials is rising as more EVs are manufactured each day. Additionally, the main component of the supply chain for EV batteries is regionally concentrated, while the cost of components, such as cobalt and nickel, has increased significantly. Automakers are worried about the future and are looking for other strategies to protect these essential resources. The EV battery supply chain's ability to meet demand will probably take several years.

Ford aims to secure battery material supply with new Canada facility

- Ford is partnering with South Korean companies SK On and EcoPro BM **to build cathode-active material**.
- The plant is **expected to start in 2026** and will have the capacity for over 400,000 EVs per year.
- This is part of Ford's plan to invest \$50 Billion in EVs by 2026 and have over 2 million vehicles on the road by 2030.
- The plant in Canada near Becancour, Quebec, will be the first to produce this material.

JLR creates renewable energy storage from used batteries

- Jaguar Land Rover has teamed up with Wykes Engineering to create a new system using recycled car batteries.
- This **system will store energy generated from solar and wind power and release it back into the grid** during high demand.
- The system will be **located at Wykes' headquarters** in Cornwall, UK.
- Power comes from used batteries from the Jaguar I-Pace and can store up to 2.5MWh of energy.
- The system will be in place by the **end of this year**.

BMW group to build logistics center for high-voltage batteries

- BMW is building a **new center for high-voltage batteries** in Leipzig, Germany.
- The center will **distribute high-voltage batteries** for BMW's electric vehicles, including the iX, iX3, i4, and iX1.
- This center will also handle the assembly and packaging of the battery modules.
- The center is **expected to be completed in mid-2024** and will be the largest in the world.
- It is located on a 12-hectare site and will employ around 500 people.

