

INFOTAINMENT EDGE[™]

Wednesday, November 8, 2023 (Daily E-booklet on Artificial Intelligence, VR, Tech, Robotics, Coding, Global Info, Health, Science & more)

SECTION 1 – TECH BUZZ

ARTIFICIAL INTELLIGENCE



AI GPU Shortage Solutions

In the year 2023, few technologies have captured as much attention, curiosity, and potential as Artificial Intelligence (AI). We undoubtedly find ourselves amidst an unprecedented AI craze, reminiscent of a modern-day gold rush, where innovators, investors, and entrepreneurs are fervently pursuing the promises of this technology.

• Much like the 19th-century gold rush in California, the current frenzy has given rise to two types of entrepreneurs. Some are tirelessly working to harness AI in pursuit of the ever-elusive "next big thing" in the tech world. Others are providing the essential tools and resources necessary for this AI revolution.

A Significant Demand for GPUs

• The insatiable hunger for AI advancement has led to a skyrocketing demand for Graphics Processing Units (GPUs), the workhorses behind AI's computational power. Nvidia stands out as a dominant leader in this domain, recently surpassing Wall Street's expectations and pushing its valuation past the remarkable \$1 trillion mark.

- Yet, simultaneously, there is a concerning shortage of GPUs, which threatens to hinder AI's progress at a time when its real-world potential is soaring. Initially, GPUs were popular among gamers and computer enthusiasts, but their demand surged during the pandemic as cryptocurrencies like Bitcoin gained popularity. Mining cryptocurrencies necessitated substantial computational power, and GPUs were ideally suited for this purpose. The soaring value of cryptocurrencies led to a rush of people mining them, resulting in a massive demand for GPUs.
- The situation worsened due to opportunistic businesses, including scalpers who employed • automated bots to swiftly purchase GPUs. According to Goldman Sachs, the global GPU shortage during the pandemic affected 169 different industries.

The Challenge of GPU Supply

- Now, with the rise of large-scale deep learning projects and AI applications, the demand for GPUs has reached a fever pitch. However, the current production and availability of GPUs fall short of meeting AI's ever-evolving potential. Many businesses are struggling to obtain the necessary hardware, hindering their capacity for innovation.
- OpenAI CEO Sam Altman privately acknowledged that GPU supply constraints were impacting the company's operations. In a Congressional hearing, Altman emphasized that technology shortages slow performance, and products would be better if fewer people used them.
- AI founders and entrepreneurs are reportedly appealing to sales teams at companies like Amazon and Microsoft for more computational power, prompting some organizations to procure substantial amounts of cloud computing capacity to prepare for future opportunities.

How Enterprises Can Adapt

Enterprises cannot afford to wait for manufacturing techniques and supply chains to catch up with the surging demand for GPUs. Instead, they must adapt their approach to reduce chip demand and maximize their innovation opportunities.

Here's how they can do it:

- Consider Alternative Solutions: Not every problem necessitates AI and its resourceintensive GPU computing. Companies can explore other computing solutions for tasks such as data preprocessing and feature engineering, which can be efficiently handled by CPU-based machines without significant computational overhead. Predictive maintenance, a common AI application, can also be managed with less-capable computing solutions.
- **Develop More Efficient AI Algorithms:** Efficient AI algorithms can reduce the processing power required for AI applications, making GPUs less essential. Techniques like transfer learning, fine-tuning pre-trained models on CPU-based machines, and using machine learning algorithms like Support Vector Machines and Naive Bayes classifiers can help reduce the need for GPUs.
- Find Alternative Hardware: Exploring alternative hardware, such as CPUs, Field-Programmable Gate Arrays (FPGAs), and Application-Specific Integrated Circuits (ASICs), is a viable approach for organizations seeking efficient processing. Each of

these alternatives has its unique strengths and trade-offs, so careful evaluation is essential.

• Additionally, outsourcing GPU processing to cloud or computing providers can be a practical solution for companies seeking efficient and scalable AI computation. It's important to recognize that GPUs are not the sole solution for high-performance computing, and other hardware accelerators can deliver comparable results, even in times of GPU scarcity.

AI Learns from Mistakes

A groundbreaking technique has been developed by researchers from Microsoft Research Asia, Peking University, and Xi'an Jiaotong University, aiming to enhance the problem-solving abilities of large language models (LLMs).

