AIR INDIA UNVEILS TRANSFORMATION PLAN: VIHAAN.AI

AKASA AIR ENHANCES ITS NETWORK, ADDS DELHI AS ITS SIXTH DESTINATION

AVIATION UPDATE

India's premier aviation monthly magazine

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GREEN VS GRANDEUR AIRPORTS BY GS BAWA

EXPERIENCING SUSTAINABLE DEVELOPMENT WITH AVIATION PROFESSIONALS

ARUN LOHIYA, COO, CAD VENTURES PVT. LTD.

CONTENTS

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The October issue of Aviation Update will inform you about a hectic period now affecting the aviation sector in general and avionics suppliers in particular. United invests an additional $15 million in Eve, a company that makes electric flying taxis, while Gulfstream unveils a second modified G700 test aircraft. The Quick Updates section of the issue will cover the newest news. Boeing projects that the Middle East fleet will triple by 2041 to fulfill the demand for passengers and cargo. Boeing estimates that to meet the region's fast-growing passenger and freight demand, the fleet will eventually grow to 3,400 aircraft. Additionally, with its fifth aircraft in the fleet, AKASA AIR enlarges its network and makes Delhi its sixth destination.

If you browse the Appointments section, you will notice that Thales and New Jetstar have named new CEOs. Also, on September 26, 2022, Mr. Manoj Jain assumed responsibility as Director (R&D) of Bharat Electronics Limited (BEL), a Navratna Defence PSU. Before being promoted, he served as General Manager of the BEL Bangalore Complex's Electronic Warfare & Avionics SBU. It is undoubtedly an extraordinary moment to work in this thriving sector.

After reviewing the Engines & MRO, and Defence & Military parts, read interview with Dr. Arun Lohiya, Chief Operating Officer, CAD Ventures Pvt. Ltd. Examine the new "Focus on Airports" section for the best essay, "Quantifying the Objectives of Greenfield Airports to Connect the World" by GS Bawa.

Both publishing and aviation have indeed seen significant upheaval. However, Aviation Update's dedication to serving as your source for news, analysis, and insight into this constantly evolving field of aviation electronics will not alter. We will continue to be your go-to source for aviation news and information through our well-regarded print journal or our increasing selection of online products.

AIR INDIA UNVEILS TRANSFORMATION PLAN: VIHAAN.AI

Air India unveiled its comprehensive transformation plan, to establish itself, once again, as a world-class global airline with an Indian heart - the absolute best in class in customer service, in technology, in product, in reliability and in hospitality. The plan is fittingly titled "Vihaan.AI", which in Sanskrit signifies the dawn of a new era, with identified objectives for Air India over the next 5 years.

As part of Vihaan.AI, Air India has put into place a detailed roadmap with clear milestones focussing on dramatically growing both its network and fleet, developing a completely revamped customer proposition, improving reliability and on-time performance, and taking a leadership position in technology, sustainability, and innovation, while aggressively investing behind the best industry talent. Over the next 5 years, Air India will strive to increase its market share to at least 30% in the domestic market while significantly growing the international routes from the present market share. The plan is aimed at putting Air India on a path to sustained growth, profitability and market leadership.

The Airline's CEO, Mr. Campbell Wilson along with senior management members who are together driving this transformation, unveiled the Vihaan.AI plan with the entire organization through Workplace, its virtual communication and engagement platform. Over the coming days and weeks, the management team will engage employees across regions, departments, and locations through a series of physical and hybrid sessions.

Vihaan.AI has been developed after extensive feedback from Air India employees on their aspirations and hopes for the airline's growth. Vihaan.AI focuses on five key pillars, exceptional customer experience, robust operations, industry-best talent, industry leadership, and commercial efficiency and profitability. While the immediate focus of the airline remains on fixing the basics and readying itself for growth (Taxiing Phase), the more medium-to-long term focus will be on building for excellence and establishing scale to become a global industry leader (Take Off & Climb phases).

INDIGO COMMENCES NEW DIRECT FLIGHTS BETWEEN MUMBAI AND RAS AL KHAIMAH, ADDS 100TH DESTINATION TO 6E NETWORK

IndiGo India's leading carrier has commenced new daily direct flights between Mumbai and Ras Al Khaimah, starting September 22, 2022. Ras Al Khaimah is the 100th overall destination and 11th in Middle East in 6E network. Ras Al Khaimah was also named as Gulf Tourism Capital for the year 2020 and 2021 by Gulf Cooperation Council.

The operator and managing body of Ras Al Khaimah International Airport welcomed the arrival of the inaugural IndiGo flight from Mumbai. The aircraft received a ceremonial water cannon salute as it taxied to the terminal to mark the occasion. Chairman of Ras Al Khaimah International Airport Engr. Sheikh Salem Bin Sultan Al Qasimi, Mr. Atanasios Titonis Chief Executive Officer of Ras Al Khaimah International Airport, Mr. Stanislav Bujnovsky, Director - Commercial & Business Development, welcomed Mr. Pieter Elbers, Chief Executive Officer, IndiGo who travelled in the inaugural flight to Ras Al Khaimah.

His Excellency Engr. Sheikh Salem Bin Sultan Al Qasimi, Chairman of The Department of Civil Aviation Ras Al Khaimah & Ras Al Khaimah International Airport said: "It is our pleasure to welcome IndiGo airlines to Ras Al Khaimah International Airport and to be able to acknowledge the increased passenger flow from the Indian subcontinent. The driving force behind Ras Al Khaimah's economy lies in its thriving tourism and industrial sector, and IndiGo's approach is well aligned to our passenger needs."

Mr. Atanasios Titonis, CEO of Ras Al Khaimah International Airport said: "IndiGo is the right airline partner in our portfolio as we are on our way to moving into a destination airport. This partnership will boost our business and open a new channel to serve the tourism for Ras Al Khaimah as an Emirate."

BOEING FORECASTS MIDDLE EAST FLEET TO MORE THAN DOUBLE BY 2041 TO SERVE PASSENGER AND CARGO DEMAND

With air travel and tourism continuing to

drive Middle Eastern economic growth, Boeing said that the region's passenger traffic and commercial fleet are projected to more than double over the next two decades. The company announced its estimate in the 2022 Boeing Commercial Market Outlook (CMO), a forecast of 20-year demand.

Middle Eastern carriers have successfully managed through challenges brought on by the pandemic by adjusting their business models and increasing usage of freighters to maximize revenue. Looking ahead, the region's fleet is forecasted to expand to 3,400 airplanes to serve fast-growing passenger traffic as well as cargo demand, Boeing said.

"The Middle East region, a popular connection point for international travelers and trade, is also growing as a starting point and destination for business and leisure passengers," said Randy Heisey, Boeing managing director of Commercial Marketing for the Middle East and Africa, and Russia and Central Asia Regions. "The region will continue to require a versatile fleet that meets the demands of airline and air-cargo business models."