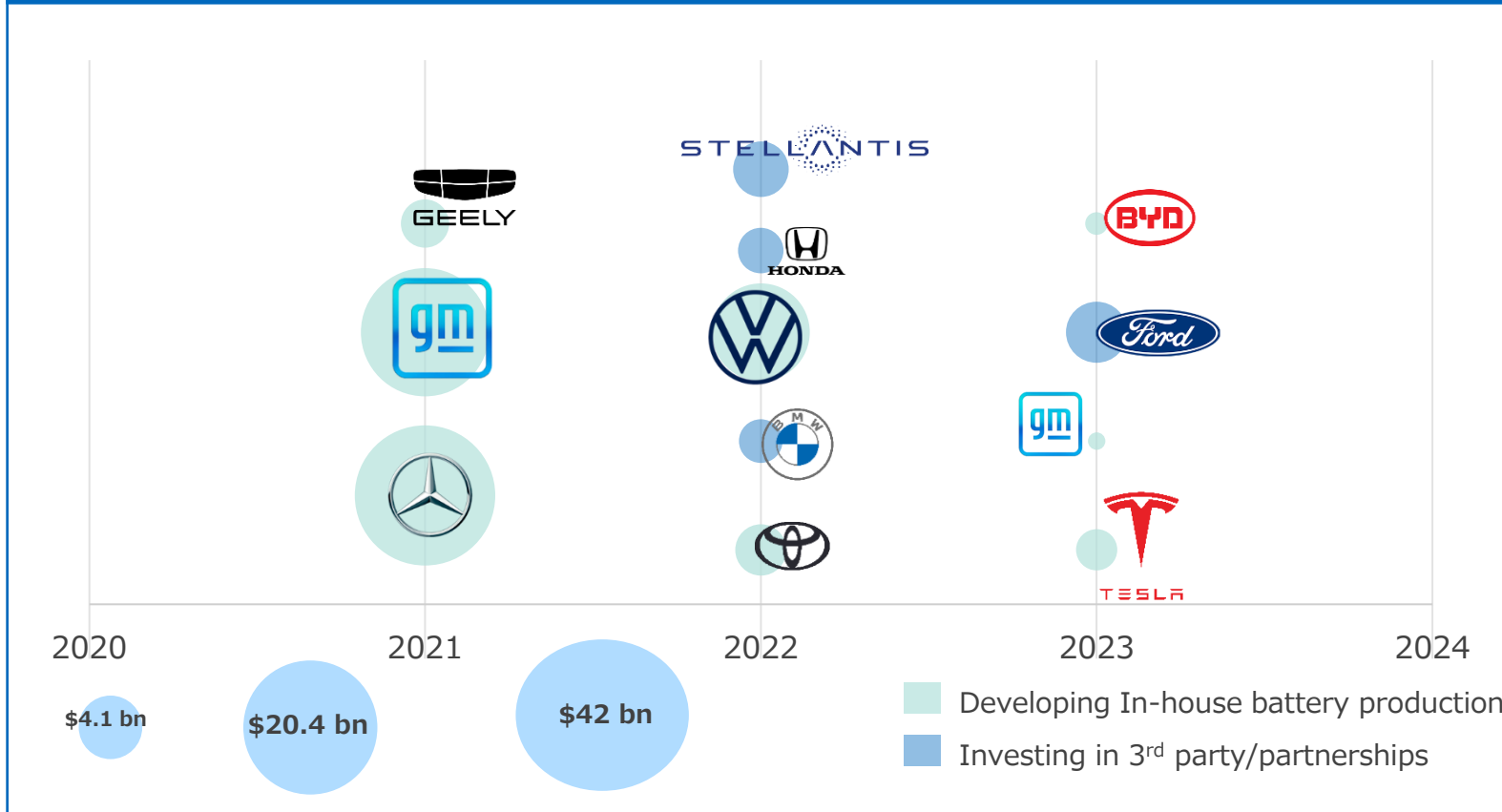




9 Battery supply chain automaker investments: Going deeper

SBD PERSPECTIVE: Generally speaking, automakers are getting involved in the battery industry in four ways. These are: establishing partnerships with battery manufacturers and creating subsidiaries for battery production either as wholly-owned entities or in joint ventures with other players vertically integrating under the same brand. The chart below indicates the automakers active in the industry and representing different categories of EV manufacturers including start-ups, established brands, and automakers vertically integrating by bringing battery production in-house.

Latest EV-Battery expansion-plan-related investment announcements (in \$ Bn)
(Source: 219 - EV Battery Technologies and Ecosystem)



Key Highlights

- Automakers are focusing on the development and production of electric vehicle batteries with an **estimated investment of \$515 billion over the next 3 to 8 years.**
- Some automakers are partnering with major EV battery manufacturers, like **Stellantis teaming up with Samsung SDI and LG Energy Solution** with investments of \$2.5 billion and \$4.1 billion, respectively.
- Some of the largest investments related to in-house EV battery production plants were announced in early 2021 as pandemic restrictions eased.
- Financial specifics of smaller partnership deals, such as **Renault's collaboration with startup Verkor**, not disclosed but expected to be in the hundreds of millions range.



CASES

USA
China
Europe
Other
Global



10 'Kia Boyz' trend continues: In the news

The trend known as the 'Kia Boyz' or 'Hyundai Boyz' has been ongoing for over a year now. Kia and Hyundai cars manufactured between 2011 and 2022 without an engine immobilizer can be stolen using a screwdriver and a USB cable. This trend continues with alarming numbers, and some cities are taking legal action against Hyundai and Kia due to this issue.

KIA HYUNDAI Motherboard's data on the staggering problem of Hyundai and Kia theft

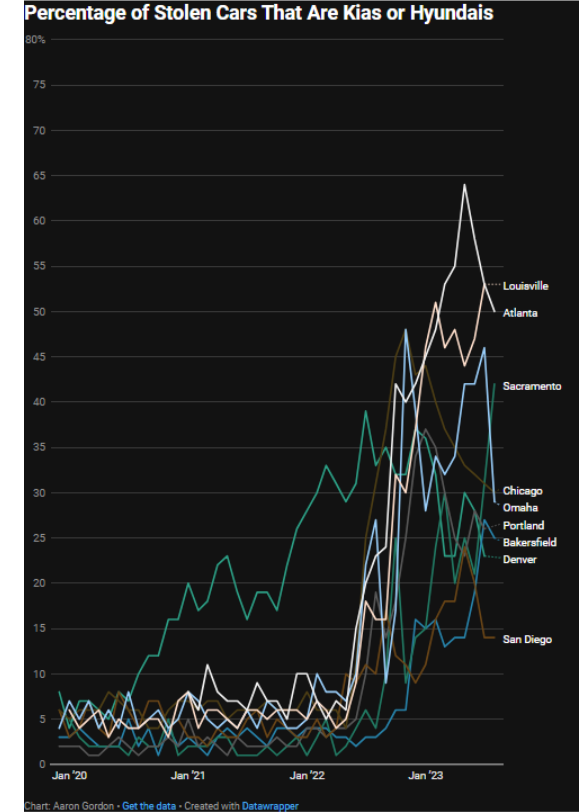
- Chicago had the highest number of Hyundai and Kia thefts in a single month, with **1,431 cars stolen** in October 2022, followed by Denver, which had 464 cars stolen in July 2022.
- During May 2023, **64% of the cars stolen in Atlanta** were either Hyundais or Kias.
- Up to August 2023, the latest month for which Motherboard has data, Kias and Hyundais accounted for **35% of the 19,448 stolen cars** in Chicago.

