

Autonomous Akin

Akin Gump
STRAUSS HAUER & FELD LLP

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Autonomous Akin brings you the latest news and developments regarding autonomous systems and advanced mobility so that you can keep a pulse on what is happening in government and industry that is impactful for your business. Akin Gump's cross-practice autonomous systems and advanced mobility team stays abreast of developments in the regulatory, policy, trade, intellectual property, cybersecurity and privacy spaces as it impacts this industry. We hope you will continue to read, and for our new readers, you can subscribe to future issues of this newsletter [here](#). Thank you!

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UNMANNED AIRCRAFT SYSTEMS (UAS)

Drone Express Partners with Microsoft to Develop Artificial Intelligence (AI) Delivery Drones

Drone Express, an innovative last-mile logistics company, has partnered with Microsoft to launch a new version of their DE-2020 drone using Artificial Intelligence (AI) for in-flight navigation systems. This creative collaboration will equip delivery drones with Microsoft Azure to host the AI solutions and use Azure Machine Learning to train machine learning models. With AI implemented, drones can safely make live, in-flight decisions to deliver packages in an urban environment. The first aircraft with this specific hardware will enter production at the end of 2022 and provide customers with safer and faster last-mile delivery solutions.

"While our competitors are focusing on how to carry more weight, we are focusing on building a more intelligent aircraft," said Beth Flippo, Chief Executive Officer. "This technology, combined with our proprietary mesh networking capabilities, will propel our aircraft to the forefront of autonomous airborne logistics."

Drone Express is currently on track to become one of the first companies to attain a Part 135 Federal Aviation Administration (FAA) certification for autonomous drone delivery.

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Drone Use in Health Care Expanding

Susan Stone helps manage her 87-year-old mother's medications. She says she takes as many as 15 different medicines a month.

“There are times when I can’t be here, and if she runs out and if there’s one that she needs for that day, she could get it immediately,” Stone said.

Stone is talking about the drone that could eventually deliver her mother’s medications in minutes.

Zipline, a logistics and delivery system, has partnered with InterMountain Healthcare to deliver prescriptions and medical products directly to people’s homes in the Salt Lake Valley area of Utah.

This isn’t a first-of-its-kind partnership in the U.S. Zipline has partnered with other health systems in North Carolina. Drones helped move medications and kept pharmacies stocked and personal protective equipment (PPE) flowing during the height of the pandemic.

The company also works with Walmart near its Arkansas headquarters, delivering over-the-counter medications and other essential items. Soon it will expand work in Washington State to include flying things like lab samples and test kits in-between medical facilities.

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UK Announces £12 million in Grants for 24 Drone Delivery Projects

Science Minister George Freeman has today (November 30) awarded up to £12 million to U.K. regulators to help drive forward innovation, remove red tape and establish the U.K. as world leader in technologies of the future—from AI to help treat rare diseases to drones monitoring safety on construction sites. The Regulators’ Pioneer Fund is funding 24 regulator and local authority led projects across the U.K. that will help to remove regulatory barriers to innovation, supporting businesses across key U.K. sectors—from net-zero to health care—bring their products and services to market more quickly.

If successful, these projects could lead to faster deployment of low carbon technologies like carbon capture and hydrogen, more tailored treatment for disease in the National Health Service (NHS) and drones to deliver cargo and medicines safely.

Minister for Innovation George Freeman said: “The pace of new technology – from AI in healthcare to drone delivery to nutraceuticals – is creating a huge opportunity for the UK to be a global leader in testing new technologies and setting appropriate regulatory standards, which are key to investor & customer confidence. That’s why our Innovation Strategy and Taskforce on Innovation Growth & Regulatory Reform (TIGRR) reforms are key to making the UK a global testbed and innovative regulator. Today’s funding will support 24 pioneering testbeds to experiment and innovate, while helping our brightest businesses in bringing game-changing products and services to market.”

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Walmart Drone Delivery Service Launches in Arizona, Florida and Texas

The launch in three new states fits into Walmart’s wider plan to build the capacity to deliver 1 million packages per year by drone.

The retailer aims to expand its DroneUp network to cover 4 million U.S. households across six states. This includes the states involved in Thursday’s announcement, along with Arkansas, Utah and Virginia. DroneUp has already launched three delivery hub sites at Walmart stores in Northwest Arkansas. The release didn’t mention the current status of drone delivery in Utah and Virginia.