Middle East airlines will require 2,980 new airplanes valued at $765 billion to serve passengers and trade. More than two-thirds of these deliveries will enable growth, while one-third will replace older airplanes with more fuel-efficient models such as the Boeing 737 MAX, 787 Dreamliner and 777X.

Notably, air cargo traffic flown by Middle East carriers has continued its substantial growth of recent years; two of the world's top five cargo carriers by tonnage are based in the region. To serve future demand, the Middle East freighter fleet is projected to reach 170 by 2041, more than doubling the pre-pandemic fleet.

The 2022 Middle East CMO also includes these projections through 2041:

- Passenger traffic is expected to grow at 4% annually.
- Passenger widebody aircraft demand continues to be robust, with 1,290 deliveries supporting a growing network of international routes.
- The Middle East single-aisle market will more than double, reaching 1,650 jets to serve regional and international destinations.
- Demand for aftermarket commercial services including maintenance and repair valued at $275 billion.
- The region also will require 202,000 new aviation personnel, including 53,000 pilots, 50,000 technicians and 99,000 cabin crew members in the next 20 years, according to Boeing's 2022 Pilot and Technician Outlook.

AIR INDIA, AIRASIA INDIA AND VISTARA SIGN MOU WITH CSIR-IIP

The airline companies of the Tata group – Air India, AirAsia India and Vistara (Tata SIA Airlines), signed a Memorandum of Understanding with the Council of Scientific and Industrial Research – Indian Institute of Petroleum to collaborate and work together on the research, development and deployment of sustainable aviation fuels (SAFs). The focus of the MoU is the exploration of Single Reactor HEFA Technology for Drop-in liquid Sustainable Aviation and Automotive Fuel (DILSAAF). The MOU also outlines the intent of the signatories to work together in a variety of other areas related to sustainable aviation.

The impact of continued use of petroleum-derived fuel for aviation is considerable with greenhouse gas and carbon emissions being of significant concern across the globe. The International Air Transport Association (IATA) has committed to achieving net-zero carbon emissions from their operations by 2050 in line with the objectives of the Paris agreement to limit global warming to 1.5°C. According to IATA, the aviation industry's net-zero carbon emissions target is focused on delivering maximum reduction in emissions at source, with the adoption of Sustainable Aviation Fuel (SAF) contributing around 65% of the reduction in emissions, in addition to innovative new propulsion technologies, and other efficiency improvements. Sustainable Aviation Fuel is made from sustainable resources, such as forestry and agricultural waste and used cooking oil and can be blended with fossil jet fuel to reduce emissions. It is a 'drop-in' fuel, meaning it can be added with no changes needed to the aircraft.

CSIR - Indian Institute of Petroleum is located at Dehradun and dedicated to R&D in the hydrocarbon sector. Its charter is to provide competitive and sustainable technologies and products to meet the requirements of the ever-growing energy sector and develop capacity and capability in new energy areas such as bio, hydrogen and solar energy and their innovative combination.

The Tata Sustainability Group ("TSG") serves as a Centre of Excellence and nodal resource on sustainability for Tata group companies. It has, since its formation in 2014, been partnering with Tata group companies to embed sustainability in their business strategies and transition them to a low carbon scenario. The collaboration on Sustainable Aviation Fuels is being coordinated by TSG working closely with the Tata Airline Companies and CSIR-IIP. The Tata Group recently outlined a transformative vision on sustainability which envisages the Group becoming Net Zero by 2045. The Tata group has been ranked as the top Sustainability Leader in Asia Pacific

and the only Asian company to appear among the top 15 corporates globally as per the GlobeScan Sustainability Leaders Survey, 2022.

AKASA AIR ENHANCES ITS NETWORK, ADDS DELHI AS ITS SIXTH DESTINATION WITH ITS FIFTH AIRCRAFT JOINING THE FLEET

Akasa Air announced Delhi as the sixth destination on its network, adding to its existing network of Ahmedabad, Bengaluru, Kochi, Chennai and Mumbai. The newly commencing flights on the Delhi-Bengaluru and Delhi-Ahmedabad routes will start on October 7, 2022, exactly within two months of the airline's commercial start. To further enhance connectivity on existing sectors, the airline has also announced additional daily flights on the Ahmedabad-Bengaluru route also commencing from October 07, 2022.

Akasa Air has been aggressively scaling up its operations and will have crossed 250 flights per week by October 10, 2022, along a total of nine routes. With a fleet expansion plan that adds one new aircraft every 15 days, the airline will soon put its fifth aircraft into operation. It will continue to grow its network to establish a strong pan-India presence with a focus on metro to tier 2 & 3 route connectivity. Akasa Air's fleet size will be 18 aircraft by the end of March 2023 and over the next four years, the airline will add 54 additional aircraft, taking its total fleet size to 72 aircraft.

Commenting on the rapid expansions, Praveen Iyer, Co-Founder, and Chief Commercial Officer, Akasa Air, said, "Elated to have added our national capital, New Delhi, to our fast-growing network. With our fifth aircraft coming into operations shortly, we will achieve the milestone of 250 flights per week soon. Apart from flights between Delhi and Bengaluru, we further augment our network between Bengaluru and Ahmedabad by adding the 2nd frequency between this route. In addition, we also announce another new route, Delhi - Ahmedabad - Delhi with very convenient timings, all effective 7th October. As Indian air travelers continue to return to travel in promising numbers, Delhi has been witnessing significant revival in passenger traffic. We look forward to catering to the growing demand and continue adding more destinations on our network".

VISTARA WINS BIG AT 2022 WORLD AIRLINE AWARDS BY SKYTRAX; NAMED 'BEST AIRLINE IN INDIA AND SOUTHERN ASIA' SECOND TIME IN A ROW

India's finest full-service carrier, Vistara, brings home stellar laurels by winning the 'Best Airline in India and Southern Asia' award for the second time in a row at the coveted Skytrax World Airline Awards 2022 in London, UK. Vistara was also awarded the 'Best Airline Staff Service in India and Southern Asia' for the fourth consecutive year, 'Best Cabin Crew in India and Southern Asia' for the second time in a row and 'Best Business Class in India and Southern Asia' at the award ceremony.

Vistara was voted for by travellers globally, as the World Airline Awards are based on the world's largest airline passenger satisfaction survey of more than 14 million travellers for the period between September 2021 and August 2022. The airline has moved 8 places up from last year to reach 20th position worldwide; this marks the entry of the airline in the World's Top 20 list for the first time ever. Vistara also ranked 20th in the list of World's Best Economy Class Airlines and 9th in the list of Best Airlines in Asia 2022.