KIA HYUNDAI American cities are suing car manufacturers over auto theft.

- Since 2023, Seattle, Baltimore, Cleveland, New York, Chicago, St. Louis and Columbus have all sued Kia and Hyundai over the Kia Boyz.
- Dozens of insurance companies have also filed lawsuits against Hyundai and Kia. Some insurance companies **have stopped providing insurance** for the vulnerable vehicle models.
- Seattle experienced a **620% increase** in thefts of Hyundais and Kias when comparing July 2022 to July 2021.

KIA HYUNDAI U.S. Judge rejects Hyundai and Kia's proposed \$200 million settlement over thefts

- Central District of California James Selna rejected Hyundai's and Kia proposed **\$200 million settlement** over the stolen vehicles without the immobilizer.
- The judge rejected the proposal from Hyundai and Kia noting that the **amounts are not satisfactory**.
- The judge explained that vehicles manufactured in 2022 and subsequently stolen would have a significantly higher value than those produced in 2011. Therefore, owners should be entitled to greater compensation.



Source: [Vice.com](https://www.vice.com)



CASES

USA
China
Europe
Other
Global



10 'Kia Boyz' trend continues : Going deeper

SBD PERSPECTIVE: Enhancing security systems in the automotive industry involves addressing vulnerabilities and following cybersecurity best practices. The recent trend clearly indicates that the number of public attacks are increasing for Hyundai and Kia. Most of the public hack demonstrations require physical access to the vehicle during the exploitation phase. It is expected the trend to slow down as the automakers are focusing more on the countermeasure implementations.

Hackers control Hyundai/Genesis vehicles via mobile app

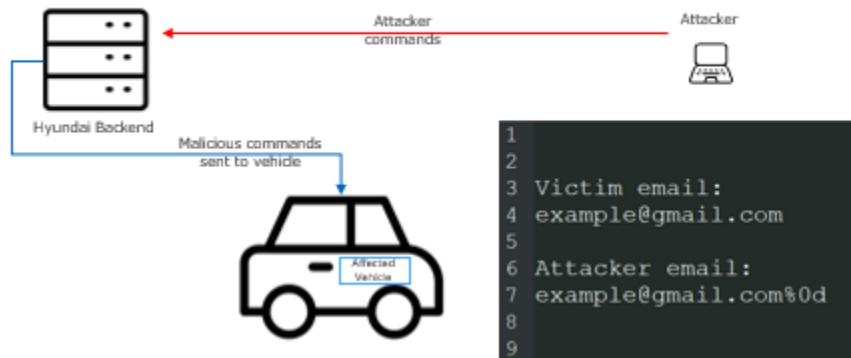
(Source: SBD Automotive – 905 Cyber Intelligence Guide)

An ethical hacker recently found a vulnerability affecting Hyundai and Genesis vehicles that allowed them to remotely control vehicle locks, engine, horn and trunk.

Insecure mobile app API allows attackers to access victim's account with a fake email ID

Ethical hacker Sam Curry (alias @samwcyo) found a vulnerability in Hyundai and Genesis vehicles by sniffing app API traffic through Burp Suite. The email ID was the vulnerable point wherein there was a loose pattern match (regex) which allowed control characters in the email ID. Furthermore, the server did not require users to confirm their email ID. Using these two issues, attackers were able to create fake IDs which resembled a victim's email ID but with CR(CR is a control character used to mark a line break in bytecode) appended at the end.

This let the attackers login with victim's account, fetch sensitive information and with the right HTTP request go further and perform vehicle operations like controlling vehicle lock, engine, horns etc remotely.



Attack Target		Attack Vector	
Backend server		Remote	
Attack Point/Interface		Attack Feasibility	
App		High	
Impact			
Safety	Financial	Operational	Privacy
Attack Maturity			
Practical	Experimental	Theoretical	

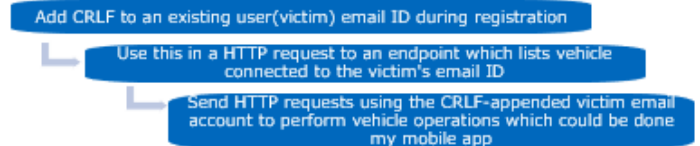
Damage Scenario

Financial Operational and Privacy loss due to lack of security controls on the API that results to loss of Integrity and Confidentiality.

