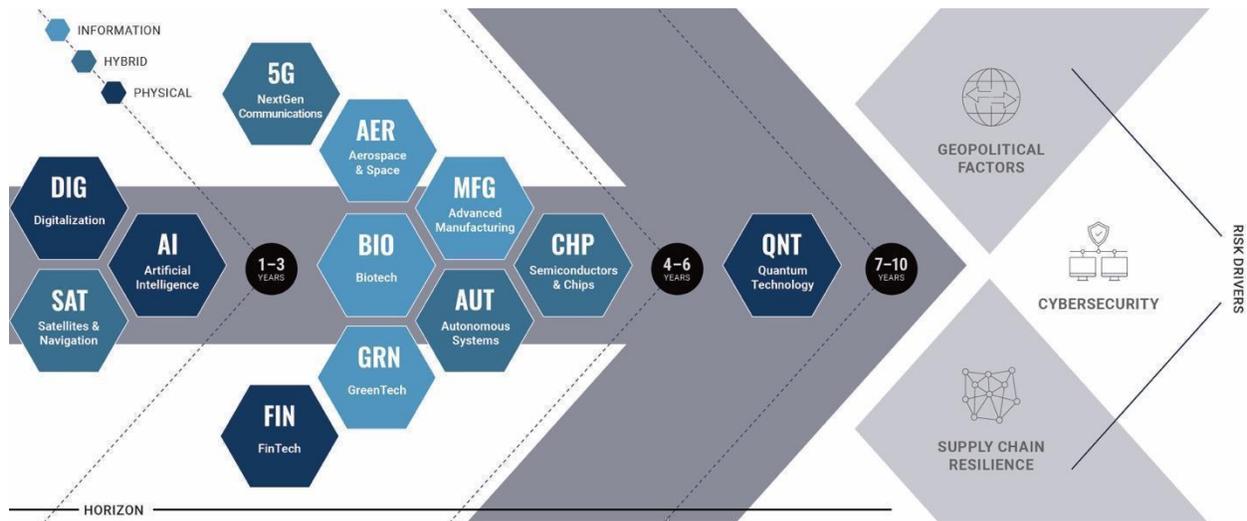




MATRIX MONITOR

Friday October 14, 2022

The only source dedicated exclusively to the emerging technologies shaping the future of business and national security.



This week's Next5 Matrix Monitor features sharp remarks from the UK's intelligence leadership on the rise of China's technological power, Xi Jinping goes for a historic third term, persistent trends in supply chain investment, an expansion of Chinese ground stations in South America, flying taxis in Dubai, the Bureau of Labor Statistics studies show skepticism that robots will replace humans, a quantum internet under development, Treasury considers a cyber insurance backstop program, and US restrictions could cut SMIC's growth by 50%.

NEXT5 EDITOR'S HIGHLIGHTS

→ **Jeremy Fleming, the director of Britain's Government Communications Headquarters (GCHQ), said Beijing is aiming to use an array of existing and emerging technologies to control markets and people, extend surveillance and censorship, and export its authoritarian system around the world.** The sharp warning Tuesday October 11 from the head of the UK equivalent of the NSA came during a rare speech in London. While he discussed other security priorities like the war in Ukraine, the focus of his speech was the rising threat from Beijing that the US and other Western intelligence officials have increasingly described in existential terms in recent years. Fleming said Beijing has broadened the definition of national security such that technology is now a battleground for control, values, and influence. He said Beijing is seeking to create "client economies and governments" through exporting technologies around the world. He also called out Beijing's efforts to build a central-bank digital currency that could allow it to monitor transactions for oppressive means. A centralized virtual currency could also allow China to evade international sanctions in the future. He said China's Beidou satellite system is intended as an alternative to the established GPS, which the US owns. And Beijing is forcing Chinese citizens and businesses to adopt it. Further, Beidou is part of a strategy that could allow China to deny other nations access to space in a conflict. Finally, Fleming urged Western powers to invest more in emerging security technologies, such as quantum computing, and increase collaboration with industry and each other to thwart China's ambitions. #GBR #CHN #USA #DIG #SAT #AER #5G #QNT #FIN #Geopolitics #SCRM [WSJ](#)

Analyst Comment: Mr. Fleming's speech followed similar rhetoric, which we previously reported, to business leaders in July by FBI Director Chris Wray and his UK counterpart Ken McCallum, Director General of MI5. Wray and McCallum reiterated warnings about Chinese espionage, especially with regards to potential theft of Western tech companies' intellectual property. Fleming's remarks are part of an increasing trend in Western intelligence agencies' leadership making public remarks to strategically message to adversaries and engage private industry, a change from their historic tendency to remain out of the media spotlight.

