Infotainment Edge Global

# INFOTAINMENT EDGE™

Wednesday, October 4, 2023 (Daily E-booklet on Artificial Intelligence, VR, Tech, Robotics, Coding, Global Affairs, Health, Science & Finance)

# **SECTION 1 – TECH BUZZ**

# **ARTIFICIAL INTELLIGENCE**



#### **SAPIO JARVIS SM: Scientific AI Data Platform**

Sapio Sciences, the pioneering lab informatics platform, has introduced its groundbreaking product, Sapio Jarvis SM. This innovative scientific data cloud is designed to empower scientists, enabling them to harness the full potential of research, development, and clinical data, which are invaluable resources for any organization. Jarvis represents a significant milestone for Sapio as it offers a comprehensive solution, bringing together Laboratory Information Management Systems (LIMS), Electronic Lab Notebooks (ELN), and enterprise scientific data management capabilities within a single, user-friendly, no-code platform.

• In today's rapidly evolving landscape of research and development, the volume of generated data is unprecedented. Various tools, such as Electronic Lab Notebooks (ELNs) and Laboratory Information Management Systems (LIMS), have become ubiquitous in research organizations. However, the diverse selection of these tools by different teams often results in fragmented data silos, making it challenging for scientists to access information. These isolated silos also pose difficulties in unifying data in ways that are findable, accessible, interoperable, and reusable (FAIR), and make it nearly impossible to leverage the data effectively with Artificial Intelligence (AI) and Machine Learning (ML).

- Kevin Cramer, President, and CEO of Sapio Sciences, emphasized the critical need for scientists to have direct access to all relevant data across the enterprise. He pointed out that lab automation, the rapid pace of modern research and clinical work, and advancements in clinical data science and AI have created a wealth of enterprise-wide lab data, which, if harnessed properly, can significantly accelerate the drug pipeline and facilitate in silico analysis.
- Sapio Jarvis SM acts as a scientific data cloud, seamlessly integrating and harmonizing raw instrument and system data with essential experimental context about samples and specimens. This low-code, no-code platform effortlessly adapts to track data stored in any application throughout an organization. Importantly, Jarvis is designed to be science-aware(TM) and provides user-friendly tools for searching, viewing, and analyzing an organization's scientific data. It features an easily navigable knowledge graph and configurable dashboards, empowering scientists to explore complex datasets, make informed scientific and business decisions, and contribute to advanced AI-ML models.
- According to Cramer, Jarvis automates the data processing from scientific instruments and synchronizes the data into the applications scientists commonly use. Additionally, it serves as a central hub for scientists, offering a one-stop solution for accessing, searching, visualizing, and analyzing data with scientific context. This powerful platform can aggregate and unify data from over 200 different instruments and leading ELN and LIMS brands, providing a seamless scientific data experience across all of them. While Jarvis is an integral part of Sapio's "triple-play" offering (LIMS, ELN, and Scientific Data Cloud), it is also available as a standalone product, providing flexibility to users.
- For those interested in learning more about Jarvis and exploring its functionalities, Sapio Sciences offers a comprehensive white paper on the system, accessible through the Sapio Jarvis landing page.
- Sapio Sciences, with its mission to simplify technology in the complex world of science, has successfully developed an all-in-one science-aware(TM) lab informatics platform. This cloud-based platform combines LIMS, ELN, and Jarvis data solutions, catering to a diverse range of customers, including biopharma, Contract Research Organizations (CROs), and clinical diagnostic labs. Sapio's platform is highly regarded by its users due to its robustness, scalability, and its ability to quickly adapt to unique requirements through a no-code configuration approach.

#### AutoGuard: Safe Generative AI

Armilla AI, a pioneer in the field of generative AI alignment, safety, and responsible AI, is thrilled to introduce AutoGuard<sup>TM</sup>, a revolutionary intelligent firewall designed to enable enterprises to deploy generative AI models securely, safeguarding both users and businesses from potential risks.

• While the potential of generative AI is extraordinary, it also comes with significant risks for enterprises. AutoGuard addresses these challenges by providing a comprehensive solution that eliminates bias, reduces hallucinations, enhances safety, and eliminates privacy concerns in generative AI solutions.