Threat Scenario

Unauthorised access to control vehicle and extract sensitive data

Attack Path



Description of Attack Methods

- Attacker gains access to victim's email ID with which the mobile app is registered
- Attacker adds CRLF to the victim's email ID and does a new registration
- Attacker uses newly registered email id in a HTTP request to an endpoint which lists vehicle connected to the victim's email ID
- Attacker sends HTTP requests using the CRLF-appended victim email is to perform vehicle operations which could be done my mobile app



CASE STUDY

USA
China
Europe
Other
Global



Major Movers

The market participants that have left a significant impact on the industry last quarter



[Contents
Page](#)



[About SBD](#)



[Contact Us](#)



Introduction



Top Disruptor

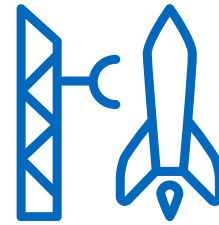
An organization that has had an outsized influence on the direction of mobility

Seven Automakers Charging Infrastructure Consortium



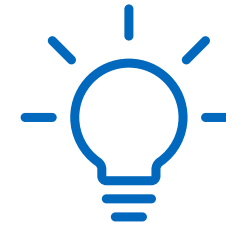
Top Performer

An organization that is outperforming competitors within the mobility market



Top Newcomer

An organization that is either new or that is new to the mobility market



Top Innovator

An organization that has found a creative new way of solving a mobility pain point



Top Communicator

An organization that has been successful at clearly articulating its vision or plans





Top Disruptor: 7-Automakers Charging Infrastructure Consortium

In anticipation of President Biden’s ambitious target of 500,000 EV chargers by 2030 as per the National Electric Vehicle Infrastructure (NEVI) initiative, the overall charging infrastructure in North America has significantly improved over the past few years. Last year, Tesla emerged as the leader in the US yet again both in terms of EV sales and a comprehensive network of fast chargers (~18,000 Superchargers). Moving ahead, a new consortium led by seven automakers will work together to expedite the development and deployment of more charging networks so that it satisfies or even exceeds the demands laid by NEVI

Why are they Major Movers?

- Major global automakers including BMW Group, General Motors, Honda, Hyundai, Kia, Mercedes-Benz Group, and Stellantis have formed a joint venture to create a high-powered EV charging network across North America.
- As per the roadmap, 30,000 charging points which will support both CCS and NACS connectors, will be deployed.
- The charging stations are scheduled to open in the summer of 2024.
- The joint venture aims to foster the rapid adoption of electric vehicles in the U.S. by 2030.

Automakers involved in the joint venture



Announcement Highlights

- To make EV charging accessible to all battery-powered vehicles from any automaker.
- Charging stations will be accessible to all EV customers, offering both Combined Charging System (CCS) and North American Charging Standard (NACS) connectors
- The charging sites will be equipped with multiple high-powered DC chargers to facilitate long-distance journeys for EV drivers.
- The joint venture intends to power the charging network solely with renewable energy

SBD Perspective

- The joint-venture would directly compete with the incumbent charging networks, including Volkswagen's Electrify America and EVgo.
- Even though this network will be both CCS and NACS compliant, it will compete against Tesla's Supercharging network, which currently has a significant presence in North America.
- The automakers would have a fantastic chance to explore consumer needs for the infrastructure for charging while maintaining high standards and ongoing research and development for EVs.

CASES
USA
China
Europe
Other
Global



Top Performer: Volkswagen

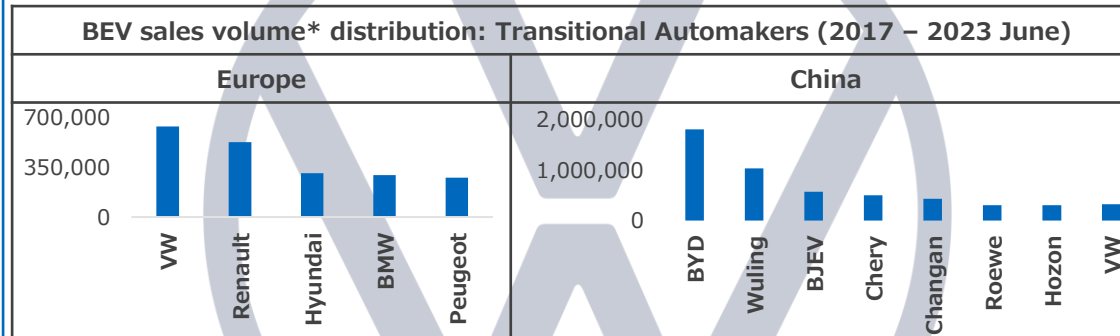
Volkswagen (VW) is transforming to pursue greener options and is now one of the top EV manufacturers in Europe based on the sales numbers. The company is now trying to gain a strong position in the Chinese market, as it is the only Western automaker to lead the sales volume considering the cumulative figures. VW plans to expand collaboration by jointly manufacturing cars with more domestic Chinese automakers for further expansion.