Vinod Kannan, Chief Executive Officer, Vistara said "It is incredibly heartening for all of us at Vistara to win the 'Best Airline in India and Southern Asia' title for the second consecutive year. This award reaffirms the steadfast trust our customers have in us and is a true testament to Vistara setting global benchmarks for excellence in operations and service delivery. We are also humbled to have won the 'Best Airline Staff Service' and 'Best Cabin Crew' honours that celebrate the invincible spirit of all our employees - on the frontline and behind the scenes - to provide our customers the finest experience every single day. We are also delighted to have been recognised as the "Best Business Class in India and Southern Asia". Warm hospitality and thoughtfulness are integral to the intrinsic customer-first culture at Vistara, and our extraordinary teams endeavour to deliver it consistently. We sincerely thank all our loyal customers for their faith in us and express our heartfelt gratitude to Skytrax for the recognitions."

Commenting on the Awards for Vistara, Edward Plaisted, CEO of Skytrax said, "Vistara continues to set new standards across the Indian airtravel market, and as the airline has grown its long haul network it is now receiving the due recognition for being the Best Airline in India and Southern Asia. With Vistara's staff receiving the award for the Best Staff Service in India and Southern Asia, these successes are a

fabulous achievement. Vistara has been a strong and consistent performer in the awards in recent years and this year moves into the World's Top 20 Airlines for the first time ever."

QATAR AIRWAYS WINS WORLD'S BEST AIRLINE AWARD FOR SEVENTH TIME

Qatar Airways has been voted the World's Best Airline for a record seventh time at the 2022 World Airline Awards, winning the prestigious Airline of the Year 2022 title. After two years of virtual award ceremonies, the 2022 World Airline Awards event returned to normal procedures, with airlines from around the world attending the 2022 awards ceremony, held recently at the historic Langham Hotel in London, United Kingdom.

Widely regarded as 'the Oscars of the aviation industry', the World Airline Awards began in 1999, and remain totally independent and impartial with all of the customer survey costs and awards event paid by the organisers, Skytrax.

Qatar Airways Group Chief Executive Akbar Al Baker said: "To be named as the World's Best Airline was always a goal when Qatar Airways was created, but to win it for the seventh time and pick up three additional awards is a testament to all the hard work of our incredible employees. Their continued dedication and drive is to ensure our passengers have the best experience possible when they fly with Qatar Airways. To win these awards in the same year that we celebrate our 25th anniversary is even more rewarding and I want to offer a sincere thanks to all our passengers who voted for us. Your support drives us to greater achievements every day, we value your loyalty and aim to create memories of a lifetime when you fly with Qatar Airways."

Edward Plaisted of Skytrax said: "To receive the 2022 World's Best Airline award is a great recognition of Qatar Airways high standards and recognises the hard work and dedication from every member of the airline's staff to satisfy customers. Qatar Airways was the largest airline to have flown consistently throughout the COVID-19 pandemic, with their network never falling below 30 destinations, and that determination has clearly been well recognised by customers with this award as Airline of the Year 2022. For Qatar Airways to achieve this top accolade for a seventh time is both a unique and remarkable achievement, and we congratulate them for this success."

AKASA AIR ADDS AGARTALA AND GUWAHATI TO ITS NETWORK

Akasa Air, India's newest airline, announced its foray into the eastern cities of India, taking the tally of its destinations to eight cities with the addition of Guwahati as the seventh and Agartala as its eighth destination. With Akasa Air's first Through Flight product offering, these new flights will provide seamless one stop connectivity between Bengaluru and Agartala with no change of aircraft required at Guwahati. To further enhance connectivity on existing sectors, the airline has also announced additional daily flights on the Bengaluru-Chennai route also commencing from October 21, 2022.

Akasa Air has been progressively expanding its operations and will be flying along a total of eleven non-stop routes along eight cities - Ahmedabad, Bengaluru, Kochi, Chennai, Mumbai, Delhi, Guwahati, and Agartala from October 21, 2022. Further, the airline expects to cross the 300 weekly flights mark by the end of its summer schedule.

Commenting on Akasa Air's network expansion plans and increase in flight frequencies, Praveen Iyer, Co-Founder, and Chief Commercial Officer, Akasa Air, said, "We are excited to announce the addition of Agartala and Guwahati as our latest destinations. Guwahati is the gateway to Assam and Agartala is one of the fastest growing cities in the region and we are pleased to enhance air connectivity to provide a boost to the immense potential of the region›s aviation, industrial, and tourism prospects. Apart from flights between Bengaluru and Agartala, we further augment our network between Bengaluru and Chennai by adding a 5th frequency between this route."

In time for the festival season of Dussehra and Durga Puja, Akasa Air's buy-on-board meal service, Café Akasa is offering a special festive menu celebrating the cherished flavours of the east. The month-long festivity in the skies is available until October 31 and features Cholar Dal, Radhaballavi, Amshatto Khejur Chutney and Puran Potli Tart. The special menu is in line with the brand's philosophy of offering a warm, friendly, and inclusive experience to all its customers.

AIR INDIA 'KICKS OFF' DIRECT FLIGHTS TO DOHA FROM MUMBAI, HYDERABAD AND CHENNAI

Air India announced the introduction of 20 new flights per week to Qatar from key Indian cities. The added capacity will cater to the surge in demand expected around the football extravaganza in Qatar scheduled in November and December 2022. The flights, to be introduced from October 30, will connect Mumbai, Hyderabad and Chennai with Qatar's capital Doha during this period. Thirteen flights per week will operate from Mumbai, four from Hyderabad and three from Chennai. These flights will be in addition to the existing daily flights to Doha from Delhi.

The additional connectivity to Qatar follows Air India's increase of 24 new flights on its domestic network last month. These additional 24 flights included two new frequencies on each of the Delhi Mumbai, Delhi-Bengaluru and Mumbai-Chennai routes, as well as one new frequency on the Mumbai Bengaluru route. The strengthening of network connectivity is being enabled as more aircraft return to service.

Commenting on the introduction of new flights for Qatar, Mr. Nipun Aggarwal, Chief Commercial Officer, Air India, said, "Bringing in the football extravaganza in this part of the world, Air India aims to provide strong connectivity between India and Qatar. Football fans across Indian are excited to be in the stadiums in Qatar where the world's best football talent will be competing with each other. Our flight schedule has been planned to make the entire travel experience convenient and seamless. Over the past few months, we have been working closely with our partners to return aircraft to service which has resulted in these additional flights. Air India hopes to continue to provide world-class flying experience for landmark sporting events in the future as well."

ALL NIPPON AIRWAYS LAUNCHES BOEING'S NEW INSIGHT ACCELERATOR

Boeing announced All Nippon Airways (ANA) will be the launch customer for Insight Accelerator (IA), a new cloud-based digital solution employing artificial intelligence to improve operational efficiency and avoid high impact service disruptions.