- AutoGuard marks the latest addition to Armilla's AutoAlign<sup>™</sup> generative AI platform, following the successful launch of AutoTune<sup>™</sup>. Both products utilize the innovative AutoAlign framework, which incorporates auto-feedback fine-tuning. They come equipped with a range of pre-built controls, such as privacy protection, safeguards against confidential information leaks, gender assumptions, jailbreaking protection, and racial bias detection. Alternatively, these controls can be customized to meet specific alignment requirements, allowing customers to dictate the behaviour of their AI models using natural language narratives.
- Rahm Hafiz, CTO of Armilla, emphasized the industry's growing need for runtime protections as generative AI continues to scale. He stated, "Our approach surpasses traditional syntax-based guardrails or standalone fine-tuning methods. It is essential for ensuring safe, reliable deployments as enterprises introduce their models to the market, especially in compliance with initiatives like Canada's new voluntary code of conduct for generative AI."
- AutoGuard sets itself apart by generating its own data and fine-tuning customer-specific guardrails based on automated feedback derived from how the enterprise wants the AI model to behave. Armilla's AI aligns AutoGuard through a meticulous process, including understanding the target model's objectives, capturing the model's behavioural boundaries through data generation, iterative testing, identifying weaknesses, and reinforcing its own guardrail model.
- The end result is a user-friendly platform that enhances the safety, trustworthiness, and ethics of generative AI during deployment. AutoGuard is currently in use by a select group of clients, including HR software companies integrating generative AI into HR processes while prioritizing fairness, financial institutions developing responsible generative AI solutions, and consulting firms managing confidential and sensitive data.
- To learn more and experience the transformative potential of AutoGuard, visit Armilla.ai today. Armilla AI stands as a leader in AI model alignment, testing, and safety, empowering enterprises to govern, deploy, and scale artificial intelligence confidently. The groundbreaking AutoAlign platform combines guardrails with automated fine-tuning, offering off-the-shelf controls that align generative AI solutions with enterprise use cases and values. With Armilla AI, businesses can deploy AI solutions that are robust, accurate, safe, and unbiased.

#### **Chinese Auto AI Advancements**

The rapid advancement and widespread implementation of AI foundation models have ushered in an era of high intelligence in the Chinese automobile industry. According to Xin Guobin, the Vice Minister of Industry and Information Technology, 42.4 percent of all passenger car sales in China during the first half of 2023 were passenger cars equipped with combined driver assistance, reaching Level 2 autonomous driving.

- This announcement was made at the 2023 World Intelligent Connected Vehicles Conference (WICVC) held in Beijing from in September.
- Han Zhao, the Director of the China Association of Automobile Manufacturers, highlighted that early automatic driving heavily relied on sensor integration and deep

learning algorithms. However, this approach faced challenges such as dependence on high-precision maps and high costs.

- Since the beginning of 2023, the integration of generative artificial intelligence technology has transformed autonomous driving into an end-to-end foundation model, allowing Chinese auto companies to address these challenges effectively. By incorporating vast amounts of data, these models have seen significant growth, algorithm optimization, and enhanced intelligence in automobiles.
- Experts anticipate a widespread application of general artificial intelligence in the automotive industry's future, particularly in autonomous driving and intelligent cockpit systems. According to Li Zhenyu, Vice President of Baidu, one of the most significant developments in intelligent connected vehicles is the realization of unmanned driving on complex urban roads in China.
- In April 2022, Beijing pioneered the pilot operation of unmanned passenger vehicles, with Baidu's "Apollo Go" fleet substantially expanding in terms of operational areas, orders, and vehicles. By June 30 of the following year, "Apollo Go" had provided more than 3.3 million services to the public.
- Algorithms, computing power, and data form the foundation of integrating AI foundation models into the automobile industry. Several Chinese auto companies are focusing on software and algorithms, with increased research and development investments anticipated in the field of intelligent networked technology. Xpeng, a Chinese NEV startup, achieved significant milestones, with its high-speed Navigation Guided Pilot (NGP) covering a cumulative mileage of 31.6 million kilometers and boasting an 84.32 percent user penetration rate as of July.
- Industry experts believe that the initial establishment of AI foundation model technology, combined with the accelerated promotion of intelligent connected technology, will expedite the development of intelligent connected vehicles. Chinese automobile companies have heavily invested in the AI foundation model field in recent years, leading to remarkable progress in the intelligent connected automobile industry. Technological innovation has flourished, resulting in mass production and installation of intelligent driving systems and high-performance computing chips. Furthermore, several car companies are actively developing conditional autonomous driving and highly autonomous driving models, while the construction of intelligent road transformation and cloud control infrastructure platforms has gained momentum.
- Data from WICVC reveals that China has opened over 20,000 kilometers of intelligent connected vehicle test roads, covering a total test mileage of more than 70 million kilometers. Various demonstration applications, including autonomous taxi services, trunk logistics, and unmanned delivery, are being carried out in an organized manner, showcasing the industry's continuous evolution and progress.