→ **China's 20th party congress will meet on Sunday, October 16, where President Xi Jinping is poised to consolidate power and assume a historic third term as general secretary for the next five years.** The party congress is the highest leading body of the Chinese Communist Party, according to China's constitution, and in reality, it's a rubber stamp for thousands of elite party leaders and affiliates who meet every five years. While the party congress will not lay out specific new policies, it will offer important guidance about China's future. To kick it off, Xi will deliver a speech akin to the US State of the Union address, which is expected to discuss economic reform, and many hope will address how much longer the country will have to endure China's zero Covid policy. Near the end of the event, the congress will pick a new Central Committee - the top officials in the country. Shortly after the party congress, the Central Committee will hold its first plenum to select a Politburo (top 20-25 officials), a Politburo Standing Committee (the top 7-9 leaders), and a general secretary (the top official). Analysts say Xi is expected to be anointed for a third term as general secretary; he is

also China's president, a government role that will not change at this party congress. While there are no term limits, this event is historic because traditionally, the general secretary steps down after two terms. Xi on the other hand, consolidated power quickly after coming into office in 2012 and eliminated political rivals through a ruthless anti-corruption campaign. If he gets a third term as party chief, he will be primed to enforce his policy agenda further, including expanding the party's reach in Chinese society, making the country more self-sufficient, boosting China's influence and power projection abroad, and working towards a possible annexation of Taiwan. At this point in time, there appears to be no obvious successors to Xi even for the next party congress, which is also unusual. For more details on what decisions will lead to a win or loss for Xi Jinping's influence in the party, check out this Bloomberg [article](#). #Geopolitics #CHN [NPR](#)

→ **So far this year, investors have put over \$7B in seed through growth stage rounds globally for supply chain focused startups in a trend that shows few signs of slowing down.** That puts funding this year on pace to roughly equal 2021's record-setting levels, which is no small feat considering investment in most startup sectors is contracting. Crunchbase data suggests that supply chain funding numbers have remained at high levels for years. And some rounds are aggressive. So far this year, the sector's largest funding recipient by a long shot is supply chain software provider Flexport, which raised \$935M in a February Series E. Another big round went to Seattle-based Convoy, who raised \$260M in an April Series E at a \$3.8B valuation. And in Europe, Berlin-based Forto landed \$250M in a March Series D, bringing total funding to nearly \$600M. Early stage startups are seeing action too. Roughly a third of global supply chain-related funding this year has gone to pre-seed through Series B rounds, according to Crunchbase data. However, with the IPO market mostly shuttered for the past few months, it is tough to extrapolate what kind of exit environment and ROI startup backers in the supply chain space will face in the coming quarters. For now, Crunchbase analysts do not expect many big supply chain debuts. But, all that investment in logistics startups will likely pay off in the form of more efficiently run supply chains. #SCRM #AI #MFG #AUT #USA #DEU [Crunchbase](#)

DIGITALIZATION

→ **According to acquisition experts, the SAMOSA Act could increase large software providers' monopoly powers.** Language included in the draft Strengthening Agency Management and Oversight of Software Assets Act bill (SAMOSAA) has prompted fears that the proposed legislation could make it harder for agencies to switch away from software systems sold by some of the biggest incumbent players. According to software procurement experts, greater monopoly power within the federal government software space would likely increase cybersecurity risks and stymie innovation. An acquisition expert stated, If unlimited enterprise licenses are granted to Microsoft, Oracle and other big players, then it makes it much harder for non-dominant players to get a foothold in the market. Software procurement scholar and former Director of the UC Berkeley Center for Long-Term Cybersecurity Steve Weber also cautioned that while the legislative proposals may help the government achieve better value for money, the push to consolidate contracts could give each federal agency fewer options. Weber added: "A narrow set of software options exacerbates the single cloud and single software security

vulnerability issues the government is already facing.” Staff working for the bill’s sponsor, Sen. Peters, D-Mich., disagree with this view. They say the bill will help to save taxpayer dollars and encourage innovation in government by reducing duplicative software purchases. SAMOSAA passed the Senate HSGAC committee last week. #DIG #Geopolitics #Cybersecurity #USA [FedScoop](#)

→ **Elon Musk said Beijing does not want him to sell Starlink in China, and disapproves of his rollout in Ukraine.** In an interview with the Financial Times, Musk said Beijing sought assurances that he would not sell Starlink in China. It remains unclear whether Musk agreed with the request. It should be noted that Musk’s other company, Tesla, relies on China for more than 20% of its revenue and has a large factory in Shanghai. However, he said the car company would inevitably be caught up in conflict over Taiwan. In recent years, China has put greater emphasis on building up its own technology, including in space. Domestic telecom giants like China Mobile and Huawei have helped China achieve one of the highest penetrations of 5G in the world. And in 2020, China completed its own satellite communications system, Beidou, which is designed to rival the US-led navigation system of GPS. Separately, Starlink debuted in Japan this week, making it the first Asian nation to receive SpaceX’s satellite internet service. #SAT #AER #USA #CHN #Geopolitics #SCRM #RUS #UKR #TWN [Financial Times](#) [CNBC](#) [Bloomberg](#)

SATELLITES & NAVIGATION

→ **The US Space Force is planning to launch a satellite mission in 2023 to test the commercial space industry’s ability to deploy a payload in an exceptionally short timescale in the event that satellites are shot down.** The project, codenamed Victus Nox, was granted a contract on September 30 to launch services company Firefly Aerospace and satellite manufacturer Millennium Space. When the Space Force decides when the mission must launch, Millennium will have several months to build the spacecraft, but Firefly will only have 24 hours to prepare for liftoff. The goal of Victus Nox is to demonstrate tactically responsive launch operations and to assist planners in figuring out the front-end processes leading up to the launch. This capability, strategists warn, will be required during an armed conflict to enhance constellations or replace satellites damaged or destroyed by opponents. The concept of responsive space launch has been discussed for years, but it is only now getting traction as a result of congressional and business advocacy, as well as geopolitical events that have demonstrated the strategic worth of satellites, making them more appealing targets. #SAT #AER #USA [Space News](#)