While the latest generation of commercial airplanes like the 787 generate a large amount of flight data, many operators lack the infrastructure to manage and leverage the information. By using augmented analytics to discover and deploy predictive algorithms for anomaly detection, our Insight Accelerator solution enables airlines to take proactive maintenance and repair action and prevent unscheduled delays.

"There are many products on the market for flight data analytics but Insight Accelerator is the most effective tool for our aircraft operation," commented Manubu Tono, All Nippon Airways manager of Planning & Administration, Engineering. "It's very innovative, and meets our primary goal of leveraging features in flight data that indicate a system failure before it happens."

Boeing developed the IA platform based on decades of experience supporting the global fleet and developing rigorous methods while assisting 'Airplane-on-Ground' situations.

"IA's built-in artificial intelligence, guided exploration and powerful visualizations allow airlines to investigate flight and maintenance data, identify trends and discover insights - all without specialized coding or programming skills," said Duane Wehking, vice president of Digital Aviation Solutions at Boeing Global Services. "This is an easy-to-use solution that will provide value to airlines from day one."

INDIGO ADDS 6 NEW FLIGHTS TO BOLSTER CONNECTIVITY BETWEEN INDIA AND MIDDLE EAST

IndiGo, India's leading carrier has announced a new daily direct flight from Hyderabad-Riyadh along with additional frequencies on Hyderabad-Doha and Mangalore-Dubai routes. This new route and additional frequencies will enhance connectivity between India and Middle East.

Mr. Sanjay Kumar, Chief Strategy and Revenue Officer, IndiGo said, "We are pleased to strengthen our network by introducing new international flights and frequencies. The new connection to Riyadh will enhance business connectivity and easy access to tourist attractions like Al Masmak Fortress, National Museum, Heet Caves, Imam Turki Bin Abdullah Grand Mosque, and Kingdom Center Tower, among others. In addition, these flights will make travel affordable to the Middle East through direct connections and additional capacity. We will strive to stay true to our promise

of affordable fares, on-time performance, courteous and hassle-free service across wide network, onboard our lean clean flying machines."

EMBRAER AND GMV, FROM PORTUGAL, SIGN A MOU FOR TECHNOLOGICAL DEVELOPMENT

Embraer and GMV, from Portugal, have signed a Memorandum of Understanding (MoU) for a cooperation in the field of systems development and integration for defense products and services, mainly regarding the A-29 Super Tucano aircraft program. The MoU also includes a potential joint research, technology development, and innovation process, intending to extend and increase long-term business relations between the companies during the concept, design, development, production, and support phases.

New businesses, development and integration of navigation systems, Integrated Modular Avionics (IMA) development, and software development are also under discussion between the two companies, which intend to exchange and disclose certain information regarding their experiences, capabilities, products, systems, and services. In the specific area of R&D focused on IMA, the relationship has been ongoing for more than 15 years, including projects under the scope of the European Union's research framework.

Embraer has a long-term strategic commitment with Portugal in the development of its aerospace and defense ecosystem. It remains the country where the company continues its most significant industrial capacity investment outside of Brazil.

The most recent example has been an investment of 74 million euros in OGMA S.A., allowing the company to become certified for the maintenance of Pratt & Whitney's GTF engines used by the new generation of commercial aircraft. This agreement will create 300 jobs and could triple the annual turnover of OGMA to 600 million euros. It also reflects Embraer's interest in expanding the scope of its activities in Portugal,, thus, adding value to the country's economy.

In line with this strategy, several initiatives were put in place earlier in the year, including the signing of a Memorandum of Understanding with idD Portugal Defence and ETI for cooperation in technology development in the respective areas of expertise. With the projects under development, Embraer will work with its partners to address strategic priorities of Portugal in Defense, including advanced training, development of dual-use technologies and digitization transformation.

BOEING, RED 6 TO ADVANCE FIGHTER PILOT TRAINING WITH AUGMENTED REALITY

The future of advanced fighter pilot training is leaping into the virtual world as Boeing and augmented reality developer Red 6 announced they are collaborating to develop leading edge aerial dogfighting technology and training in advanced tactical aircraft. Boeing is the first company to team with Red 6 on this type of advanced training technology.

The joint agreement sets the stage for future integration of Red 6's Advanced Tactical Augmented Reality System (ATARS), and Augmented Reality Command and Analytic Data Environment (ARCADE) into Boeing manufactured next-generation aircraft. The T-7 and F-15EX platforms could be among the first to receive ATARS and ARCADE.

Using the system, pilots will be able to see and interact with augmented reality aircraft, targets and threats on the ground or in the air while flying and training in their actual aircraft, reducing the cost of and need for multiple platforms and 'real world training exercises.'

"We continue to revolutionize the way we train and fight. Red 6's Augmented Reality system with the pathfinding T-7 and the F-15EX represents another transformational leap in capability. This agreement is the latest example of Boeing's commitment to investing in technology and our drive to lead innovation in the aerospace and defense sectors," said Dan Gillian, vice president and general manager of U.S. Government Services for Boeing Global Services.

According to Red 6, ATARS enables a multitude of tactical training scenarios delivered through augmented reality. These include air combat manuevers, refueling, tactical formation and surface-to-air weapon engagements. ARCADE increases the efficiency of mission planning, briefing and debriefing through real-time 3D visualizations to construct and re-construct sorties.

"Readiness and lethality are critical if our

warfighters are to prevail against peer adversaries. Boeing's next-generation platforms will be the first aircraft in the world that are capable of entering our augmented reality training environment. Together, we will deliver a paradigm shift in the quality, quantity and cost of training future pilots," said Daniel Robinson, Founder and CEO of Red 6.

PRATT & WHITNEY TO ESTABLISH SINGAPORE TECHNOLOGY ACCELERATOR

Pratt & Whitney announced it will establish a technology accelerator in Singapore in collaboration with the Singapore Economic Development Board (EDB). Technologies developed in Singapore will be applied across Pratt & Whitney's global maintenance, repair and overhaul (MRO) footprint.

The facility, serving as a center of excellence for technology advancement, will help to accelerate the development and deployment of technology insertion projects across Pratt & Whitney's four Singapore-based MRO facilities over the next five years. The projects, expected to be worth at least S$31 million (or US$22 million), will focus on automation, advanced inspection, connected factory and digital twin, helping to enhance connectivity and intelligence across the company's MRO operations.

The Singapore technology accelerator will be located at the Seletar Aerospace Park, within the heart of Singapore's aerospace industry ecosystem. Expected to be ready for occupation in the fourth quarter of this year, it will add 16 new positions, which the company plans to fill with local, full-time employees.