- Inspired by the way humans learn from their mistakes, the method, called Learning from Mistakes (LeMa), allows AI systems to correct their errors, leading to improved reasoning skills.
- The researchers utilized a strategy reminiscent of human learning processes, wherein students learn from their mistakes to enhance their future performance. Applying this concept to LLMs, they employed mistake-correction data pairs generated by GPT-4 to refine the models. This involved having models like LLaMA-2 generate flawed reasoning paths for math word problems, which were then corrected by GPT-4. The corrected data was used to further train the original models.
- The results of this approach were remarkable. Across various LLMs and mathematical reasoning tasks, LeMa consistently enhanced performance compared to traditional fine-tuning methods. Specialized LLMs, including WizardMath and MetaMath, also showed substantial improvement, achieving high accuracy rates on challenging datasets.
- Beyond simply improving AI reasoning capabilities, LeMa signifies a significant stride towards AI systems that can learn and evolve from their mistakes, paralleling human learning processes. The researchers have made their research, along with the code, data, and models, publicly available on GitHub, encouraging the wider AI community to explore this avenue further, potentially leading to more advancements in machine learning.
- The introduction of LeMa marks a pivotal moment in AI, suggesting that machine learning processes can mirror human learning more closely. This development holds immense potential for sectors heavily reliant on AI, such as healthcare, finance, and autonomous vehicles, where error correction and continuous learning are crucial.
- As the field of AI continues to progress rapidly, integrating human-like learning processes, such as learning from mistakes, becomes fundamental in developing more efficient and effective AI systems. This breakthrough underscores the exciting prospects within the realm of artificial intelligence, moving us closer to a future where AI can surpass human capabilities in complex problem-solving tasks.

GPT-4 Turbo Unveiled

At OpenAI's inaugural developer conference, OpenAI DevDay, Sam Altman unveiled the company's most advanced large language model, GPT-4 Turbo. This cutting-edge iteration of

GPT (Generative Pre-trained Transformer) marks a significant milestone in AI technology, as it now boasts the ability to process both text and images.

- One of the standout features of GPT-4 Turbo is its remarkable capacity to handle context, accommodating up to 128,000 tokens or 100,000 words. This is a substantial improvement from its predecessor, GPT-4, which had a limited context window of 32,768 tokens.
- To put it into perspective, GPT-4 Turbo can effortlessly process an entire 300-page book as a single prompt, making it ideal for tasks that require extensive textual input. Users can input entire novels and request GPT-4 Turbo to rewrite them seamlessly in one go.
- Not only does GPT-4 Turbo outshine its predecessors in terms of capabilities, but it also offers a more cost-effective solution. While GPT-4 came at a price of \$0.03 per 1000 tokens, GPT-4 Turbo is available at a significantly reduced cost of \$0.01 per 1000 tokens. This affordability factor allows developers to deploy a highly advanced model without breaking the bank.
- It's important to note that there are two variants of GPT-4 Turbo. One variant is designed solely for processing text input, while the other, known as GPT-4 Turbo with Vision, can comprehend both text and images. This versatility opens up a myriad of possibilities for developers working on projects that require multimodal input.
- In addition to its enhanced capabilities, GPT-4 Turbo features an improved text-to-speech model. This functionality enables the generation of natural-sounding audio from text through an API, offering developers access to six preset voices for diverse applications. To further enhance its utility, OpenAI has introduced "JSON mode" to GPT-4 Turbo, allowing developers to generate output in a specific format tailored to their needs.
- Excitingly, GPT-4 Turbo is now accessible to developers via API, starting immediately. For the general public, it will be made available through the ChatGPT Plus subscription in the coming weeks, priced at \$20 a month. With its expanded capabilities, affordability, and multimodal features, GPT-4 Turbo represents a groundbreaking leap forward in the field of artificial intelligence.

DEEP LEARNING

Deep Learning for Machine Reading

WiMi Hologram Cloud Inc., a leading global provider of Hologram Augmented Reality (AR) Technology, has recently unveiled a groundbreaking integration: deep learning technology into machine reading models.

- This innovative development aims to enhance the accuracy and performance of machine reading comprehension tasks, as well as improve the readability and understanding of human language by machines. The introduction of Deep Learning Machine Reading Models marks a significant milestone in the ongoing revolution of AI technology, expanding the possibilities of artificial intelligence applications.
- The core concept behind utilizing deep learning machine reading models is to tackle the challenges faced in machine reading comprehension. This involves employing an attention mechanism and decoding algorithm to capture the semantic meaning of words

within a text. By transforming this information into a vector representation, automatic reading and understanding become possible. This model can sift through vast amounts of text, extract relevant information, and provide precise responses to questions.