Thirty-four stores in 23 cities will have drone delivery available by year end, per Thursday’s release.

“Drone delivery makes it possible for our customers to shop those last-minute or forgotten items with ease, in a package that’s frankly really cool,” said Vik Gopalakrishnan, Walmart U.S. vice president of innovation and automation, in a statement.

Companies are pushing to advance drone delivery as a more efficient method to quickly deliver lightweight payloads versus ground vehicles. But even for companies with deep pockets like Amazon, drones have proven difficult to scale in the face of regulatory hurdles and technological limitations. Walmart, which has made a strategic investment in DroneUp, aims to break through those barriers.

Uncrewed Aviation Highlights of 2022

Autonomous Black Hawk: DARPA and Sikorsky in February conducted the first fully autonomous flights of a UH-60 Black Hawk with no one aboard the helicopter. In November, the modified S-70A optionally piloted vehicle, fitted with Sikorsky's Matrix autonomy system, conducted three flights at Yuma Proving Ground in Arizona to demonstrate contested resupply and casualty evacuation by an autonomous utility helicopter.

Eurodrone launched: The 7 billion euro (\$7.4 billion) contract to develop the four-nation Eurodrone medium-altitude, long-endurance uncrewed aircraft system was signed by Airbus and European defense materiel agency the Organisation for Joint Armament Cooperation (OCCAR) in February. Airbus, supported by subcontractors Dassault and Leonardo, subsequently selected GE's Catalyst turboprop for the twin-engine aircraft.

Japan's Global Hawk: The first of three Northrop Grumman RQ-4 Block 30(l) Global Hawks arrived in Japan in March, landing at Misawa Air Base. All three will be operated by the Japan Air Self-Defense Force Reconnaissance Air Group. Japan and South Korea could be the only operators of the Block 30 in the coming years as the U.S. Air Force is planning to mothball the older Global Hawks in favor of the Block 40 model.

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FCAS Remote Carrier Launched from A400M Atlas Aircraft

Airbus, in conjunction with Germany's Bundeswehr, the German Aerospace Center DLR, and SFL and Geradts, has carried out the world's first successful launch and operation of a Remote Carrier flight test demonstrator from a flying A400M Atlas aircraft. Remote Carriers are air-launched autonomous platforms designed to carry out a variety of military functions. Multiplying the force and extending the range of unmanned systems will be one of the future roles of Airbus' military transport aircraft in the Future Combat Air System (FCAS).

Remote Carriers will be an important component of FCAS. They will fly in close cooperation with manned aircraft and support pilots in their tasks and missions. Military transport aircraft such as the A400M will play an important role: as motherships, they will bring the Remote Carriers as close as possible to their areas of operation before releasing up to 50 small or up to 12 heavy Remote Carriers. These will then join manned aircraft, operating with a high degree of automation although always under a pilot's control.

The device for launching Remote Carriers from a flying A400M was developed in just six months. For the test flight, it was loaded onto the ramp of a Bundeswehr A400M, from which the Remote Carrier demonstrator, a modified Airbus Do-DT25 drone, was launched. After the release, the Do-DT25's engines were started and it continued in powered flight mode. The crew on board the A400M then handed over control to an operator on the ground, who safely commanded and landed the drone.

To get the A400M UAV Launcher ready for the test campaign, Airbus, the Bundeswehr Technical Centre for Aircraft and Aeronautical Equipment (WTD 61), DLR, SFL and Geradts applied new ways of working such as rapid prototyping and a joint flight testing approach. This enabled the multidisciplinary team to develop and integrate the system, bringing it into the needed systems-of-systems context in a very short time, ready for flight testing. Throughout the development, this flexible industrial setup and new collaborative ways of working were supported by the German procurement office, BAAINBw.

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The Energy Department (DOE) said Tuesday that scientists at a federal research facility had achieved a breakthrough in research on nuclear fusion, long seen as a potential source of clean, virtually limitless energy.

A controlled fusion reaction at Lawrence Livermore National Laboratory in Livermore, Calif., produced more energy than it consumed, Energy Secretary Jennifer Granholm and other government officials said during a press conference from DOE headquarters in Washington, D.C.

The milestone, known as fusion ignition, is unprecedented, according to the DOE.

"This is what it looks like for America to lead, and we're just getting started," Secretary Granholm said, adding that the breakthrough "will go down in the history books."