Why are they Major Movers?

- The full-year operational profit for the VW Group (2022) was €22.5 billion, a 13% year-on-year increase. Additionally, they provided 26% more EVs than the last year.
- In another development, Volkswagen Group invested \$700 million in Xpeng acquiring a 4.99% share in the company as well as a seat on its board of directors to expand its foothold in the China market.
- Volkswagen also intends to invest €180 billion (\$192.6 billion) between 2023 and 2027, with electrification and digitalization receiving more than two-thirds of the funds.

Volkswagen expanding its electric vehicle horizon

Volkswagen is planning to drive **70% of its sales in Europe purely through EVs by 2030**. The 'ID' series models that are based on a new centralized ICAS architecture are becoming the top-selling vehicle in Europe and have been instrumental in making VW the leader in terms of sales volume among all the automakers which are transitioning from ICE to EVs.



- The partnership between **VW and Xpeng**, and between **Audi and SAIC**, is aimed to strengthen its position in the Chinese automotive market and advance its local electrification strategy.
- The partnership's work will begin with the joint development of electric models in a segment where Audi does not yet have a presence in China.
- The partnerships aim to facilitate the joint development of new local platforms for intelligent connected vehicles.

*Note: The Sales volume data has been sourced from EV Volumes

SBD Perspective

- Volkswagen is one of the few foreign carmakers in China that has been able to set a firm base when it comes to EVs and is now looking to gain more foothold through local partnerships and joint ventures.
- This is a significant step towards Volkswagen's 100% vehicle line-up electrification target being reached by 2040.
- A potential next step for VW could be to broaden its product line by introducing less expensive ID vehicles in its lineup.



Top Newcomer: Leapmotor

Leapmotor is a Chinese EV maker headquartered in Hangzhou. It was established in 2015 and quickly made its mark in the Chinese domestic market with premium electric SUVs. The business has received a healthy amount of funding from investors, totaling \$1.1B so far. Following its impressive local success and desire to expand abroad, the company has recently attracted a lot of interest from other automakers, including Volkswagen and Stellantis.

Why are they Major Movers?

- Leapmotor aims to establish a foothold in developing EV markets outside its native market of China as well as Europe.
- The company is aligning its models with general market trends by offering safety technology, including lidar and high-resolution cameras, to enable Level 3 autonomous driving capability (when regulations permit).
- With a rise in car sales from 1,000 in 2019 to over 111,000 in 2022 in China, the company has experienced tremendous success.

Leapmotor Going Global

- Leapmotor will expand its presence globally.
- The expansion will focus on launching its mid-size C10 electric vehicle, revealed at IAA Mobility 2023.
- The C10 model is based on LEAP 3.0 architecture and will adhere to global standards and meet the requirements.
- The C10 will be offered in both fully electric and range extender variants, with the option of five- or six-seat configurations.
- The car will have the option of both rear-wheel drive and all-wheel drive, an intelligent cockpit system based on Qualcomm Snapdragon 8295 chip and feature Level 3 autonomous driving.
- Leapmotor also plans to introduce five globally-oriented products in Europe, Asia-Pacific, the Middle East, the Americas, and other regions in the next two years.



SBD Perspective

- With the emerging EV landscape in the automotive industry, Leapmotor is a note-worthy contender considering its strategic approach to global expansion and commitment to adhering to international standards.
- As more and more Chinese brands are entering the European market the competition is increasing for the already established automakers in the market.
- With updated technologies, the new model with LEAP 3.0 architecture will be competitive in the automobile industry.



Top Innovator: Apple

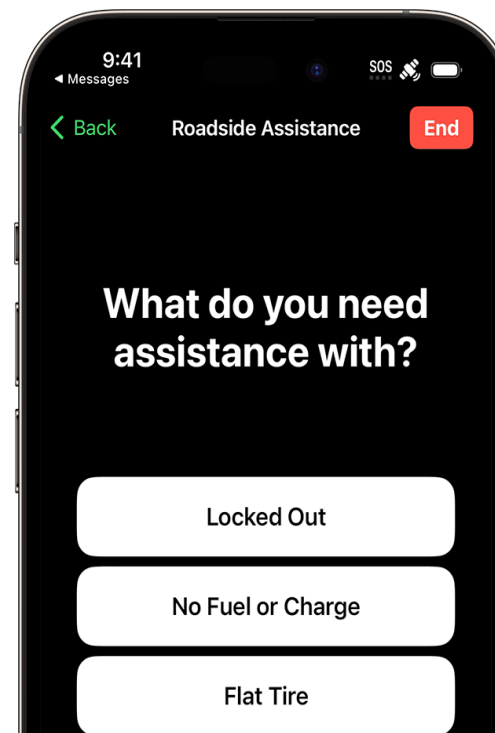
Tech Giant, Apple has a tremendous market share through its consumer electronic products, such as the iPhone and smartwatch. In the automotive sector, they have the CarPlay smartphone duplication app for the in-vehicle infotainment system. CarPlay hosts multiple connected features related to navigation, safety and security. In September 2023, Apple announced a Roadside assistance service for the US market that will use satellite technology to request roadside assistance. This is an innovative service offered to vehicle owners that aids the user in difficult situations like low fuel or charge.