- Several essential elements constitute these machine reading comprehension models, including word embedding, encoding, and decoding. WiMi's approach to deep learning-based machine reading comprehension encompasses question comprehension, answer production, contextual understanding, and input representation.
- Input representation, the process of converting raw text into a machine-readable format, plays a pivotal role. Techniques such as word embedding, character embedding, and positional coding are employed to enhance the model's comprehension of the semantic and structural nuances within the text. Contextual understanding, another crucial component, allows the model to grasp the context of the text, enabling more accurate responses to questions. This is achieved through the implementation of attention mechanisms, a common strategy in this model.
- Question comprehension is vital in machine reading tasks, involving the conversion of a given question into a format understandable by computers. Extracting essential information from the question and matching it with the context is the goal of question comprehension. Similarly, answer generation, a pivotal stage in machine reading comprehension modelling, aims to produce precise and well-reasoned responses based on the model's understanding of the question and the text.
- Looking ahead, WiMi Hologram Cloud Inc. is committed to further research in this field, striving to develop even more powerful and sophisticated machine reading comprehension models. These advancements hold the promise of meeting the diverse demands of various sectors, creating new opportunities for the application of AI and machine learning. This represents a substantial leap forward in the realms of artificial intelligence and machine learning, opening up exciting possibilities for the future.

AUTOMATION

Intelligent Automation Driving Business Transformation

The essence of intelligent automation lies in understanding its key drivers and establishing a well-controlled and governed ecosystem. To harness its potential fully, businesses must delve into the real motives behind implementing Intelligent Automation (IA), prioritize responses, possess the right talent, skills, and technology, and establish a regulated environment. Let's explore the primary drivers that fuel the adoption of intelligent automation in today's rapidly changing business landscape.

• Meeting Evolving Customer Expectations: In the dynamic business environment, customer demands are constantly evolving. Modern consumers seek personalized offerings from companies, pushing businesses to adapt swiftly. Intelligent automation breathes new life into existing processes and legacy systems, enhancing agility and speed in customer service. By utilizing IA, companies can gather contextual information, gaining valuable insights into customer behaviours and preferences. This deep

understanding enables businesses to tailor their offerings, creating a more satisfying customer experience.

- **Greater Processing Efficiency and Cost Reduction**: Intelligent automation holds the power to significantly reduce transaction processing costs by up to 80%. In the realm of IT, automation leads to substantial savings as multiple software robots enhance efficiency, replacing the need for numerous full-time employees. Business leaders embracing intelligent automation witness a transformative impact on their operations, driving down costs while boosting productivity. This efficiency not only improves the bottom line but also enables companies to redirect resources towards strategic initiatives.
- **Speed, Accuracy, and Enhanced Decision-Making**: Integrating intelligent automation into business processes results in a drastic reduction in process cycle time. This improvement not only enhances outcomes but also elevates customer satisfaction levels. Moreover, intelligent automation ensures superior data accuracy and facilitates data-driven decision-making. Unlike traditional scripted automation, IA can handle complex processes, enabling faster, more precise actions. It identifies patterns, eliminates irrelevant data, and generates insights that inform downstream procedures, making the decision-making process more informed and strategic.
- Workforce Agility and Adaptability: With the rapid evolution of business tools and technologies, organizational cultures are undergoing significant transformations. To keep pace with these changes, employees need skills that enable them to comprehend ongoing shifts, anticipate future developments, and swiftly adapt. Intelligent automation plays a pivotal role in this scenario, excelling in adapting to fluctuations in demand. It provides businesses with the ability to scale up or down their capacity at a fraction of the cost associated with traditional models. This agility is crucial in meeting heightened demand, enhancing customer experience, and ensuring workforce satisfaction.
- In conclusion, the adoption of intelligent automation is not just a technological advancement; it is a strategic imperative. By understanding and harnessing its key drivers, businesses can optimize their processes, improve customer satisfaction, and empower their workforce to thrive in the ever-changing landscape of the modern business world.

TECHNOLOGY

LTTS To Partner With Google Cloud To Develop DevX

L&T Technology Services, a prominent global digital engineering and R&D services company, has recently announced a groundbreaking collaboration with Google Cloud to leverage its generative AI (gen AI) technology and tools for the development of its innovative LTTS Developer Experience Platform, also known as DevX.