Researchers at the lab's multibillion-dollar National Ignition Facility have been studying nuclear fusion for more than a decade, using lasers to create conditions that cause hydrogen atoms to fuse and release vast amounts of energy. Since the facility began operations in 2009, the goal of a fusion reaction that produces a net gain of energy—a key step toward transforming fusion into a practical source of energy—had eluded scientists.

But an experiment at the facility conducted on December 5 produced 3.15 megajoules of fusion energy, compared with 2.05 megajoules of energy used to trigger the reaction.

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UN Says New Biodiversity Credits Can Succeed Where Carbon Offsets Failed

The United Nations (UN) is backing biodiversity credits as a way to boost conservation financing but critics warn the new financial instrument could give companies another tool to burnish green credentials without changing the way they do business.

The research published Monday by the United Nations Development Programme and the International Institute for Environment and Development (IIED), a U.K.-based think tank, comes as negotiators gather at the UN's flagship biodiversity summit in Montreal, Canada, with the hope of finalizing a global agreement to halt and reverse biodiversity loss by 2030.

Biodiversity—the breadth and variety of life and ecosystems on earth, from polar bears to plankton—is declining at an unprecedented rate, posing a threat to the planet and the financial system and accelerating the pace at which the planet is warming. The World Economic Forum estimates that roughly half of global gross domestic product, or about \$44 trillion of economic value, depends on the natural world in some way, meaning its destruction also carries an enormous financial toll.

More than 100 financial institutions representing some \$17 trillion have called on world leaders to agree effective measures to reverse nature loss by the end of this decade, a deal akin to the 2015 Paris Agreement that's set a clear goal to limit global warming.

Record attendance from corporates and finance executives is expected at this year's summit, marking a step-change from the past where private sector attention was largely focused on the climate equivalent that took place in Egypt last month.

Still, the finance sector has struggled to find a clear entry point to plug the annual \$700 billion financing gap for efforts to preserve and protect nature, a key sticking point for negotiators. That's not for want of trying: the last couple of years have seen record biodiversity fund launches and a host of new financial instruments from human-wildlife conflict insurance to debt-nature swaps to rhino bonds.

So-called biocredits—measurable, traceable and tradeable units of biodiversity—could offer that entry point and help break the negotiating deadlock, the UN and IIED researchers said.

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Nearly Every Country Signs on to a Sweeping Deal to Protect Nature

Roughly 190 countries early on Monday approved a sweeping United Nations agreement to protect 30 percent of the planet's land and oceans by 2030 and to take a slew of other measures against biodiversity loss, a mounting under-the-radar crisis that, if left unchecked,

jeopardizes the planet's food and water supplies as well as the existence of untold species around the world.

The agreement comes as biodiversity is declining worldwide at rates never seen before in human history. Researchers have projected that a million plants and animals are at risk of extinction, many within decades. The last extinction event of that magnitude was the one that killed off the dinosaurs 65 million years ago.

While many scientists and advocates had pushed for even stronger measures, the deal, which includes monitoring mechanisms that previous agreements had lacked, clearly signals increasing momentum around the issue.

"This is a huge moment for nature," Brian O'Donnell, director of the Campaign for Nature, a coalition of groups pushing for protections, said about the agreement. "This is a scale of conservation that we haven't seen ever attempted before."

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The Money Rush into Climate Startups Isn't Dominated by VCs Any More

This past fall, one of the busiest investors in climate technology wasn't a blue-chip venture capital (VC) firm or a specialist decarbonization fund. It was a Swiss conglomerate that makes circuit breakers, light switches and electric car chargers.

ABB Technology Ventures, the investment arm of ABB Ltd., was among the most active financiers that collectively put \$10.7 billion into climate tech businesses in the third quarter, according to clean energy research group BloombergNEF. It's an unusual name to top this list—and its executives say the heavy spending will continue.

Investing in the sector is "certainly becoming more and more of a focus," said Andreas Wenzel, ABB's head of corporate strategy and mergers and acquisitions. "I would expect it continues."

ABB has cut 10 checks to startups totaling \$100 million in 2022, a record sum for the industrial giant that only invested \$250 million over the prior 11 years. Earlier investments were mostly in robotics or industrial automation. More recently, ABB has looked for startups to supplement its business making electric vehicle charging equipment. And it's branched into software—last month, ABB backed Tallarna, a British data analytics firm that helps companies manage energy projects.