→ **Emrod, a New Zealand startup, claims to have the technology to enable efficient wireless energy transfer from orbit, proposing a global wireless energy matrix that would instantly beam renewable energy between any two points on Earth via satellite.** Emrod recently demonstrated wireless power beaming technology to Airbus and the European Space Agency (ESA) as part of the ESA’s new push toward 24-hour space-based solar power. Emrod founder Greg Kushnir believes there is a much cheaper and easier way to meet European and global renewable energy needs: by establishing a global wireless energy matrix capable of

instantly beaming power around the globe, using lower-orbiting satellites that could be significantly smaller. The company has already scaled up the small, lab-based designs. The current square transmitting and receiving antenna prototypes have a diameter of 1.92 m (6.3 ft). In the ESA demonstration, this equipment was used to send clean energy from one side of an Airbus warehouse to the other - a distance of only 36 meters (118 feet) - to power a model city. However, with the assistance of New Zealand energy company [Powerco](#), it has already demonstrated that it is capable of doing so over at least 200 m (656 ft) outdoors, and the company claims that it is ready for commercial deployment over much longer distances by 2024. #SAT #GRN #AER #5G #NZL [New Atlas](#)

→ **The first two satellites of Amazon's space-based internet constellation will be launched early next year on the inaugural flight of a new rocket developed by one of the US Space Force's largest contractors.** Amazon announced on October 12 that it would ride aboard the new Vulcan rocket being developed by the United Launch Alliance (ULA), a joint venture of Boeing and Lockheed Martin. Amazon has received permission from the FCC to deploy 3,236 satellites to help connect people who do not have easy access to broadband as it competes with SpaceX's Starlink system. The company has pledged to invest more than \$10B in this system. Amazon now has 1,000 people working on the project as it seeks to capture a piece of the lucrative internet market that is taking hold in space. Amazon must deploy half of the constellation by 2026 to meet its FCC license obligations. The partnership with Amazon provides ULA, which has for years launched sensitive satellites for the Pentagon and intelligence agencies, with a foothold in the commercial launch market, which is dominated by SpaceX. #SAT #AER #DIG #5G #USA [The Washington Post](#)

ARTIFICIAL INTELLIGENCE

→ **Scientists and doctors are attempting to use artificial intelligence to diagnose illnesses based on the sound of a person's voice.** The team will start by collecting the voices of people with conditions in five areas: neurological disorders, voice disorders, mood disorders, respiratory disorders and pediatric disorders like autism and speech delays. The project is part of the National Institutes of Health's Bridge to AI program, which began more than a year ago with more than \$100M in federal funding, with the goal of creating large-scale health care databases for precision medicine. This is not the first time researchers have used AI to study human voices, but it is the first time data on this scale will be collected — the project is a collaboration between USF, Cornell, and ten other institutions. The ultimate goal is to create an app that can help general practitioners refer patients to specialists, thereby bridging access to rural or underserved communities. In the future, iPhones or Alexa may detect changes in a person's voice, such as a cough, and recommend that you seek medical attention. To get there, researchers must first collect data, because AI can only be as good as the database from which it learns. They hope to collect about 30k voices by the end of the four years, with data on other biomarkers — such as clinical data and genetic information — to match. #AI #DIG #BIO #USA [NPR](#)

NEXT GENERATION COMMUNICATIONS

→ **According to a US government study, it appears to show that 5G transmissions can soon safely coexist with aviation.** Researchers found that 5G transmissions stay safely within their assigned frequencies and mostly don't point signals skyward where aircraft operate. Although airlines could be at some risk, data suggests that there are solutions to the problem. In June, the FAA began pushing airlines to attach protective filters to the altimeters in a compromise to allow the full use of 5G. The FAA has stated that the existing limits on signals by the two cell companies will have to remain in place until the patches are installed on aircraft because some models are susceptible even when the 5G signals are well controlled. #5G #AER #USA [Bloomberg](#)

→ **Lynk, a competitor to SpaceX, plans to offer an experimental 5G cellular base station aboard a mission in December, working alongside an undisclosed cellular partner.** According to company officials, the experimental payload will launch on Lynk's second commercial satellite and this test will demonstrate the ability to send a 5G signal from space to standard mobile devices on Earth. Lynk has an emergency access plan through an orbital cell tower. The company's patent allows the orbiting cell tower to link up with standard 5G devices in 55 countries. #5G #AER #USA [space](#)

FINANCIAL TECHNOLOGY

→ **Mastercard has developed a new type of contactless card that incorporates quantum cryptography, designed to protect against hacks from current classical computers and future quantum computers.** The contactless card employs standards known as "the EMV Contactless Kernel Specifications," which were recently revealed by finance industry body EMVCo. Mastercard stated that its new card will include advanced algorithms and cryptographic keys designed to be fast, ensuring a contactless payment in under half a second. Mastercard anticipates that the transition to these new cards will begin in 2023, providing specifications to various card manufacturers. It also supports biometric and mobile verification methods, as well as elliptic curve cryptography for authentication. More than 12.5B contactless payment devices are expected to be in use by 2027, with global transactions exceeding \$10T. #FIN #QNT #DIG #Cybersecurity #USA [Tech Monitor](#)