• This collaboration signifies LTTS' dedication to achieving transformative AI-driven goals in partnership with Google Cloud. The primary objective is to enhance the LTTS DevX framework by seamlessly integrating Google Cloud's gen AI components, thereby revolutionizing how customers interact with LTTS' digital solutions.

- The collaboration will unfold in two distinct phases. In the initial phase, LTTS and Google Cloud will focus on specific use-cases, including automating the generation of test cases from requirement documents, expediting the unit test case generation process by integrating gen AI into the development code, and automating code generation to boost development efficiency. Building on the success of this phase, the partners will create a custom gen AI platform seamlessly integrated into the overarching LTTS DevX ecosystem, empowering developers with even more sophisticated AI-driven capabilities.
- One of the key objectives of this partnership is to expand the global developer community's awareness of DevX as a go-to platform for engineering solutions. Additionally, LTTS aims to enhance user experience by simplifying the discovery and implementation of LTTS' solutions, ultimately leading to increased customer satisfaction. The collaboration also intends to deepen developer engagement through a "developer playground" experience and extend it with API discovery and accelerators.
- LTTS has a strong track record in AI breakthroughs, with popular solutions like ChestrAi(TM) and AiKno(R) for various sectors, making it a preferred partner for AI-enabled digital transformation initiatives. Notably, the collaboration will address complex challenges, such as generating test cases from unstructured data sources, with the aim of providing innovative solutions to industries worldwide.
- Abhishek Sinha, Chief Operating Officer and Member of the Board at L&T Technology Services, expressed excitement about the collaboration, emphasizing its potential to revolutionize engineering and digital solutions across industries. Chandra Sankholkar, Director of Partnerships at Google Cloud, highlighted Google Cloud's commitment to empowering businesses with open cloud solutions, ensuring real-world value and operational improvements for companies.
- This partnership between L&T Technology Services and Google Cloud marks a significant milestone in the engineering landscape, promising unparalleled possibilities for industries worldwide. With AI-driven innovation at the forefront, the future holds exciting prospects for transformative developments in various sectors.

SECTION 2 – GLOBAL INFO

EUROPE

UNITED KINGDOM

Britain's head of state Charles III delivered the inaugural King's Speech on Tuesday, marking the first time in over 70 years that such an event has taken place in the UK parliament. During the address, the 74-year-old monarch outlined the legislative agenda of the Conservative government led by Prime Minister Rishi Sunak, just as the country braces for an imminent election.

- Seated on a regal golden throne in the House of Lords, Charles III unveiled Sunak's proposed new laws, highlighting key differences between the Conservatives and the main opposition Labour Party.
- This significant moment occurred amid a challenging political landscape for the Conservatives, who have been in power since 2010 but currently trail Labour by a substantial margin in most opinion polls. The upcoming election, widely anticipated to occur next year, adds pressure to the ruling party's agenda.
- Richard Carr, an associate professor specializing in public policy and strategy at Anglia Ruskin University, emphasized the importance of the King's Speech in shaping Sunak's political stance. Carr noted, "The King's Speech represents one of the last opportunities for Rishi Sunak to present his agenda. Despite his low polling numbers, he possesses the ability to influence the national discourse, control media narratives in supportive newspapers, and strategically establish hurdles for the opposition to overcome," he said.
- This ceremonial address marked Charles III's first as the reigning monarch, although he had previously practiced the role when he deputized for his mother, Queen Elizabeth II, in a similar capacity in May of the previous year.

UKRAINE

Ukrainian President Volodymyr Zelensky voiced his stance, stating that he does not consider the current situation conducive to holding elections, sparking intense debate regarding the possibility of a vote in 2024 amidst the ongoing conflict with Russia.

- Martial law, which has been in effect since the conflict began last year, technically cancels all elections, including the presidential vote scheduled for the coming spring.
- In his daily address, Zelensky emphasized the critical need for defense and unity, emphasizing that the fate of the nation and its people hangs in the balance. He stressed that the country must remain united during these challenging times, highlighting, "We must decide that now is the time for defense, the time for battle, upon which the destiny of the state and its people depends."
- He firmly stated his belief that the current circumstances are not conducive to holding elections, urging unity instead of division among the citizens.
- The frontlines between the conflicting sides have remained largely static for almost a year, despite a highly publicized Ukrainian counter-offensive. Russian forces are firmly entrenched in southern and eastern regions of Ukraine.
- Key allies of Kyiv, including officials from the United States and Europe, have reportedly suggested negotiations to end the protracted 20-month-old conflict. The situation continues to unfold as the nation grapples with the complexities of the ongoing conflict and the debate surrounding the timing of future elections.