Why are they Major Movers?

- The launch of Roadside Assistance shows Apple's ability to leverage its brand and technology to introduce innovative solutions.
- Apple ensures a cohesive and user-friendly experience across its products and services whilst maintaining quality and reliability.
- Apple's strategy of collaborating with other industry leaders helps it to explore new options and expand its influence beyond traditional tech markets.

Roadside Assistance

- Apple partnered with AAA, the foremost leader in roadside assistance in North America.
- The Roadside Assistance via satellite is available to iPhone 14, iPhone 14 Pro, iPhone 15, and iPhone 15 Pro users.
- The user can text for roadside assistance in locations with no cellular or Wi-Fi coverage.
- AAA members will have their membership verified and receive service. Non-members can pay post service completion.
- The service utilizes Apple's Emergency SOS via satellite, launched in 2022.
- Roadside Assistance via satellite is available in the USA and Puerto Rico starting September 22, 2023.



SBD Perspective

- Apple operates under a business strategy that allows it to directly control the user and developer ecosystem and introduce new products to the market.
- Apple avoids taking numerous chances by releasing goods that aren't ready for sale.
- The Tech Giant which is driven by 'Scale', is at present 'Highly Focused on Customer' products and partnering with automakers to develop in-car technologies based on smartphones.



Top Communicator: Hyundai Mobis

Hyundai Mobis, a division of the Hyundai Motor Group, is one of the leading global auto suppliers to the automotive industry. The term "MOBIS MOBILITY MOVE 2.0" refers to the rapid advancement of future mobility, electrification, and autonomous driving technology. Hyundai Mobis will be working with Volkswagen to influence the development of the vital battery-related parts of electric vehicles. A greener and more technologically sophisticated automobile future is assured thanks to several partnerships, collaborations, and scientific innovation.

Why are they Major Movers?

- Hyundai Mobis is emphasizing electrification, which aligns with the global shift towards electric mobility.
- The company's strategy is built around a core businesses of electrification, Next-gen chassis and connectivity.
- The diversified approach of providing comprehensive solutions to the industry is positioning Hyundai Mobis well.
- Hyundai Mobis is expanding its presence in the EU market, which is a hub for automakers and innovative technology standards.

MOBIS MOBILITY MOVE 2.0

Connectivity	Electric Mobility
<ul style="list-style-type: none"> • The company has begun the development of 5G-based V2X integrated control technology which would be important for autonomous driving. • Hyundai Mobis and Autotalks have collaborated to develop connectivity modules called MTCU (Multi-functional Telematics Control Unit). 	<ul style="list-style-type: none"> • Hyundai Mobis approaches the European market focusing on three core solutions, including electric vehicle core components such as battery systems and power electronics (PE systems). • They have also announced plans to develop an 800V battery system and a 3rd gen PE system for high-performance electric vehicles.
Autonomous	<p>Global Expansion of Electrification by Mobis</p>
<ul style="list-style-type: none"> • Hyundai Mobis' next-generation parking control system, MPS 1.0 P (Premium) learns the driving route and performs parking using ultrasonic and surround view monitor cameras • The company has begun the development of 5G-based V2X integrated control technology which would be important for autonomous driving. 	

SBD Perspective

- The launch of Mobis Mobility Move 2.0 and the recent award of a contract by Volkswagen for the delivery of large-scale battery systems demonstrates the company's commitment to electric mobility.
- Hyundai Mobis' participation in several CASES categories indicates that it will have a significant impact on the European market.
- The growth of technology might play a key role in the parent company's (Hyundai Motors) initiative "Unlock the Software Age " to offer SDVs by 2025.