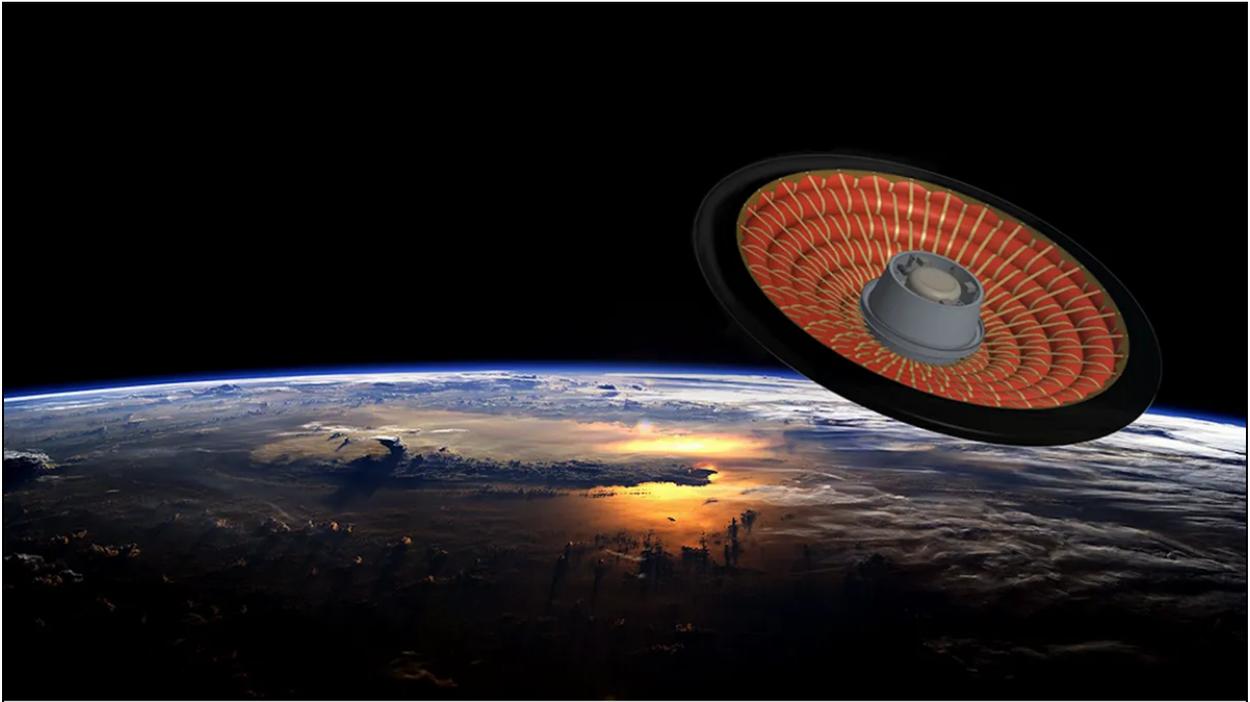
→ **On Tuesday, Google said it will rely on Coinbase to start letting some customers pay for cloud services with cryptocurrencies early in 2023, while Coinbase said it would draw on Google's cloud infrastructure.** Google Cloud stated that Google Cloud Platform infrastructure service will initially accept cryptocurrency payments from a handful of customers in the Web3 world who want to pay with cryptocurrency through an integration with the Coinbase Commerce service. Google is also exploring how it can use Coinbase Prime, a service that securely stores organizations' cryptocurrencies and allows them to execute trades. #FIN #DIG #USA [CNBC](#)

AEROSPACE & SPACE

→ **The expansion of Chinese ground stations in South America has raised concerns about Beijing's intentions in the region and in space, according to a new CSIS [report](#).**

China's space network in South America is part of Beijing's larger ambition to establish itself as a leading global space power and space partner of choice for middle-income economies, the report stated. While the network has obvious civilian use, it may also be used to spy on, monitor, and potentially attack spacecraft from the US and other countries, according to the report. The report goes into detail about China's ground station presence in Argentina, Brazil, and Venezuela, as well as through services offered by the Swedish Space Corporation (SSC) in Chile. However, the CSIS assessment argues that the opacity of the agreements with host countries and China's space sector raises worries about the potential for military applications of what is fundamentally dual-use technology. Given their proximity to the US, officials within the US military have expressed worries in Congressional testimony that the stations "may be used to spy on US assets and intercept critical information." The research claims that Beijing is not unique in carving out a place for the military in space, but adds the caveat that China's major civilian space agency, the China National Space Administration, is "overshadowed by the military." The research also highlighted organizations known as Leading Small Groups (LSGs), which are thought to be the means through which the Communist Party of China, rather than the PLA, aims to govern its space initiatives. #AER #SAT #SCRM #Geopolitics #SCRM #CHN #USA #ARG #BRA #VEN #SWE #CHL [Space News](#)