MIDDLE EAST

ISRAEL

In a recent announcement, Prime Minister Benjamin Netanyahu declared Israel's intention to assume "overall security" control of besieged Gaza following the ongoing conflict.

- Despite mounting international pressure for a ceasefire, Netanyahu asserted that the Israeli military would continue its offensive to eradicate Hamas, the Palestinian militant group responsible for an attack on October 7 that claimed the lives of 1,400 people in Israel, primarily civilians.
- The attack also saw Hamas taking over 240 people hostage, including children and elderly individuals. In response to this incident, Israel launched a massive bombardment campaign in Gaza, coupled with an escalating ground offensive. One month into the conflict, the Hamas-run health ministry reported a staggering death toll of over 10,000 in Gaza, with more than 4,000 of the victims being children.
- The situation in Gaza has raised significant international concerns, with UN Secretary-General Antonio Guterres describing the region as a "graveyard for children." Over 1.5 million people in densely populated Gaza have been forced to flee their homes in search of safety, but critical aid has been slow to reach them, exacerbating their plight.

NORTH AMERICA

UNITED STATES

US Secretary of State Antony Blinken arrived in Japan on Tuesday to join a meeting of G7 foreign ministers aiming to establish a unified stance on the conflict in Gaza amid increasing calls for a ceasefire in the Israel-Hamas war.

- Blinken, who had just concluded a rapid tour of the Middle East, refrained from making any public statements as he commenced the two-day discussions in Tokyo.
- The conflict in Gaza escalated dramatically on October 7 when Hamas militants initiated an attack, leading to a severe Israeli military response. Israeli authorities reported that the attack resulted in 1,400 casualties in Israel, primarily civilians. Conversely, the Hamas-run health ministry in Gaza has reported a death toll exceeding 10,000 people.
- The United States, a staunch ally of Israel, has refrained from formally advocating for a ceasefire, contending that Israel possesses the right to retaliate. However, Washington has urged temporary halts in the hostilities.
- While in Turkey on Monday, Blinken stated that the United States was actively working to enhance aid for civilians caught in the conflict, emphasizing their aggressive efforts in this regard.

SECTION 3 – MIXED BAG

HEALTH

Parkinson's Breakthrough in Switzerland

Researchers in Switzerland have achieved a groundbreaking medical feat by enabling a man with advanced Parkinson's disease to walk almost normally again, thanks to electrodes implanted in his spinal cord.

- The innovative procedure, conducted by Swiss scientists who had previously pioneered similar breakthroughs for paraplegic individuals, holds the potential to revolutionize movement restoration for people with advanced Parkinson's. David Dexter, research director at Parkinson's UK, highlighted the significance of the achievement while also emphasizing the need for further research due to the invasive nature of the procedure.
- The patient, Marc, a 62-year-old man from France who has been battling Parkinson's for about 30 years, faced significant challenges with walking, a common issue among individuals with advanced Parkinson's. Marc described the debilitating "freezing" episodes, during which he was temporarily unable to move, putting him at risk of falling. The unpredictable nature of these episodes made simple activities like walking or shopping a constant concern.
- When presented with the opportunity to undergo surgery in Switzerland, Marc eagerly accepted. The Swiss team, led by surgeon Jocelyne Bloch and neuroscientist Gregoire Courtine, implanted a sophisticated system of electrodes, referred to as a "neuroprosthesis," at crucial points along Marc's spinal cord.
- This neuroprosthesis, based on a principle similar to previous spinal cord implants used to help paraplegic patients walk, aimed to restore communication between the brain and spinal cord, compensating for the loss of neurons responsible for generating dopamine, a neurotransmitter crucial for movement control.
- The neuroprosthesis functions by sending electrical stimulation to initiate walking and mimicking the brain's role by timing the stimulation precisely to align with the patient's intentions.
- Sensors placed in Marc's legs measure residual movements and interpret the intention to walk, enabling the system to adjust the stimulation accordingly. Marc, who used the neuroprosthesis for approximately eight hours a day over nearly two years, experienced significant improvement in his ability to walk. He expressed his newfound freedom, being able to go for walks, shop independently, and engage in various activities.
- The Swiss researchers' groundbreaking work, published in the journal Nature Medicine, represents a major stride forward in Parkinson's disease treatment. The team has expanded their experiment to include six more Parkinson's patients, aiming to explore how this technology can assist individuals who experience the disease differently. However, challenges remain, including the cost of the invasive implant procedure, which could limit access for many patients.