# **PROGRAMMING/.NET**

#### **CoreWCF 1.4.0 Released**

In the past month, the CoreWCF ecosystem has witnessed several significant developments. Version 1.4.0 was recently released, introducing new transport options like RabbitMQ (AMQP) and Apache Kafka. While these additions were well-received, it's important to note that transports such as MSMQ (Microsoft Message Queuing) and NetNamedPipe are still in the preview stage, indicating ongoing efforts for their development in the future.

- To address package dependency versions, a swift follow-up was made with the release of v1.4.1. This patch release focused solely on updating dependencies without introducing any code changes. Detailed release notes about these dependency changes can be found on the official GitHub repository page.
- In this latest CoreWCF release, compatibility with .NET Standard 2.0 is maintained, supporting .NET Framework versions 4.6.2 and higher, as well as .NET 6 and 7. This compatibility extends to ASP.NET Core, tested across versions up to 7.0. New features include the CoreWCF.Queue package, which exits the preview stage and provides a foundational set of classes for Queue-based transports.
- Additionally, community contributions have integrated CoreWCF with the Apache Kafka distributed event streaming platform.
- Moreover, this release introduces new features and APIs, such as making WindowsClaimSet and ServiceCredentialsSecurityTokenManager public. CoreWCF now offers an API to enable AuthorizationPolicy support with explicit HTTP client credential types, enhancing customization and security. Several bug fixes have been implemented, enhancing stability and security; a comprehensive list of these fixes is available in the release post of version 1.4.0.
- In addition, CoreWCF unveiled v1.5.0-preview1, which includes bug fixes for NetNamedPipe support and introduces support for Unix domain sockets through the CoreWCF.UnixDomainSocket package.
- It's important to mention that this version remains in preview status, as official client packages from the dotnet/wcf project have not been released yet. However, unofficial client packages are accessible from a temporary Nuget feed, with detailed information available in the official blog post.
- Furthermore, a noteworthy announcement came from Matt Connew (formerly Twitter), who shared exciting news: the CoreWCF project achieved a significant milestone of 1 million package downloads. In his post, he expressed gratitude to the community for their contributions and support, acknowledging their role in shaping the project's success.
- Lastly, the CoreWCF project extends an invitation to companies utilizing its services in production. Matt Connew issued an invitation on the GitHub release post, inviting such companies to have their names listed as users of CoreWCF in the main README.MD of the CoreWCF repository.

# TECHNOLOGY

#### **Google vs Microsoft Bing**

Microsoft CEO Satya Nadella testified on Monday, asserting that Google's dominance as a search engine was achieved through unfair tactics that hindered Microsoft's rival program, Bing. Nadella appeared in a crowded Washington, D.C. courtroom as part of the government's significant antitrust trial against Google's parent company, Alphabet.