→ **NASA is aiming to test a large inflatable aeroshell that could one day be used to deploy large payloads on Mars and other planets in the Solar System safely.** Aerodynamic drag converts kinetic energy into heat as a spacecraft enters a planet's atmosphere, slowing it down as it descends toward the planet's surface. Mars' atmosphere is much less dense than Earth's, making slowing down spacecraft extremely difficult. Because the atmosphere is too thin to decelerate spacecraft as quickly as it would on Earth, entry into the atmosphere is much riskier and necessitates even more protection than on Earth. As a result, NASA will soon conduct a test of its large deployable LOFTID aeroshell. The massive structure will be launched on November 1 aboard a ULA Atlas V rocket. The aeroshell of LOFTID is essentially a large circular inflatable structure shielded by a flexible heat shield. As it travels through the atmosphere, the six-meter-diameter (20-foot) aeroshell will act as a massive brake system, creating more atmospheric drag than traditional, much smaller aeroshells. The structure is intended to enable spacecraft to slow down at higher altitudes in the upper atmosphere, resulting in less intense heat.



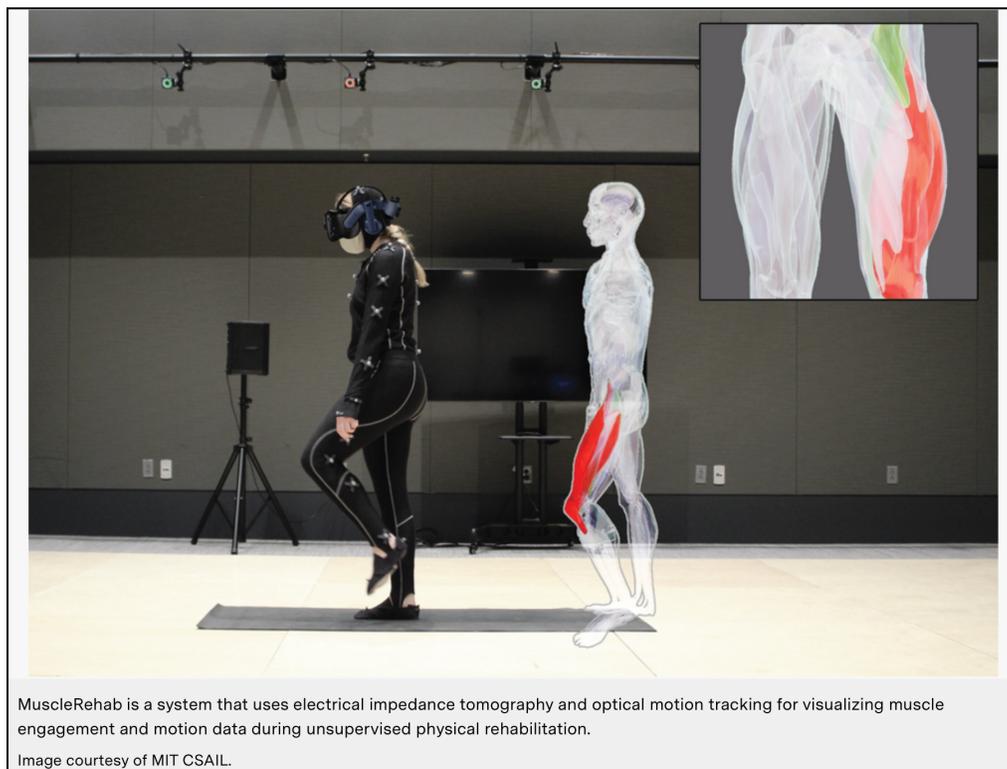
#AER #USA [Interesting Engineering](#)

→ **NASA confirmed that the Double Asteroid Redirection Test (DART) successfully changed the trajectory of the asteroid Dimorphos when the NASA spacecraft intentionally slammed into the space rock on September 26.** The DART mission, a full-scale demonstration of deflection technology, was the world's first conducted on behalf of planetary defense. The mission was also the first time humanity intentionally changed the motion of a celestial object in space. #AER #USA [CNN](#)

BIOTECHNOLOGY

→ **MuscleRehab, a program developed by MIT's Computer Science and Artificial Intelligence Laboratory and Massachusetts General Hospital, employs biotech and VR to aid in physical therapy and allow patients to "see" the inner structure of the body.** Motion tracking is used to capture motion activity, an imaging technique called Electrical Impedance Tomography (EIT) is used to measure what muscles are doing, and a virtual reality (VR) headset and tracking suit. The VR and suit allow the patient to observe their own performance alongside a physical therapist (PT). With those two conditions, the team was able to compare the exercise's accuracy and have the results examined by a PT. The PT could then explain which muscle groups should be engaged during each exercise. **The visualization of both muscle engagement and motion data during an unsupervised exercise routine, rather than just motion alone, improved overall exercise accuracy by 15%.** The EIT is accompanied by two electrode-filled straps that are placed in the suit on the upper thigh to capture 3D volumetric data. The researchers used [OptiTrack](#) for motion capture, which employs 39 markers and a number of cameras to detect motion at ultra-high frame rates. This is then displayed on the VR

screen as a highlighted muscle, which is activated on the display by becoming highlighted and a darker color than surrounding muscles.