CASES
USA
China
Europe
Other
Global



Everything Else

Relevant news articles from the last quarter



[Contents
Page](#)



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Connected News from the last 3 months

Source	Title	Date	Link
Stellantis	Stellantis invests in 10 mobility startups and one mobility venture fund with goal to achieve sustainable mobility	15/06/23	Link
Politico	EU gets pressure from France to act against Chinese automaker automotive entry	15/06/23	Link
Mercedes-Benz	Mercedes-Benz will train 600+ employees to be data and AI specialists	25/07/23	Link
Audi	YouTube will be available on some Audi models	25/07/23	Link
BMW Group	MINI adopts a round OLED display supporting MINI OS 9	27/07/23	Link
LinkedIn	Mercedes-Benz implements GitHub copilot for software developers to use	28/07/23	Link
Automotive World	Blockchain-based carbon emission monitoring system being introduced by Hyundai Motor and Kia	28/07/23	Link
mimik Technology	SDV being explored by mimik Technology and BlackBerry partnership	10/08/23	Link
Continental	AWS partners with Continental to explore SDV	17/08/23	Link
TechCrunch	Massachusetts right to repair law enforced by NHTSA	23/08/23	Link
Wind River	ZEEKR partners with Wind River for EEA development	23/08/23	Link
TechCrunch	GM looks to Google for AI chatbot	29/08/23	Link
EVgo	EVgo and Amazon partner for Alexa based EV navigation	31/08/23	Link
The Verge	AWS supports BMW with autonomous vehicle data	05/09/23	Link
Hyundai	Hyundai Pay in-vehicle service comes to 2024 Kona	06/09/23	Link
TechCrunch	New satellite roadside assistance provided by Apple and AAA	12/09/23	Link
Reuters	EU considers tariffs on Chinese electric vehicles	13/09/23	Link



Connected News from the last 3 months

Source	Title	Date	Link
The Verge	Native Android software gets Prime Video and more with new update	13/09/23	Link
CNBC	NIO creates smartphone to enhance vehicle experience	20/09/23	Link



Autonomous News from the last 3 months

Source	Title	Date	Link
Tesla Oracle	Tesla HW4-equipped vehicles come with a new radar	19/06/23	Link
Rivian	Rivian removes the driver facing camera from vehicles	20/06/23	Link
Automotive World	Audi releases intelligent OLED headlights and rear lights with added safety features	26/07/23	Link
GM	Driver education for assisted driving features explored by GM	26/07/23	Link
Toyota	Toyota collaborates with third parties in 3 safety research projects	27/07/23	Link
Wind River	Automated driving solutions explored by Wind River and Horizon	31/07/23	Link
Waymo	Autonomous driving company Waymo expands to Austin, Texas	03/08/23	Link
Inside EVs	Autonomous driving company Cruise has vehicle collide with semi-truck	08/08/23	Link
The Verge	California approves of 24/7 operations of robotaxis	10/08/23	Link
Ford	Ford offers free-trial for BlueCruise and opts for subscription-based model	14/08/23	Link
Mercedes-Benz	SAE Level 4 autonomous solution introduced by Mercedes-Benz for valet parking	15/08/23	Link
Automotive News	ADAS can help save 250,000 lives over 30 years according to AAA funded study	17/08/23	Link
Aisin	Aisin targets school zones as key areas to increase driver safety and awareness	17/08/23	Link
TechCrunch	Regulators mandate Cruise to reduce fleet by 50% following crash	18/08/23	Link
Bosch	Video perception standalone product offered by Bosch	24/08/23	Link
Inside EVs	FSD v12 Demo by Elon Musk	28/08/23	Link
Electrek	Ford gains approval from Germany to enable BlueCruise on their roads	29/08/23	Link



Autonomous News from the last 3 months

Source	Title	Date	Link
The Verge	NHTSA questions Tesla's hands-free driving with minimal driver monitoring	29/08/23	Link
Automotive World	Volvo Autonomous Solutions achieves milestone by removing safety driver from autonomous mining truck	31/08/23	Link
Schaeffler	Self-driving shuttles developed by Schaeffler and VDL Groep	31/08/23	Link
Teslarati	"Autosteer on city streets" is now available for Tesla FSD	04/09/23	Link
The Verge	AWS supports BMW with autonomous vehicle data	05/09/23	Link
Detroit Free Press	Cruise will start building Origins vehicles at Factory Zero soon	07/09/23	Link
BBC News	Autonomous electric bus begins operations in Oxfordshire	08/09/23	Link
Handelsblatt	BMW receives approval for L3 autonomous solution in Germany	28/09/23	Link