- The Justice Department claims that Google abused its search engine dominance to stifle competition and innovation, similar to the case against Microsoft in the late 1990s.
- Nadella pointed out that Google's dominance resulted from agreements that made it the default browser on smartphones and computers. He dismissed the impact of artificial intelligence or niche search engines like Amazon, emphasizing that users have limited choices in switching from default web browsers on their devices. Although Microsoft offers an alternative, it is not the default choice for most users.
- During questioning by Google's lead litigator, John Schmidtlein, Nadella denied that Bing's adoption of artificial intelligence significantly affected its market share. He downplayed the importance of Microsoft's revamped search engine, even with enhancements from artificial intelligence programs like ChatGPT. Nadella's testimony occurred in the midst of the ongoing antitrust trial, presided over by U.S. District Judge Amit Mehta, with a decision expected next year.
- The Justice Department's antitrust case against Google revolves around deals Google made with Apple and other device manufacturers to use its search engine. This situation parallels Microsoft's past accusations of creating software barriers for other tech companies, mirroring Google's current situation. Ironically, the distractions caused by the government's antitrust case against Microsoft allowed Google to establish its search engine as a dominant force.
- Despite Microsoft's substantial investments in challenging Google with Bing, including attempted acquisitions like Yahoo for over \$40 billion, Bing remains a distant second in the market.
- Under Nadella's leadership, Microsoft has made significant strides in personal and cloud computing, substantially increasing the company's stock price and generating over \$2 trillion in shareholder wealth. However, Microsoft has struggled to make significant progress in the search market against Google.

# **GADGETS**

#### iPhone 15 Overheating Bug

Apple has acknowledged and is actively working to resolve a "bug" causing some newly released iPhone 15 smartphones to overheat. The tech giant plans to address this issue through an update to its iOS 17 mobile operating software. In collaboration with developers of certain apps contributing to the problem, Apple aims to rectify the situation.

• In response to inquiries, Apple stated, "We have identified a few conditions which can cause the iPhone to run warmer than expected." According to the company, some iPhone

15 devices may feel warmer in the initial days after setup due to increased background activity. Additionally, Apple mentioned discovering a bug in iOS 17, impacting specific users, which will be resolved in an upcoming software update.

- The overheating problem was exacerbated by recent updates to third-party apps, such as Instagram, Uber, and Asphalt 9, which were found to overload the system and cause the iPhone chips to heat up, as per online posts.
- Addressing users' concerns, Apple's support page explained that it's typical for iPhones to feel warm during the initial setup or when running graphics-intensive apps like games. These conditions are considered normal, and the device is expected to return to a regular temperature once the setup process is complete or the intensive activity concludes.
- The iPhone 15 models were launched on September 22, featuring universal charger ports following a dispute with the European Union over Lightning charger ports. Apple's move to universal ports coincided with declining iPhone sales, driven partly by higher prices, prompting customers to delay upgrading to newer models.
- In addition to ongoing enhancements to iPhone cameras and chips, Apple emphasized that the iPhone 15 models, available in four varieties, have internal components designed for easier repair. Furthermore, the new frame allows the back glass to be replaced more easily, enhancing the overall repairability of the devices.

# **SECTION 2 – GLOBAL AFFAIRS**

### NORTH AMERICA

#### **UNITED STATES**

In a dramatic turn of events, a far-right lawmaker has launched a bold attempt to remove US House Speaker Kevin McCarthy from his position, setting the stage for a significant clash within the Republican party. Matt Gaetz, a representative from Florida, made his move by introducing a resolution on the House floor.

- Later, he informed reporters that McCarthy no longer had his support and lacked the necessary backing from fellow Republicans to continue as the Republican Speaker.
- McCarthy, however, responded swiftly to the challenge, expressing his readiness for the confrontation on X, the platform previously known as Twitter.
- The resolution, an unusual manoeuvres that requires a simple majority to pass, has the potential to trigger a vote within a matter of days. This development follows McCarthy's recent negotiation of a last-minute budget deal with Democrats, averting a government shutdown temporarily. Gaetz has been vocal about seeking revenge ever since the budget deal was finalized.
- Gaetz, a staunch supporter of former President Donald Trump, is a prominent member of a small faction of far-right Republican legislators. Their refusal to approve new federal funding without substantial spending cuts was a key factor that ignited the shutdown

crisis. This power struggle within the Republican party underscores the deep divisions and tensions as they grapple with the influence of Trump's fervent supporters.

### **EUROPE**

#### **European Union & Ukraine**

The European Union reaffirmed its unwavering support for Ukraine during a significant meeting held in Kyiv, marking a historic occasion as it took place beyond the borders of the EU member states.