"We are proud to work together with the Singapore Economic Development Board to develop innovative solutions for Pratt & Whitney's MRO operations. The technology accelerator signals just how relevant and important a role technology has played, and continues to play, in the aerospace industry. Pratt & Whitney has been innovating for nearly a century, and we are looking forward to this collaboration with the Singapore aerospace ecosystem towards Industry 4.0 transformation," said Gilbert Sim, director, Aftermarket Global Operations Technology and CORE, Pratt & Whitney. "The push for digitalization is underway across our facilities in Singapore, and the technology accelerator will increase the speed and scalability of these technology projects. The mission of the accelerator nicely aligns with Singapore's push to digitalize the economy."

"To date, our Asia-Pacific MRO facilities have done a great deal in the way of technology insertion, including developing the first-in-MRO application of 3D printing for aero-engine component details, pioneering robotics in the sector and launching an industrial simulation software pilot that has already resulted in optimized floor space and increased productivity," said Kevin Kirkpatrick, vice president, Aftermarket Global Operations, Pratt & Whitney. "Our employees continue to test the limits of what is possible."

As the world emerges from the COVID-19 pandemic, Pratt & Whitney's GTF™ engine utilization is strong, leading the single-aisle segment recovery. Pratt & Whitney is seeing significant demand in its commercial engine MRO businesses as utilization increases and customers resume engine maintenance. When it comes to capacity, capability, sustainability and technology, Pratt & Whitney is investing and ensuring it delivers today for tomorrow's needs.

"We are excited to collaborate with Pratt & Whitney on the Singapore Technology Accelerator that will develop MRO technologies to be deployed across its global network." said Lim Tse Yong, Senior Vice President, Conglomerates, EDB. "Pratt & Whitney's investment is testament to Singapore's position as a leading aerospace hub and strong ecosystem for innovation. We will continue to partner with the aerospace industry to enable the recovery in air travel and its long-term growth."

XIAMEN AIRLINES SWITCHES TO AIRBUS A320NEO FAMILY TO BOOST FLEET

Xiamen Airlines has placed a firm order for 40 A320neo Family aircraft switching to Airbus for its fleet growth, making the airline the newest Airbus customer. The agreement was announced by the major shareholder China Southern Airlines to the Shanghai Stock exchange.

The A320neo Family incorporates new generation engines and Sharklets, which together deliver more than 25 percent fuel and CO 2 savings, as well as a 50 percent noise reduction. Passengers are benefitting throughout the trip from Airbus' award-winning Airspace interior, which brings the latest cabin technology to the A320 Family.

United Invests another $15 Million in Electric Flying Taxi Market with Eve

United announced a $15 million investment in Eve Air Mobility and a conditional purchase agreement for 200 four-seat electric aircraft plus 200 options, expecting the first deliveries as early as 2026. This marks another significant investment from United in flying taxis – or eVTOLs (electric vertical take-off and landing vehicle) – that has the potential to revolutionize the commuter experience in cities around the world. Under the terms of the agreement, the companies intend to work on future projects, including studies on the development, use and application of Eve's aircraft and the urban air mobility (UAM) ecosystem.

"United has made early investments in several cutting-edge technologies at all levels of the supply chain, staking out our position as a leader in aviation sustainability and innovation," said Michael Leskinen, President of United Airlines Ventures. "Today, United is making history again, by becoming the first major airline to publicly invest in two eVTOL companies. Our agreement with Eve highlights our confidence in the urban air mobility market and serves as another important benchmark toward our goal of net zero carbon emissions by 2050 – without using traditional offsets. Together, we believe our suite of clean energy technologies will revolutionize air travel as we know it and serve as the catalyst for the aviation industry to move toward a sustainable future."

"United's investment in Eve reinforces the trust in our products and services and strengthens our position in the North American market," said Andre Stein, co-CEO of Eve. "I am confident that our UAM agnostic solutions, coupled with the global know-how we have been developing at Eve and Embraer's heritage, are the best fit for this initiative, giving United's customers a quick, economical and sustainable way to get to its hub airports and commute in dense urban environments. It is an unparalleled opportunity to work with United to advance the US UAM ecosystem, and we look forward to it."

Early success for the vocational high school degree in aeronautics in India

In India, the Aeronautical Structure & Equipment Fitter vocational program, developed by the Dassault Skill Academy and which we initiated with the local authorities, reached an important milestone on June 30, 2022. This date marked the commencement ceremony of the first graduating class of 19 students.

Conceived in July 2017, the project got underway in September 2019—with the agreement of the state of Maharashtra—for roll-out at the public vocational high school in Nagpur, located near the DRAL site. The students in the first graduating class were trained by French teachers. 90% of the students have been recruited at Indian aerospace companies: DRAL, TASL, Indamer and Safran.

A second graduating class of 40 students is currently receiving training until the end of September 2022. By mid-2024, the French teachers will have been replaced by three Indian teachers, and two Indian instructors will have prepared the future educators involved in the roll-out to other vocational high schools.

Gulfstream flies second outfitted G700 test aircraft

Gulfstream Aerospace announced the second fully outfitted Gulfstream G700 production-test aircraft has flown, adding an additional testing platform for the most spacious cabin in business aviation. The aircraft joins the first outfitted G700, which has already set eight international city-pair speed records and was awarded the 2022 International Yacht & Aviation Award in the Private Jet Design category.

The second G700 test aircraft will ensure the maturity, durability and comfort of more cabin elements that were introduced with the aircraft's launch in 2019, including the all-new ultrahigh-definition dynamic circadian lighting system, an optional feature capable of replicating sunlight. The Gulfstream-designed system mixes warm white, cool white and amber LED lights and spans from 0.01 brightness to 100%, allowing it to simulate sunrise to sunset. The lighting can also be programmed individually for each cabin zone, tailored to passenger preferences and specific activities, such as dining or working.

The latest G700 outfitted aircraft also includes a grand suite and newly designed spacious lavatory with natural light, full vanity and shower, as well as a six-place dining area with a fully expandable, self-contained table.

"With its combination of cabin size and technological enhancements, the G700 interior presents an abundance of opportunity for customization," said Mark Burns, president, Gulfstream. "As part of our goal to exceed customer expectations, we are testing even more G700 cabin elements to ensure interior comfort and reliability."

Additional features available on the G700 include configurations of up to five living areas, and the industry's longest galley with 10 feet/ more than 3 meters of counter space. The G700 design excellence is complemented by the Gulfstream Cabin Experience with 100% fresh air, the lowest cabin altitude in the industry, a plasma ionization clean air system, whisper-quiet sound levels and 20 of the largest windows in the industry.

"With two outfitted G700 test aircraft now flying, we can showcase even more of the interior flexibility of this aircraft and the passenger benefits gained from the award-winning comfort and signature cabin environment the G700 provides on globe-spanning flights," said Burns.

Pilatus Acquires American Sales and Service Centre Skytech Inc.