Shared News from the last 3 months

Source	Title	Date	Link
LinkedIn	Ride share company Uber has its first profit	31/07/23	Link
The Verge	California approves of 24/7 operations of robotaxis	10/08/23	Link
TechCrunch	Regulators mandate Cruise to reduce fleet by 50% following crash	18/08/23	Link
Hyundai Motor Group	Hyundai Motor Group partners with SG Enable and SAVH to research mobility solutions for those with visual impairments	19/09/23	Link



Electric News from the last 3 months

Source	Title	Date	Link
Teslarati	Citroën aims to develop and EV that supports persons with disabilities	06/06/23	Link
Stellantis	Stellantis invests in 10 mobility startups and one mobility venture fund with goal to achieve sustainable mobility	15/06/23	Link
This Is Money	Used EV values have dropped significantly in 2023	12/07/23	Link
Automotive World	Partnership talks between Subaru and Panasonic Energy for cylindrical Li-ion batteries	31/07/23	Link
GM	Bidirectional charging to come to GM Ultium-based EVs	08/08/23	Link
GM	GM e-delivery vehicles, BrightDrop EVs, to be brought to Mexico	08/08/23	Link
TechCrunch	Cadillac announces all electric Escalade IQ	09/08/23	Link
Reuters	JI YUE intelligent technology brand created by Geely	14/08/23	Link
Reuters	\$40 million settlement between Karma and Lordstown Mo	15/08/23	Link
Automotive World	GM invests in Mitra Chem for battery material AI technology	16/08/23	Link
TechCrunch	Ford invests in Canada facility to secure battery supply material	17/08/23	Link
Acura	Acura announces 2024 all-electric ZDX and ZDX Type S	17/08/23	Link
Automotive World	Fleet electrification explored by Webfleet and VEV partnership	17/08/23	Link
Automobili Pininfarina	Automobili Pininfarina releases new electric hyper car	17/08/23	Link
JLR	JLR looks to use old EV batteries as storage for solar and wind powered systems	23/08/23	Link
Automotive World	BMW Plant Leipzig will get logistics center for high-voltage batteries	25/08/23	Link
Automotive News	Ford is optimistic on future of EVs despite current setbacks	27/08/23	Link



Electric News from the last 3 months

Source	Title	Date	Link
Ford	Duke Energy and Ford launch home charging pilot with intention of saving consumers money and supporting the grid	28/08/23	Link
Stellantis	Stellantis will support dealership electrification with Charge Enterprises partnership	28/08/23	Link
The Verge	Mercedes-Benz opens DC fast charging hub in Atlanta, Georgia	28/08/23	Link
Inside EVs	FSD v12 Demo by Elon Musk	28/08/23	Link
Fisker	Fisker to deliver Ocean One vehicles to Canada by end of September	29/08/23	Link
Automotive World	BorgWarner will use STMicroelectronics for Viper-based power module	31/08/23	Link
EVgo	EVgo and Amazon partner for Alexa based EV navigation	31/08/23	Link
The Verge	Fisker Pear offers disappearing trunk	31/08/23	Link
Electrek	New Tesla Model 3 Highland unveiled	31/08/23	Link
Electrek	Polestar to release Polestar 4 SUV and smartphone in China	06/09/23	Link
Honda	Honda to adopt Tesla's NACS for vehicles in North America	07/09/23	Link
Hilton	Tesla will install 20,000 universal charging stations at 2,000 Hilton locations	07/09/23	Link
BP	BP opens Gigahub charging center in Birmingham	07/09/23	Link
BBC News	Autonomous electric bus begins operations in Oxfordshire	08/09/23	Link
Autoevolution	Rivian CFO confirms there will be changes for the R1S and R1T in 2024	09/09/23	Link
Ford	BMW Group, Ford Motor Company, and American Honda Motor Co., Inc. have partnered to create a platform to connect electric utilities and automakers called ChargeScape	12/09/23	Link



Secure News from the last 3 months

Source	Title	Date	Link
Automotive World	Audi releases intelligent OLED headlights and rear lights with added safety features	26/07/23	Link
Mercedes-Benz	Mercedes-Benz is focusing on reducing the number of counterfeit parts sold online	17/08/23	Link
The Times of India	India will implement its own crash test rating	20/08/23	Link
Automotive News	GM will close Arizona IT center	23/08/23	Link
Wind River	ZEEKR partners with Wind River for EEA development	23/08/23	Link
Automotive News	Dodge and Kia among most stolen vehicles	31/08/23	Link
The Economist	US cities are suing car manufactures claiming a rise in crime due to car thefts	31/08/23	Link
Carscoops	Hyundai and Kia's \$200 million dollar settlement rejected by US judge	31/08/23	Link
Wired	New data shows US Kia and Hyundai thefts are still large	23/09/23	Link



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