European industrial companies like ABB are racing to curb their greenhouse gas emissions and deal with the continent's energy crisis. Early in the pandemic, industrials saw a surge in demand as factories, power plants and other customers, short on labor, sought to automate more of their operations. But inflation and a slowing economy has dampened that growth, and fed an urgency to find new markets, said Omid Vaziri, an analyst with Bloomberg Intelligence.

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Climate Policy Has Become Central in the Fight for Global Power

The latest trade tensions between the U.S. and the European Union (EU) underscore just how critical climate policy has become for geopolitical jockeying.

The U.S. Inflation Reduction Act incorporates a raft of climate-friendly industrial subsidies to bolster domestic investment, while new EU trade laws will impose a levy on some high-carbon imports. The initiatives show how major economies are trying to create incentives to contain the damage from global warming while also keeping pace with high-stakes technological shifts.

The EU's fossil-fuel exit strategy—made more urgent by the energy crisis stemming from Russia's war in Ukraine—calls for massive investment in renewables and low-carbon technologies, while the bloc's planned Carbon Border Adjustment Mechanism (CBAM) would place additional costs on goods from countries with laxer climate policies to protect local producers.

"Climate is becoming an integral part of numerous economic sectors; it's not just energy anymore but also industry, farming, buildings or transport," said Joanna Pandera, president

of the Forum Energii think tank. “The world needs to ensure that trade plays by the green rules too.”

In Europe, the energy crisis and soaring prices have tightened the links between climate and economic policy, and efforts to implement the EU’s Green Deal accelerated Sunday, when officials reached provisional deals on the design of CBAM and a reform to bolster the bloc’s carbon market.

“The only effective way out of Europe’s energy challenges remains the same: the transition to low-carbon solutions, like home-grown and affordable renewables,” European Commission President Ursula von der Leyen said in a letter to member states last week laying out the bloc’s efforts to respond to its rift with the U.S. over environmental subsidies.

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AUTONOMY & ELECTRIC VEHICLES

Electric Vehicle Charging Investment Approaches the \$100 Billion Mark

BloombergNEF recently released its updated Zero-Emission Vehicles Factbook, which estimates cumulative investment in electric vehicle (EV) charging hardware and installation will reach \$62 billion at the end of this year, with \$28.6 billion having been invested just in 2022, up 228 percent from the year before. Of the total investment in 2022, 61 percent is attributed to more than 600,000 public chargers built in China.

Cumulative investment globally probably will pass the \$100 billion mark in 2023 if China keeps up its relentless pace. It’s a milestone that hints at the transition to a new phase of the EV charging sector lifecycle. As Jigar Shah at the U.S. Loans Program puts it, \$100 billion of deployed capital indicates an ability to address systemic industry challenges and opens up access to low-cost capital that’s required to ultimately reach \$1 trillion scale.

There are many signs the transition is underway. Factories are scaling up and purchase commitments are increasing. There’s an influx of infrastructure investors and coordination across the charging ecosystem, with automotive, charging, utility and retail sectors working together.

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Advanced Driver Assistance Systems Market Value to Reach \$72.2 Billion by 2030, Says P&S Intelligence

According to the latest market research study published by P&S Intelligence, in 2021, the advanced driver assistance systems (ADAS) market size was \$25.84 billion, and it is predicted to advance at a 12.1 percent CAGR from 2021 to 2030, to hit \$72.2 billion in 2030.

The major reasons behind the growth of this market are the snowballing acceptance of autonomous vehicles, developing automotive industry, growing research and development (R&D) activities in developing nations and rising population across the globe.

Moreover, the rise in the acceptance of safety features in passenger vehicles and government support in terms of guideline implementation and financial benefits are contributing to the market growth.

The tire pressure monitoring system category has the largest revenue share, of over 18 percent. The snowballing incorporation of electronic systems in vehicles, escalating need for tire pressure management, rising awareness about vehicle safety, surging concentration on improving the service life of tires and mushrooming manufacturing of vehicles are driving this category.

The category of adaptive cruise control system also had a substantial share in the past. This can be credited to the growing number of vehicles on the road, rising popularity of ADAS in developing countries, increasing occurrence of traffic jams, and shift of consumers to vehicles with advanced driving technologies.

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AAA Expanding Service; Offers Mobile Electric Vehicle Charging in Select Cities

AAA is expanding its services for electric vehicle owners across the United States. The motor club is launching a pilot program, offering roadside charging for EVs in 16 metro areas.