- This gathering occurred amidst growing disagreements among EU nations regarding the level of assistance to provide to Ukraine. Simultaneously, Ukrainian forces were making limited progress in a crucial counteroffensive against Russian troops in the southern and eastern regions of the country.
- Furthermore, concerns were mounting regarding aid from the United States. A recent government funding deal, reached over the weekend, omitted fresh assistance for Ukraine due to opposition from hardline Republicans. Despite these challenges, the White House dismissed claims made by the Kremlin that the Western nations were fatigued and unwilling to provide aid to Ukraine.
- Press Secretary Karine Jean-Pierre emphatically stated on Monday, "If Putin thinks he can outlast us, he's wrong." This assertion was a clear indication of the United States' commitment to supporting Ukraine in its struggle against Russian aggression.
- Josep Borrell, the EU's foreign policy chief, characterized Monday's meeting as "historic." However, he clarified that there were no new concrete announcements made during the gathering. Despite the absence of immediate declarations, the gathering underscored the EU's enduring solidarity with Ukraine, reinforcing their long-term commitment to the nation's sovereignty and security.

### AFRICA

#### EGYPT

Egyptian President Abdel Fattah al-Sisi has officially declared his candidacy for a third term in office, ahead of the upcoming December elections where he is widely anticipated to secure victory.

- Speaking passionately before a jubilant crowd in Egypt's new capital, a central feature of a massive development project in the desert east of Cairo, the 68-year-old leader expressed his commitment to fulfilling the aspirations of the people.
- "Just as I responded to the call of the people in the past, I now answer their call once more and announce my intention to run, aiming to realize our shared dreams in a new presidential term," proclaimed Sisi.
- State-affiliated television channels broadcasted scenes of celebration, capturing the enthusiasm of thousands of supporters gathered in pre-prepared venues nationwide. Earlier in the day, Cairo witnessed rallies where crowds fervently demanded Sisi's candidacy.

- Hassan Afifi, a dedicated teacher who accompanied a busload of his students to a rally in western Cairo, voiced his endorsement, stating, "There is no one better suited to lead us into the future." His sentiment echoed the prevailing enthusiasm among Sisi's backers.
- Addressing the nation, President Sisi encouraged Egyptians to actively participate in the democratic process, urging them to cast their votes on December 10-12, even if they choose not to support his candidacy. His call for civic engagement emphasized the importance of the electoral process in shaping the country's future.

### ASIA

#### **INDONESIA**

Indonesia celebrated a major milestone with the launch of Southeast Asia's inaugural high-speed railway, a significant and long-awaited project supported by China and valued in the billions of dollars.

- President Joko Widodo enthusiastically declared it as "a symbol of our modernization." Named the "Whoosh," this bullet train boasts an impressive top speed of 350 kilometers (220 miles) per hour, drastically reducing travel time between the capital city Jakarta and Bandung to a mere 45 minutes. This journey, spanning 140 kilometers, previously took approximately three hours by conventional train.
- During a ceremony held at Jakarta's central station, President Widodo praised the highspeed train as a testament to the country's efficient, user-friendly, and interconnected mass transportation system.
- He emphasized its significance as a symbol of modernization in public transport, seamlessly integrating with various modes of transportation. With a capacity to accommodate 600 passengers, this high-speed rail marks a pioneering feat in Southeast Asia's transportation landscape.

# **SECTION 3 – MIXED BAG**

### HEALTH

#### New Malaria Vaccines Recommended

The World Health Organization (WHO) has made a groundbreaking recommendation for a second malaria vaccine, potentially saving countless lives and bridging a substantial gap in supply and demand. Malaria, caused by a parasite transmitted through mosquitoes, claims the lives of nearly half a million children annually in the African region alone.

• Tedros Adhanom Ghebreyesus, the WHO chief, expressed his excitement, stating, "As a malaria researcher, I used to dream of the day we would have a safe and effective vaccine against malaria. Now we have two." The newly endorsed R21/Matrix-M vaccine, a product of Oxford University in Britain and manufactured by the Serum Institute of India, has received approval for use in Burkina Faso, Ghana, and Nigeria.