• Despite these hurdles, the achievement marks a significant advancement, offering hope to individuals suffering from advanced Parkinson's disease. Researchers continue to push the boundaries of medical science, bringing us closer to transformative solutions for complex neurological disorders.

FINANCE

China's BRI Debt Challenges

China has emerged as the world's largest debt collector, owed over a trillion dollars through its ambitious Belt and Road Initiative (BRI), according to a recent report. The BRI, introduced by President Xi Jinping a decade ago, has garnered participation from approximately 150 countries worldwide, extending from Uruguay to Sri Lanka. Over the past ten years, China has provided substantial loans to support the construction of infrastructure projects in low and middle-income countries, such as bridges, ports, and highways.

- However, the BRI has faced challenges as more than half of these loans have now entered their principal repayment period. A report by AidData, a research institute based at Virginia's College of William and Mary, reveals that China has committed aid and credit amounting to about \$80 billion annually to low and middle-income nations, surpassing the United States' annual contribution of \$60 billion to similar countries.
- AidData's research also indicates that 80 percent of China's overseas lending portfolio in developing countries is currently assisting nations in financial distress. Despite the initiative's positive impact on economic growth in participating countries, critics have raised concerns about opaque pricing for projects built by Chinese companies. Countries like Malaysia and Myanmar have renegotiated deals to reduce costs, reflecting the challenges faced in the execution of the BRI projects.
- Furthermore, China's reputation has suffered among developing countries, with its approval rating dropping from 56 percent in 2019 to 40 percent in 2021. However, the report suggests that China is adapting and improving its crisis management strategies, aiming to align its lending practices with international standards and de-risk the BRI. One approach involves implementing stringent safeguards to shield itself from the risk of non-repayment. These safeguards include allowing key BRI lenders to unilaterally access borrowers' foreign currency reserves held in escrow, a practice conducted discreetly and beyond the reach of domestic oversight institutions in low- and middle-income countries.
- Despite these challenges, China remains committed to the BRI's vision. During a recent summit in Beijing marking the initiative's tenth anniversary, President Xi Jinping pledged to inject over \$100 billion of new funds into the BRI. However, a joint report by the World Bank and other institutions, including AidData, highlighted that China had also provided substantial bailout loans to BRI countries in recent years.
- Additionally, the BRI has come under scrutiny for its significant carbon footprint and environmental degradation resulting from large-scale infrastructure projects. As China continues to navigate the complexities of the BRI, it remains to be seen how the initiative will evolve in the face of these challenges and criticisms.

SPACE

Space Cargo Ship

The European Space Agency (ESA) has unveiled plans to organize a competition among companies to construct a spacecraft capable of delivering cargo to the International Space Station (ISS). This initiative marks a significant move towards enabling independent missions involving astronauts.

- The announcement was made during a two-day summit in Seville, Spain, where representatives from the ESA's 22 member states were in attendance. At the summit, the member states also agreed to provide financial support for the Ariane 6 rocket, which has faced delays, leaving Europe without a means to independently launch its space missions.
- ESA Chief Josef Aschbacher highlighted the evolving landscape of space exploration, emphasizing the transformative impact of private companies on the sector. He proposed a competition for innovative European companies to develop a spacecraft capable of transporting cargo to the ISS and returning to Earth by 2028.
- Aschbacher stressed the necessity for Europe to acquire transport, docking, and re-entry capabilities, which the continent currently lacks. He envisioned the service vehicle evolving into a crew vehicle for missions beyond low Earth orbit.
- The competition serves as a foundational step toward manned flights, according to insiders close to the negotiations. The ability to send a cargo ship to a station and back is considered the essential first step in this direction. Aschbacher disclosed that 75 million euros (\$80 million) had been secured for the initial phase of the project, with contributions expected from participating companies.
- The ESA's new approach aligns with the model adopted by NASA, the United States' space agency, allowing for the possibility of purchasing rides on private companies' rockets for future missions. This approach challenges the longstanding ESA principle of geographic return, which advocates equal industrial benefits for each country's investment.
- In addition to addressing the competition, the summit aimed to tackle Europe's "launcher crisis." Europe's next-generation Ariane 6 rocket, delayed by four years, is now scheduled for its maiden flight next year.
- The ESA lost access to Russia's Soyuz rockets following geopolitical events, and its Vega C launcher remains grounded after a commercial flight failure in December. France, Germany, and Italy, the ESA's major contributors, negotiated funding of 340 million euros (\$365 million) for the Ariane 6 program. The Vega C rocket could receive a subsidy of 21 million euros annually from its 26th to 42nd flight.
- Furthermore, the ESA announced plans to leverage space technology for environmental purposes. Collaborating with the European Union, the ESA intends to accelerate Earth observation missions to gather crucial climate change data, reflecting a joint commitment to a greener future.