The Pilatus Group, a Swiss aircraft manufacturer, has decided to acquire Skytech Inc., an aircraft vendor with locations in Maryland and South Carolina. Pilatus will continue to employ the 120 people workforce.

Since 1993, Skytech has operated as a Pilatus independent authorized sales and service center. Under the new agreement, the business will continue to operate independently. The business will provide service and sales of PC-24s and PC-12s on the East Coast, as well as aircraft types from other manufacturers.

The Skytech brand will also remain. Current CEO, Justin Lazzeri, will remain to run the company, as will many long-serving employees. Both business locations in Rock Hill, South Carolina and Baltimore, Maryland are included in the purchase.

Pilatus already has a Colorado-based subsidiary, Pilatus Business Aircraft Ltd, which has been in operation for the past 26 years. According to a press release from Pilatus, the company plans to use the acquisition of Skytech to ensure and further improve the continuity and quality of its customer services on the East Coast of the United States.

"The US market is very important for us," Pilatus CEO Markus Bucher said. "It is essential that Pilatus continues to expand its 'footprint'. Through this acquisition, we aim to live up to our claim: 'We create the Pilatus Class!' I'm delighted to have the company and its staff on board with us – Welcome to the Pilatus Family!"

Bombardier Celebrates Entry-into-service of Challenger 3500 Launch Customer Aircraft

Bombardier announced that its new award-winning Challenger 3500 business jet, destined for the program's launch customer, Les Goldberg, Chairman and CEO of Entertainment Technology Partners, has entered into service. Mr. Goldberg, a long-time Bombardier customer, was previously announced as the launch customer for the new super mid-size aircraft at NBAA 2021 and will take ownership of the aircraft later this year.

The latest evolution in the highly successful Challenger lineage, the Challenger 3500 aircraft offers many of the features of the company's ultra-luxurious Global family as standard equipment, including Bombardier's stylish and exclusive Nuage seat. The aircraft's advanced design also prioritizes passenger wellness, with a dramatically lower cabin-pressure altitude that engenders a more pervasive sense of comfort and well-being.

"Our Challenger 3500 business jet is clearly the right aircraft for today. Customers are impressed by the aircraft›s elevated experience, from the comfort and sustainability of its cabin to cost efficiency to reliability. And our teams have done an amazing job delivering this aircraft to market in less than a year since it was launched," said Éric Martel, President and CEO, Bombardier. "We congratulate Mr. Goldberg on being an early adopter of this ground-breaking aircraft, and we are delighted to share this proud milestone with him."

The Challenger 3500 aircraft further adds to its string of innovations with the industry's first voice-controlled cabin to manage lighting, temperature and entertainment systems, the first wireless chargers throughout the cabin and the only 24-inch, 4K display in its class. The technologically advanced Challenger 3500 flight deck includes a standard-equipped auto throttle system and offers the most baseline features in its class.

"As a previous owner of a Challenger 350 business jet, I can say with confidence that Bombardier has hit all the right notes in creating a next-generation aircraft. The cabin interior is spectacular, and I appreciate the added comfort and productivity that these new features will bring to our worldwide travels. I'm very proud that Entertainment Technology Partners is right at the start of this exciting next chapter in the Challenger evolution," said Mr. Goldberg.

Bell Selects Sierra Nevada Corporation for its High-Speed Vertical Takeoff and Landing Development Team

Bell Textron Inc. announced it has entered into a teaming agreement with Sierra Nevada Corporation (SNC), a global aerospace and national security company, for Bell's High-Speed Vertical Takeoff and Landing (HSVTOL) aircraft. As part of the collaboration, SNC will specifically support the design and development of mission systems for HSVTOL variants.

Bell's HSVTOL vehicles blend the hover capability of a helicopter with the speed, range and survivability features of fighter aircraft, with low downwash hover capability and jet-like speeds of more than 400 kts. This family of scalable aircraft concepts is designed to carry out USAF and USSOCOM missions across the full spectrum of conflict and political scenarios, including personnel recovery, contested logistics and ISR/Strike.

"In an effort to advance technical maturity and deliver HSVTOL capability to warfighters sooner, Bell is assembling a team of industry-leading partners. We're thrilled to have SNC onboard," said Jason Hurst, vice president, Innovation, Bell. "We've made significant progress in Bell's HSVTOL technology development in 2022, and we look forward to showing this progress in the upcoming year."

"SNC is delighted to join the Bell's HSVTOL development team, and we are already hard at work to deliver the visionary mission systems that Bell demands for their visionary aircraft," says Derek Hess, vice president, strategic program business development at SNC. "Our nation's warfighters will benefit from this HSVTOL program's ground-breaking operational capabilities."

Similar to Bell's innovation development, SNC continues to leverage its mission systems expertise to explore dynamic new opportunities. SNC also supports Bell with additional mission systems expertise for the development of the Bell 360 Invictus for the U.S. Army's Future Attack Reconnaissance Aircraft (FARA) competition.

Photo By Rajiv Srivastava

Quantifying the Objectives of Greenfield Airports to Connect the World

By GS Bawa

Global Urbanization Trends are well known and well recognized by all and India is no exception. Focus on future cities is evident when Prime Minister Modi pushed for holistic development of cities and localized plans for urbanization. "Small Towns, Local Planning is Key to Urban India" the vision of PM Modi is indicative of creating satellite towns and develop cities into economic centres. Airports, over a period of time, have established themself as economic magnets; so efficient & effective and affordable airport infrastructure is must for each modern satellite town. Key solution for establishing Mid-Sized Airports in Tier-2 and Tier-3 Cities in India is another key that will make the mission of 220 airports by 2030 comes true. In parallel, Government is set to make over 90 airports as carbon-neutral by 2024 – Scindia. There is a huge potential of economic activities at smaller towns and this will further get enhanced when they are connected with the world. It is popularly said that a three kilometer of road does not take you anywhere while a runway of three kilometer connects you with the world. As an example, the PM's statement; "Most of the startups now are being set up in tier two and tier three cities"; is a re-emphasizing this. Further, Civil Air Transportation growth is inevitable with the growing population and the urbanization; as such the consequential effects are increasing. These could be in the form of Noise, Gaseous Emissions and numerous other factors that negatively impact the global environment. Thus, the future of aviation lies in 'Greener Operations' rather than 'Grandeurs Operations'!

Greenfield Projects can be highly coveted by engineers as no time, efforts and costs are needed for demolition of existing infrastructure constructed in the already developed areas for the development of airports in the particular place. Modern Greenfield airports have been built / under construction / or planned in UAE, Beijing, Istanbul, Sydney, India and Nepal. Over the next two decades, the number of airports is expected to increase from 133 to 500; of these, 367 are slated to be Greenfield airports.