- In 2021, the first malaria vaccine, RTS,S, developed by British pharmaceutical company GSK, was recommended by the WHO for regions with moderate to high malaria transmission. However, the demand for RTS,S significantly surpasses its supply, making the introduction of the R21/Matrix-M vaccine a crucial step towards protecting more children rapidly.
- Approximately half of the global population resides in malaria-prone regions, with Africa being the most affected continent in terms of cases and fatalities. Dr. Matshidiso Moeti, the WHO's regional director for Africa, emphasized the potential of the new vaccine in addressing the enormous demand-and-supply gap on the continent. She stated, "Delivered at scale, these vaccines can strengthen malaria prevention and control efforts, saving the lives of hundreds of thousands of young Africans."
- Pilot programs introducing the RTS,S vaccine in Ghana, Kenya, and Malawi have allowed 1.7 million children to receive at least one dose since 2019, leading to a substantial decrease in severe malaria cases and child mortality. At least 28 African countries plan to incorporate WHO-recommended malaria vaccines into their national immunization programs. The RTS,S vaccine is set to be implemented in some African nations in early 2024, followed by the availability of the R21 vaccine in mid-2024.
- Both vaccines demonstrate similar efficacy rates of approximately 75% under similar conditions. The cost-effectiveness of the R21/Matrix-M vaccine aligns with other childhood vaccines, with each dose priced between \$2 and \$4, as stated by the WHO. The organization and its partners anticipate a demand for up to 60 million doses annually by 2026, a number expected to rise to 100 million doses by 2030, according to the Gavi, the Vaccine Alliance.
- In addition to the malaria vaccines, the WHO also recommended a new dengue vaccine, Qdenga, for six to 16-year-olds in regions where the disease poses a significant public health threat. Furthermore, the health agency endorsed a new meningitis vaccine, Men5CV, offering protection against five strains of disease-causing bacteria.
- Addressing the ongoing battle against Covid-19, the WHO declared that a single dose of most vaccines is now sufficient for primary immunization, given that a majority of people have already been infected at least once, marking a significant milestone in the fight against the pandemic.

### **SPACE**

#### **Indian Spacecraft Heads Towards Centre Of Solar System**

India's solar observation spacecraft has achieved a significant milestone in its journey beyond Earth's gravitational influence, announced the Indian Space Research Organisation (ISRO). The Aditya-L1 mission, named after the Hindu Sun deity, embarked on its four-month voyage toward the solar system's center on September 2.

- Equipped with instruments to study the Sun's outer layers, the spacecraft has traveled an impressive 920,000 kilometers (570,000 miles), completing over half of its total distance.
- Overcoming the gravitational forces of both Earth and the spacecraft, a crucial point was reached where the mission settled into a stable halo orbit around our nearest star. ISRO

proudly noted that this accomplishment marks the second instance where their spacecraft has ventured beyond Earth's sphere of influence, the first being the Mars Orbiter Mission.

- Prior to this achievement, India made headlines in August by becoming the first country to land a craft near the largely unexplored lunar south pole. The success, however, was bittersweet as the Moon rover, Pragyan, was powered down before the lunar night, lasting roughly two weeks on Earth, began. Despite attempts to reactivate the solar-powered rover, ISRO received no response. Nonetheless, ISRO's chief, S. Somanath, expressed contentment, stating that the rover had fulfilled its expected duties.
- India's space endeavours continue to expand, with the country having launched a craft into orbit around Mars in 2014. Moreover, plans are underway for a three-day crewed mission into Earth's orbit next year. While other nations, including the United States and the European Space Agency, have explored the solar system's center extensively, ISRO's latest mission, if successful, will mark a historic milestone as the first by any Asian nation to be placed in orbit around the Sun.

### **BUSINESS**

#### **EU Telecoms vs Tech**

European telecom leaders, including Orange and Vodafone executives, have called on the EU to compel tech and streaming giants like Netflix to contribute financially for the extensive bandwidth they consume.