ENERGY

'World-First' Flight Powered By Sustainable Fuels

The UK's aviation regulatory body has granted Virgin Atlantic a groundbreaking permit for a transatlantic flight scheduled for November 28, marking a historic achievement in sustainable aviation.

- The UK Civil Aviation Authority (CAA) confirmed that the approval for the London to New York flight was granted after thorough technical evaluations, supported by a coalition of companies including Boeing, Rolls-Royce, and BP.
- Scientists have long highlighted the significant carbon dioxide and non-CO2 emissions generated by the aviation industry, contributing significantly to climate change. To address this issue, airlines are turning to sustainable aviation fuels (SAF), a biofuel with lower carbon emissions compared to traditional jet fuel. While SAF is more environmentally friendly, its production remains costly, posing a challenge to the industry. Airlines anticipate a gradual and expensive transition, potentially leading to increased ticket prices and reduced passenger demand growth.
- Rob Bishton, the CEO of CAA, emphasized the importance of enabling the aviation sector to adopt sustainable practices and explore innovative technologies. The permit granted to Virgin Atlantic exemplifies the industry's commitment to sustainability and serves as a testament to ongoing efforts to create a greener aviation sector.
- This milestone also paves the way for Virgin Atlantic to seek approvals from regulators in the United States, Ireland, and Canada, as the flight will traverse the airspace of these countries. The CAA conducted a comprehensive analysis of the planned flight, including ground testing with Rolls-Royce on a Trent 1000 engine powered entirely by SAF. The initiative, partially funded by the UK government, aims to test and demonstrate the feasibility of using sustainable fuels to power airplanes.
- In support of this transition, the UK government allocated up to £1 million (\$1.2 million) to Virgin Atlantic in December to facilitate the industry's first transatlantic flight powered solely by SAF. Virgin Atlantic CEO Shai Weiss acknowledged the immense collaborative effort required to reach this milestone. He reaffirmed the airline's commitment to using 10 percent SAF by 2030 while urging the government to help establish a robust SAF industry in the UK.
- The approval granted to Virgin Atlantic represents a significant step forward in the pursuit of sustainable aviation, showcasing the industry's dedication to reducing its environmental impact and exploring innovative solutions for a greener future.

Subscribe to Infotainment Edge Global Infotainment Edge Global Daily Digital E-booklet is sent 5 days a week (Monday to Friday). To subscribe, please write to us at info@21stcenturyforu.com.

Copyright: INFOTAINMENT EDGE[™] ©2023 INFOTAINMENT EDGE GLOBAL. All rights reserved. Information appearing in INFOTAINMENT EDGE must not be reproduced in any medium without license. This edition cannot be re-transmitted to any other non-subscribing organization or individual.

Disclaimer: Your institution's rules, regulations and procedures take precedence over all information in INFOTAINMENT EDGETM including any report, survey and research.

Career Counselling

🗱 Unlock Your Future with Expert Career Counselling! 🗱

Embark on a transformative journey with our comprehensive Career Counselling services tailored just for you! Discover your passions through Self-Exploration, laying the foundation with an Initial Assessment, and broadening your horizons with Career Counselling. Our expert counsellors guide you in Goal Setting, enhancing your employability through Skills Assessment, and provide Decision-Making Support when you need it most.

Craft your personalized Action Plan, mapping your career journey seamlessly. Worried about the future? Don't be! We offer Follow-Up and Support, ensuring you're always on the right track. Don't miss this opportunity! **Email us at info@21stcenturyforu.com** and let's shape your future together. Your dream career awaits!