#BIO #DIG #USA [Interesting Engineering](#) [Tech Times](#) [MIT News](#)

GREEN TECHNOLOGY

→ **In order to achieve net-zero emissions by 2050, investments in greentech must increase by a factor of four over the next 10 years, according to new research.** Currently, approximately 90 cents of every dollar invested in fossil fuels is allocated to low-carbon energy sources. According to analysts, this ratio must change drastically by 2030, with an average of \$4 invested in renewables for every \$1 allocated to high-polluting energy sources. This ratio has never previously surpassed the 1:1 mark. The numbers indicate that the decarbonization of the global economy is an unprecedented undertaking in modern times. **Investment in the global energy system could reach \$114.4T by 2050 as dollars pour into renewable energy sources such as wind and solar tech,** according to BNEF analysts. This decade is crucial for initiating investments in the energy transition and preventing back-loading of emission reductions, according to the research. **Moreover, tech investors have stated that climate change-related occurrences significantly influence their investment decisions in agtech and greentech startups.**
#GRN #SCRM [Bloomberg](#) [TechCrunch](#)

→ **On Monday, October 10, XPeng conducted a test flight of an electric flying taxi in Dubai.** The vehicle seats two passengers and is propelled by eight propellers. According to the company, it has a top speed of 80 mph. It emits no carbon dioxide during flight and is expected

to be suitable for low-altitude city flights in the future. It has two modes of operation: manual and autonomous. #GRN #AER #AUT #CHN #ARE [Tech Xplore](#) [Business Wire](#)



→ **Amazon will invest nearly \$1B in electric vans, trucks, and low-emission package hubs across Europe over the next 5 years, accelerating its drive to achieve net-zero carbon emissions.** The investment will enable the tech giant's electric van fleet in Europe to more than triple from 3k vehicles to more than 10k by 2025. #GRN #USA #EUR [Reuters](#)

ADVANCED MANUFACTURING

→ **A recent [paper](#) by the Bureau of Labor Statistics studied the relationship between technology and jobs over decades, and remains skeptical of the claim that technology is advancing faster than human workers can adapt to the changes.** In recent analysis it examined long-term employment trends across more than two dozen job categories that technologies have warned were particularly vulnerable to automation. Among them were financial advisors, translators, lawyers, doctors, fast-food workers, retail workers, truck drivers, journalists, and computer programmers. It concluded that humans are pretty handily winning the job market. The data showed “little support” for the idea of “a general acceleration of job loss or a structural break with trends pre-dating the AI revolution.” #USA #MFG #AI [NY Times](#)

→ **On Tuesday, October 11, Ai-Da, a “humanoid robot,” told British lawmakers on Tuesday that, despite being an artificial creation, it was still capable of producing art as part of a parliamentary inquiry into how new technologies will impact the creative industries.** Aiden Meller, the creator of “Ai-Da,” described it as “the world's first ultra-realistic robot artist.” Ai-Da was created by scientists at the University of Oxford and named after British mathematician and computer pioneer Ada Lovelace. It has a female humanoid face and exposed robotic arms. It answered questions alongside the head of the Ai-Da project and art gallery director Aidan Meller in a televised session hosted by the House of Lords

Communications and Digital Committee. In response to the committee's first question, Ai-Da stated that AI algorithms, cameras in its eyes, and a robotic arm assisted it in painting on canvas. Ai-Da also explained how it was able to generate new poems by "analyzing a large corpus of text" to identify common content and poetic structures.



#MFG #AI #AUT #GBR [The Guardian](#) [CNN](#)

AUTONOMOUS SYSTEMS

→ **After nearly 20 years and \$100B in investments since the first autonomous vehicle (AV) demonstrations, AV technology is simply not advancing as anticipated, and it may be further from being fully autonomous and safer than expected, according to self-driving pioneer Anthony Levandowski.** Specifically, the issue lies at the core of the AI system. For example, cutting left across traffic when there is no light to make it simple has consistently proven to be difficult for AI drivers. With an AI, it cannot be stated that if it drove well in the past, that it will do so in the future. To humans, minor environmental changes are commonplace. The majority of the time, human drivers barely register them consciously and instead know instinctively whether or not to acknowledge or disregard them. A minor alteration could be disastrous for an AI. Above all, there are no clear indications that autonomous driving will fulfill its safety promise in the near future, according to an analyst. #AUT #AI [Futurism](#) [Bloomberg](#)

SEMICONDUCTORS & CHIPS

→ **On Tuesday, October 11, Intel and Google Cloud launched a co-designed chip that can make data centers more secure and efficient.** The E2000 chip, codenamed Mount Evans, takes over data packaging for networking from the more expensive central processing units (CPU) that do the main computing. Google Cloud is now selling the E2000 as part of its new C3

VM package, which is powered by Intel's Xeon fourth generation processors. #CHP #DIG
#Cybersecurity #USA [Reuters](#)

→ **Chip design firm [Socionext](#) rose 15% in its Tokyo debut after completing Japan's largest IPO this year, defying recent investor pessimism about global semiconductor shares.** Socionext creates customized systems-on-chips for customers in the consumer, automotive, and industrial markets. Apple's silicon processors and Qualcomm's Snapdragon line are examples of mass-market logic processors, also known as the brains of electronic devices. Socionext competes with Taiwan's [Faraday Technology](#), [Alchip](#), and [Global Unichip](#) to supply application-specific chips to enterprises. #CHP #SCRM #JPN #TWN [Bloomberg](#)