The growing awareness of our responsibilities to preserve our planet and its environment for future generations is evident from the increased media attention about the concerns just mentioned above. The passionate views of our young generation include love for environment and they being good corporate citizens endeavour to 'go greener'; and even in the

times of global economic uncertainty it make good sense for them to believe that industry can do good and do well at the same time if we fly cleaner and efficient aircraft.

Not only airport business rather airport planning and airport development are becoming ever more complex due to 'go green' concepts and technology. The level of innovation of today cannot match the pioneering work predating heavier-than-air flight and the subsequent early years of aviation; yet today we are operating and serving in an industry that underpins the global economy, invests enormous sums in product development to interconnect the globe and the global business and needs to be applauded. Further efforts to understand and manage the environmental impact of aviation is essential for the continued health and well-being of all, i.e. the industry, society, environment, planet; both at local as well as global level.

We all believe, airports and airlines together, make the world more connected, more accessible and more prosperous. It is in this context, I place on record that no Greenfield Airport shall be looked upon a mere engineering project rathe it shall be taken up as an Eco-System Project. Thus let me term it as "'2-G Airports', i.e. a Green Airport at a Greenfield". I feel proud that that my readers accept it. Coming to second 'S' for Smart Cities is for Safety, Thus Safety and Security features of a Smart City shall be the hallmark of its existence.

The debate on 'does the aviation in general pollute the environment to a detrimental extent.' is consistently among the thinkers. The efforts to know, more importantly, can the effect be measured, can the effect be predicted, what is the certainty of predictions, and what can be done about it? The debate is on among the policy makers, politicians, and the Press & Media. All these polarize the views that make it difficult to separate the scientific and popular viewpoints. Vested opinions through provocative statements make it more milkier. I am reminded of a management jargon, 'If you can't convince, then Confuse'. Is there a right or wrong opinion? It is this that makes a challenging task for building a Greenfield Airport. It

Photo By Rajiv Srivastava

is a challenge to address the interaction between experts from civil aviation and the environmental experts. The advise of key players in the field, those directly contribute to the development of a new greenfield airport include engineers, designers, airport operators, maintainers, governments, regulators, international agencies and all those who have the capability to influence that development in any manner that includes policy makers, decision makers, planners, politicians and the last, but not the least Journalists. To the extent possible, development of Greenfield airport shall be looked upon from factually correct and objective driven concepts. Persons at the apex level, shall shun the personal opinion and the speculations. Stimulated Discussions and debates shall be encouraged but decisions shall come out from those discussions and debates. I am sure, over a period of time, more exchanges and more collaborations will take place to advance new concepts and practices that shall convince the opinion makers towards the 'pleasure of flight' in an increasingly more sustainable manner. Further 'Green Airport at Greenfield' shall aim -

1. It shall address decarbonization under the 'Net Zero Policy' and shall make aviation net-zero. Industry has commitment to attain it by 2050 through utilising operational efficiencies, improved and novel aircraft technology, high quality-offsetting and Sustainable Aviation Fuels (SAF). As per one statement, by Airbus, world's first zero-emission commercial aircraft is aimed to be out by 2035. Though smaller regional flight may be possible by 2026!

2. Clean Aviation through leveraging disruptive technologies towards greener power and greener aircraft. EU's public private partnership for developing innovations that aviation sector to increase efficiency and reduce environmental impact at aircraft level from 30% to 50%.

3. Airport Transformation through integration of aviation sustainable energy sources in the air transport system is essential to harness it fully.

4. Accelerating global urban mobility of people shall evolve new UAMs (Urban Air Mobility) vehicles. Future Air Mobility shall include space at airports for Electric Vertical Take-off and Landing Vehicles eVTOLs and Vertiports etc. This shall require an integrated and scalable ecosystem for each airport that shall navigate the requirements new system to marry with the old to generate synergy rather than conflicts and drags; in terms of infrastructure, regulations, technologies, new airspace design, as per the type of aircraft. Efficient handling of changes and disruptions in the aviation system will make a good green airport of the future be it Greenfield or brownfield.

5. Greenfield airports to boost the aviation sector. The construction of an airport is one of the most important facilitators for the growth of an industrial region and is predicted to have a strong economic multiplier effect. A Greenfield airport is one that is built from scratch on a new (undeveloped) site. It means a project that does not have any constraints imposed by prior work. Such airports are constructed to support the projected requirements of the traffic of the existing airport.

6. The Indian Civil Aviation market. It is witnessing a significant transformation with the passenger traffic expected to double by 2030. India is expected to overtake China and the United States as the world's third-largest air passenger market in the next 10 years, by 2030, according to the International Air Transport Association (IATA). Over the last 3 years, the following six Greenfield airports have become operational: Pakyong Airport in Sikkim (2018), Kannur Airport in Kerala (2018), Kalaburagi Airport in Karnataka (2019), Kurnool Airport in Andhra Pradesh (2021), Sindhudurg Airport in Maharashtra (2021) and Kushinagar Airport in Uttar Pradesh (2021). In addition, during the last 3 years, construction of Greenfield airports at Navi Mumbai in Maharashtra, Mopa in Goa, Hirasar in Rajkot, Jewar (Noida) in Uttar Pradesh, and Hollongi in Itanagar, Arunachal Pradesh have been undertaken.

7. The 21 Greenfield Airports to be set up across the country. The Indian government has formulated a Greenfield Airports Policy, 2008 which provides guidelines, procedure and conditions for establishment of new Greenfield Airports in the country. Under the Greenfield Airports Policy, Government has so far accorded 'in-principle' approval for setting up of 21 Greenfield Airports across the country namely Mopa in Goa, Navi Mumbai, Shirdi and Sindhudurg in Maharashtra, Kalaburagi, Bijapur, Hassan and Shimoga in Karnataka, Datia (Gwalior) in Madhya Pradesh, Kushinagar and Noida (Jewar) in Uttar Pradesh, Karaikal in Puducherry, Dholera and Hirasar in Gujarat, Dagadarthi, Bhogapuram and Oravakal in Andhra Pradesh, Pakyong in Sikkim, Durgapur in West Bengal, Kannur in Kerala and Hollongi (Itanagar) in Arunachal Pradesh. The Indian government has been attempting to increase the number of airports to accommodate the growing aviation traffic. India had 153 operating airports as of 2020. By FY2040, the country plans to increase the number of operating airports to 190-200. There is a renewed push for Greenfield airports in the country, with a focus on catering to large passenger traffic and linking hitherto untapped areas.

8. Greenfield as an Example of economic push. The Jewer International Airport is the latest example; Pre-Global Investors meet the state has attracted FDI of Rs. 50,000 Cr. From across 24 countries. Post – Global investors meet state aims to get FDI of 10 lakh crores; I guess it's 'One (1) followed by 13 zeros. It is also estimated that the airport will fetch about 38,000 direct jobs.