“AAA is prepared to service any vehicle type, whether gas or electric,” said Montrae Waiters, AAA-The Auto Club Group spokeswoman. “Range anxiety remains the number one barrier between consumers and wider EV adoption. AAA will help ease this anxiety by deploying specialized trucks equipped with mobile electric vehicle chargers, providing enough range to get drivers home or to the nearest charging station.”

For AAA members, this service is provided at no additional charge. AAA will continue to assess the demand for mobile electric vehicle charging and will add locations as needed. As part of this evaluation, AAA will also explore various mobile charging methods to deliver the best experience to its members.

This is the second pilot of its kind that AAA has brought to the marketplace in the last decade. The purpose of the first pilot, launched in 2010, was to explore a few prototype technologies that could be used to charge electric vehicles at the roadside. After 10 years of service, all the original prototype vehicles (five total) were retired. AAA took learnings from that pilot to inform this next iteration.

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Themes from Bosch Connected World 2022: The Role of Cybersecurity in Software-Defined Vehicles and the IIoT

I recently had the opportunity to attend the 2022 Bosch Connected World conference in Berlin, which highlights state-of-the-art Internet of Things (IoT) and AI technologies through best practices and real use cases. Bosch has held the Connected World conference annually since 2014, offering an online option for the first time this year, as a way to bring together its closest technology and business partners to drive thought leadership, innovation, and networking.

I must confess that previously, I mostly knew the Bosch brand from their home appliances like refrigerators, washing machines, dryers, robotic lawnmowers and automotive subsystems (Bosch democratized the anti-lock brake back in the 1970s). All of this was certainly on display at the conference, but there was also so much more, especially around industrial IoT (IIoT) solutions.

From roaming the tradeshow floor to attending keynote sessions, everything Bosch had to offer was highly informative to the biggest trends surfacing in our increasingly connected world—which now extends well beyond those home appliances. Here are my top takeaways from what I got to see and experience.

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Uber, Motional Launch Robotaxi Service in Las Vegas

U.S. ride-hailing firm Uber Technologies Inc. and driverless tech-maker Motional said on Wednesday they launched their public robotaxi service in Las Vegas.

Tough regulatory scrutiny and delayed commercial adoption of autonomous vehicle technology have delayed deployment of robotaxi services, leaving investors worried.

The launch is part of a non-exclusive 10-year agreement between both the companies for driverless vehicles, with a rollout in Los Angeles expected to follow.

In the multi-market deal, Motional’s autonomous vehicles would also ferry both passengers and delivery items for Uber and its Uber Eats division.

Riders are currently not being charged as part of the early days of launch, Uber said in an interview with Reuters, but added that they plan to start charging for their driverless commercial launch.

The companies said they would have vehicle operators for now, although they are working to make a fully driverless experience available to the public by 2023.

If an autonomous vehicle is available to complete the trip, Uber will match the rider to the vehicle and they will receive an offer to opt-in before the autonomous trip is confirmed and dispatched to pick them up.

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How Artificial Intelligence is Driving Robotaxis from Science Fiction to Reality

In December 2022, Cruise Automation announced the launch of its fully driverless robotaxi service in Austin, Texas, and Phoenix, Arizona. This is the first expansion beyond robotaxi launch in San Francisco this summer by Cruise Automation. It plans to launch its fully driverless commercial service in more cities in 2023. This month, Uber also announced that it has launched its first robotaxi for commercial use in Las Vegas.

Cruise Automation was acquired by General Motors (GM) in 2016 for an undisclosed amount. The acquisition price was not disclosed, but the deal was rumored to be valued at over \$1 billion. The acquisition was made in order to accelerate GM's efforts in developing autonomous vehicles, as Cruise Automation was a leading player in the field of self-driving technology.

Cruise Automation is a self-driving car technology company that has been at the forefront of the development of robotaxis, or autonomous taxis. Founded in 2013, Cruise has made significant strides in the development and deployment of autonomous vehicles, with a focus on creating a network of robotaxis that would revolutionize transportation as we know it.

The journey of Cruise Automation began with the development of a self-driving car kit, which was designed to retrofit existing vehicles with autonomous driving capabilities. This kit was aimed at helping companies and individuals test and evaluate the potential of self-driving cars, and it quickly gained traction in the market.

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EVENTS

[Annual Aviation Issues Conference](#)

January 8-12, 2023

Maui, HI

[2023 Autonomous VTOL Technical Meeting and Electric VTOL Symposium](#)

January 24-26, 2023

Mesa, AZ

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