QUANTUM TECHNOLOGY

→ **In a basement closet, scientists from the University of Chicago are developing an ultra-secure and powerful quantum internet.** The closet hardware is linked to a 124-mile fiber-optic network that connects the university's South Side campus to two federally funded labs in the western suburbs that are collaborating on the research — [Argonne National Laboratory](#) and [Fermi National Accelerator Laboratory](#). The team is sending encryption keys through the network using photons to see how well they travel through fibers that pass beneath highways, bridges, and toll booths. Because quantum particles are extremely delicate and prone to malfunctioning at the slightest disturbance, such as a vibration or temperature change, sending them over long, real-world distances is difficult. A Toshiba-built piece of hardware in the university's basement closet emits pairs of entangled photons and sends one from each pair through the network to Argonne, which is 30 miles away in Lemont, Illinois. On a string of photon pairs, one encryption key is encoded. Because the pairs are entangled, they are completely in sync. When the photons arrive at Argonne, scientists measure them and extract the key. **Anyone attempting to hack into the network in order to intercept the key will fail, according to the scientists, because quantum mechanics dictate that any attempt to observe particles in a quantum state automatically alters the particles and destroys the information being transmitted.** It also notifies both the sender and the receiver of the attempted eavesdropping. Additionally, the scientists are working in a lab next to the closet to create new devices that will help photons carry information over longer distances. #QNT #DIG #Cybersecurity #USA [The Washington Post](#)

GEOPOLITICS

→ **The Biden administration's new restrictions on technology exports to China could stymie the country's ability to develop critical sectors of its economy, and have sent shockwaves through global markets.** The US Commerce Department issued [regulations](#) last week that limit the sale of semiconductors and chip-making equipment to Chinese customers and added 31 organizations, including [YMTC](#) and a subsidiary of leading chip equipment maker [Naura](#), to its unverified list. The news sent European and Chinese semiconductor stocks tumbling. Specifically, on Monday, October 10, shares in top Chinese chipmakers lost a total of \$8.6B in market value because of these new US export controls. ASML fell more than 3% and

SMIC fell as much as 5.2% in Hong Kong, the most since August 15. [Hua Hong Semiconductor](#) was down 10%, and [Shanghai Fudan Microelectronics Group](#) was down 25%. In mainland China, Naura fell by its daily limit of 10%, the largest drop since April. The new restrictions have also started to affect other Asian chip-makers. On Tuesday, October 11, TSMC dropped 8.3% to its lowest closing in more than two years. UMC, another chip-maker based in Taiwan, fell 7%. South Korean chipmakers Samsung and [SK Hynix](#) fell as much as 3.9% before closing 1.4% lower, and as much as 3.5% before closing 1% lower, respectively. In Japan, shares of [Tokyo Electron](#), one of the world's largest chip equipment manufacturers, fell about 5.5% on Tuesday. The new rules will allow the US to block foreign-made chips that are made with American technology. That means TSMC's sales of advanced chips from its plants in other regions to Chinese clients could be curtailed, according to research firm [TrendForce](#). #Geopolitics #SCRM #CHP #USA #NLD #EUR #CHN #HKG #TWN #KOR #JPN [Bloomberg](#) [Financial Times](#) [WSJ](#)

→ **On October 11, the Treasury Department fined [Bittrex](#), a virtual currency exchange, a record total of \$53M, including a \$24M penalty from the Treasury's OFAC, and a \$29M fine from the Financial Crimes Enforcement Network (FinCEN), which combats illicit finance.**

The Treasury stated that the actions on Tuesday highlight the importance of crypto firms maintaining risk-based sanctions and anti-money-laundering compliance programs, and that failure to do so can result in enforcement actions and exposure to potential abuse by illicit actors. OFAC stated that Bittrex failed to prevent people from using its platform to conduct crypto transactions in jurisdictions subject to US sanctions, including Ukraine's Crimea region, Cuba, and Iran, between 2014 and 2017. According to OFAC, Bittrex collected customers' internet protocol addresses and physical addresses when they joined the platform, but the exchange failed to screen this information for potential sanctions violations. According to FinCEN's investigations, Bittrex failed to maintain an effective anti-money-laundering program between 2014 and 2018, including insufficient transaction monitoring on its platform and a failure to address risks associated with the products and services it provided, particularly those related to anonymity-enhanced cryptocurrencies. Bittrex also failed to file required suspicious activity reports between 2014 and 2017, according to FinCEN. The actions are the first parallel action taken by OFAC and FinCEN against a cryptocurrency firm, and they come at a time when the virtual-currency sector is facing increased regulatory scrutiny. #Geopolitics #FIN #USA #UKR #CUB #IRN [WSJ](#) [CyberScoop](#)