- This proposal, though not new, has sparked a contentious debate. Telecom companies argue that they require additional funds to maintain and upgrade infrastructure to meet Europe's escalating data demands, suggesting it would be fairer for streaming companies to share this cost burden.
- However, tech giants counter that telecom firms already receive payments from customers. Digital rights activists express concerns that forcing web giants to pay could result in a two-tier internet system.
- In a letter from the European telecom lobby group ETNO, signed by 20 CEOs, it was highlighted that major tech companies pay negligible amounts for data transport in their networks, falling significantly short of covering the necessary expansion costs.
- The CEOs emphasized the need for a fair and proportional contribution from major traffic generators to support network infrastructure expenses, citing an EU estimate of requiring at least 174 billion euros (\$183 billion) in new investments by 2030 to meet connectivity goals. They argued that the telecom sector, in its current state, lacks the strength to fulfill this demand.
- The European Commission initiated a public consultation in February, inviting input from citizens, non-governmental organizations, and companies, with the results expected to be made public by the end of 2023. However, the notion of a "fair contribution to telecommunication networks" has stirred division within the EU.
- While the European Parliament expressed support for the idea earlier this year, not all 27 member states are in agreement. Many countries reportedly opposed imposing such a levy on tech firms in June.

• The Computer & Communications Industry Association (CCIA), a prominent tech lobbying group, vehemently opposes the proposal, warning that such fees could have dire consequences for European consumers. They argue that consumers might be compelled to pay twice – first for internet access and second through increased costs for streaming and cloud services. Additionally, 34 civil society organizations wrote an open letter last year, asserting that any levy would violate Europe's net neutrality rules, which prohibit telecom companies from offering faster internet speeds to specific entities.

#### **Nobel Medicine Prize**

#### **Nobel Prize for mRNA**

Katalin Kariko and Drew Weissman were awarded the Nobel Prize in Medicine on Monday for their groundbreaking work in messenger RNA (mRNA) technology, a crucial innovation that paved the way for the development of revolutionary Covid-19 vaccines. The Nobel jury acknowledged their significant contribution, stating that they played a key role in the rapid development of vaccines during one of the most significant threats to global public health in modern history.

- The World Health Organization declared Covid-19 a pandemic in March 2020, and by December of the same year, the first mRNA vaccines were approved for use against the virus. Since then, billions of doses of Pfizer/BioNTech and Moderna vaccines, among others, have been administered worldwide. These vaccines, including mRNA-based ones, have not only saved millions of lives but also prevented severe diseases in countless others, as noted by the jury.
- Kariko, 68, and Weissman, 64, both esteemed researchers at the University of Pennsylvania in the United States, have received numerous awards for their work over the years. Their recognition by the Nobel committee this year is noteworthy because the committee typically honours discoveries that have stood the test of time. However, in this case, the committee chose to acknowledge recent groundbreaking research due to its immediate and profound impact on public health.
- Unlike traditional vaccines, which use weakened viruses or specific viral proteins, mRNA vaccines provide genetic instructions that guide cells in the body to produce specific proteins, simulating an infection and training the immune system to respond effectively to the real virus. Although the concept of mRNA vaccines was demonstrated in 1990, it was not until the mid-2000s that Kariko and Weissman developed a technique to control the dangerous inflammatory response observed in animals exposed to these genetic molecules. This breakthrough paved the way for the development of safe human vaccines, culminating in the successful creation of Covid-19 vaccines.
- Kariko's journey to this achievement was marked by challenges and perseverance. Despite facing rejection and skepticism from her peers, she continued her research, believing that mRNA held the key to treating diseases where increasing the production of specific proteins could be beneficial, such as in brain repair after a stroke. Her dedication to her work eventually led to significant discoveries that have transformed the field of medicine.

- The impact of their research extends far beyond Covid-19. The technology is now being used to develop treatments for various diseases, including cancer, influenza, and heart failure. The Nobel committee hopes that the recognition of Kariko and Weissman's work will inspire confidence in those who are hesitant about vaccines, potentially encouraging more people to get vaccinated.
- Both researchers will be awarded the Nobel diploma, a gold medal, and a \$1 million prize during the Nobel Prize ceremony in Stockholm on December 10th. For Kariko, this recognition is not only a personal triumph but also a testament to the power of persistence and belief in scientific innovation, echoing the words of her late mother, who always had faith in her abilities.

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