→ **A group of European telecom regulators is opposing the idea of Big Tech firms like Google and Netflix paying for telecommunications infrastructure, according to preliminary findings published on October 11.** The findings of the Body of European Regulators for Electronic Communications (BEREC) come at a time when the European Commission is debating whether internet platforms, which rely heavily on digital infrastructure, should be required to fund digital infrastructure such as 5G telecoms networks. The telecommunications industry has argued that because their services account for more than half of internet traffic, Google, Netflix, Meta, Amazon, Microsoft, and Apple should pay for a "fair share" of telecom infrastructure. However, digital rights organizations are concerned that if the Big Tech companies fund infrastructure, they will also strike deals with telecom companies to give their own traffic preferential treatment, undermining the principle of net neutrality. EU

Industry Commissioner Thierry Breton has stated that the EU will conduct a review of the situation in early 2023. #Geopolitics #DIG #5G #USA #EU [Reuters](#)

→ **Taiwan's president has called for domestic political unity to combat Chinese disinformation and cyberwarfare that are destabilizing society ahead of local elections next month.** Beijing has vowed to annex Taiwan, which it claims is a Chinese province, and its threats have grown in recent years. In addition to increased military action against Taiwan, China has been accused of engaging in cyberwarfare. Chinese disinformation efforts frequently increase during Taiwanese election periods, and local elections, scheduled for late November, are frequently viewed as a precursor to presidential elections, which take place approximately a year later. #Geopolitics #Cybersecurity #TWN #CHN [The Guardian](#)

CYBERSECURITY

→ **Cyventia has released its CISA-sponsored 2022 Information Risk Insights Study, which includes in-depth analysis of topics such as extreme loss events and massive multi-party incidents. Here are the key findings:**

- The healthcare and finance sectors claim the most incidents. They have 76x more events on public record than the least-breached industries of mining and agriculture.
- Cybersecurity incidents are growing in frequency. The average number of events publicly reported each month has increased 44% over the last 10 years.
- In terms of the likelihood of experiencing at least one cyber event in a single year, the Hospitality and Information Services sectors top the list.
- Large organizations with over \$100B in annual revenue are 32x more likely to have multiple security incidents in a single year than smaller organizations.
- The relative impact of incidents on smaller firms is much greater. SMBs were the victim in 89% of all cyber loss events that exceeded 10% of annual revenues.
- Typical financial costs reported for a cyber event stand at \$266k but the top 5% of loss events balloon to \$52M.
- Despite common belief to the contrary, financial losses attributed to cyber events have NOT increased over the past 20 years.
- The Information Services sector has the largest typical incident cost of \$476k. The biggest extreme loss (95th percentile) belongs to the Transportation sector at \$177M.
- System intrusions accounted for nearly 50% of all events and more than 50% of total losses recorded over the last 10 years. Ransomware ranks #4 in frequency.
- Valid Accounts, Phishing, and Exploit Public-Facing Applications are the three most common MITRE ATT&CK initial access techniques observed across all incidents.

#Cybersecurity #USA [Cyventia](#)

→ **The US Department of Treasury is seeking comment on how to structure a cyber insurance program.** In a request for information published on September 29, the department said it is looking for views on the existential risks to the marketplace and policy measures that could help address such risks. Policy measures include the creation of a backstop program for cyber insurance risk akin to the Terrorism Risk Insurance Program, which was created after 9/11

to allow Wall Street to continue offering coverage for terrorism risk. The creation of a blacktop program would entail the Treasury taking risk off insurance companies' balance sheets to support the market. It could also give the federal government greater access to insurers' claims data including for ransomware attacks. The volume of cyber premieres written by insurance companies increased by 75% YoY to \$4.8B in 2021. In a June report the agency also noted that the number of reported claims in the US cyber market had increased to nearly 26,000 during 2021, up from 22,000 in the prior year, and 6,000 in 2016. A 2020 DHS study estimates that the US could suffer between \$2.8B and \$1T in losses from one severe cyber incident. Treasury's RFI comes on the heels of a high profile, potential cyber attack against the UK-based Lloyd's of London on October 5, which the firm concluded on Tuesday did not result in any data compromise. The firm was vocal about its support for sanctions against Russia over the Ukraine conflict, which likely raised its concern over the incident. #Cybersecurity #Geopolitics #USA [NextGov](#) [Bloomberg](#) [Insurance Journal](#) [Business Insurance](#)

SUPPLY CHAINS

→ **US restrictions on China's access to advanced American technologies may cut the country's largest chipmaker, SMIC's growth by 50% next year, according to analysts.** Approximately 48% of the capacity installed by SMIC by next year will require equipment from US tool makers such as [Lam Research](#) and [Applied Materials](#). SMIC by sales had been projected to grow overall revenue more than 38% in 2022 and about 5% in 2023, according to data compiled by Bloomberg. #SCRM #CHP #Geopolitics #USA #CHN [Bloomberg](#)

→ **On October 11 at a Berlin engineering conference, EU trade commissioner Valdis Dombrovskis stated that decoupling from China is not an option for EU companies, as the Ukraine conflict reshapes how the bloc views its key trading partners.** In addition to China, the EU's relations with its other major trading partner, the United States, have shifted, he claims. "The transatlantic relationship has been reinvigorated," he stated, but there are "deep concerns" about the US Inflation Reduction Act and the benefits it provides to American businesses. Dombrovskis contended that the act's green subsidies discriminate against the EU's automotive, renewables, battery, and energy-intensive industries. #SCRM #Geopolitics #GRN #EU [Reuters](#)