The Way Forward: As the global aviation is growing and the technological developments are increasing the matrix is getting complex. As such, an effective policy shall evolve with the ability to evaluate long-term environmental impacts. Global Scope and long-term environmental focus shall be retained. The rapid growth in aviation demand in Asia is changing the global airborne emission distributions, which in turn attract the whistle blowers. The areas of concern may include developments in the areas of engine, airframe, fuel, technology, policy and regulations. Thus a system shall be in place to capture the big-data on these parameters. Being 'Multiple Stakeholders Industry' it is mandated that regulator shall keep in view the capacity constraints, demand fulfilment, protect supply chain, and guard against pandemic like disruptions and above all methodologies to improve the passenger experience. Passenger is the epic centre of the aviation system, all are supposed to work for him; if he is not there, there is no aviation; World has seen this in the Covid-19 Pandemic. All Stakeholders must learn from the Covid-19 Experience and shall work towards reviving the same Happy Passenger Experience.

Mr. Gurmukh Singh Bawa, former General Manager, Airports Authority of India, has recently been conferred upon "Architect of the Year Award (Greenfield Airport) 2022. He has Hall of Fame Award in PR, National Award– 'MARKENOMY CC Persona of the Decade, and PRCI Life Time Achievement Award. Mr. Bawa has over four decades of experience in civil aviation and Post Graduate in Economics with specialization in Airport Business and Airport Economics.

Aviation Update Editor Kartikeya in Conversation with

Arun Lohiya

Chief Operating Officer, CAD Ventures Pvt. Ltd.

Before we talk about CAD Ventures and business, we would be glad to hear your story on how Aviation has influenced you as a child and brought you here? How did you progress to your current position since you entered into this supreme industry?

My entry into Aviation was a chance entry. Born and brought up in Jaipur, the Capital of Rajasthan, in a Marwari Business Family, the only exposure to Aviation I had in childhood was, playing with battery-powered airplanes and as a normal student of St. Xavier's, Jaipur, flying paper airplanes in Class when the teacher was not watching.

During my formative years, I wanted to be an Architect, but unfortunately was bad with pencil drawings and the early 70s was not the era of Computers and AutoCAD. The interest shifted to Engineering and that too, Chemical Engineering.

I managed to get admission to the Department of Chemical Engineering & Technology in the prestigious Panjab University, Chandigarh, graduated with flying colors, and landed the much-coveted job of Design Engineer in the best Engineering company Engineers India Ltd.

The Architect in me, and the degree of Chemical Engineering, took me to the specialized field of Construction with Chemicals. A nascent industry back then in the '80s. I pushed on and finally, as luck would have it I got an assignment to Construct and Manage a State of Art Engineering & Management College at Ahmedabad.

My work was appreciated by the promoters and as they already has a flying Training organization, I was given the additional charge as CEO of the Academy while holding the post of Director of the Engineering & Management College.

So began my journey into aviation around 2002 and since then it has been Aviation, Aviation, and only Aviation.

To take the Aviation Academy forward, for the first time in India developed a dedicated Airstrip for an FTO at Mehsana, and I am grateful to the CM and now our Honourable Prime Minister Narendra Modi ji to give me this opportunity.

It was the first of its kind in India. Later on the same model, many more have come up and now, I think it is the standard practice.

Moved on to Mumbai in 2007, and again started the first Aircraft Aggregation Model, by contracting Aircraft from existing Operators on an Annual basis and becoming a Virtual operator. The pinnacle of this was when I was managing over 25 aircraft in my last assignment and controlling almost 30% of the Air Charter fleet in India.

During my twenty-odd years of journey in Aviation, I realized that aviation is not a stand-alone industry. There are so many aspects to it. Research, analysis, and an in-depth understanding of the present aviation environment, soon made to the conclusion that to really make a difference and leave a mark in the field of Aviation, I will have to walk all the paths simultaneously.

Thus CAD Ventures was born. Backed by the very progressive Cadila Pharma group. CAD comprises of five unique verticals that ironically enough work harmoniously with each other to a universal and holistic solution that addresses every facet of the world of Aviation.

Could you take us through the various projects and initiatives by CAD ventures?

CAD, an associate company of the Cadila Group, is comprised of five separate and unique verticals that, ironically enough, work harmoniously with each other to provide universal and holistic solutions that address every facet of the world of leisure and business aviation.

The Asset Finance & Consultancy arm provides an unmatched array of consultancy services related to the financing, ownership, lease, and refurbishment of aircraft, as well as the lease, licensing, and sale of marine craft. Whether it is the study and planning required before a venture, the type of ownership desired, contractual negotiations with manufacturers, customers, and even government agencies, or even the management and maintenance of the craft, we're equipped not only to guide you from inception but also to advise you through the procedure.

Our services include everything that money can buy. And quite a few things it can't.

The Aviation Infrastructure Development wing deals with the other side of the coin, in that it offers consultancy on every aspect of the preparatory service for aviation. Feasibility studies, airport planning, helipad construction, airfield installations, licensing, and training organizations; every conceivable dimension of infrastructure is dealt with, just as we count among our customers, private citizens, organizations, regulatory bodies, and governments, alike.

More than anyone else, we understand that the 'groundwork' must be accomplished, before 'lift off' is realized.

The Air Charter division was set up for one purpose and one purpose only: to define new standards of luxury in private air travel. Airplanes or helicopters, domestic or international travel, singular or group charters, our overriding aim has always been to ensure that the level of comfort and luxury provided in the air matched, and exceeded, that of what our most discerning patrons were used to on the ground.

It is our earnest endeavor to cross the frontiers in comfort and convenience in the air, as we ferry you across the frontiers in your journey.

CAD - Travel Services is the fourth thrust engine. An IATA-accredited travel agency, we possess expertise in every aspect of leisure travel. Beyond travel solutions, we offer unique destination services. Our services begin with getting you to your destination, they continue with providing you the luxury you want and conclude in providing experiences that don't just impact, but change you. From an exploration of Greenland by means of sailing around it, to access to events peopled by only the cream of the glitterati; from dining with the who's who of fashion and the performing arts, in their own homes, to discussions with world champions and world leaders...

...what we supply isn't merely travel, it's Reach.

The Design Studio, the fifth vertical, is responsible for all designing, packing, and marketing of Aviation Literature, Brochures, Signage's etc. besides contributing to pharmaceutical products in-house, and also for all manner of design collateral for other, external companies, both within, and external to the

aviation & pharmaceutical Industry.

Today, these five engines have powered us and given us an impetus. They have allowed us to focus on creating access and betterment and in making a difference in our chosen industry. They have allowed us to bring solutions in one field that are tempered and strengthened by our familiarity with the others.

A sort of world view if you will.

When we work with you, we now bring you solutions that are based on a broader, and deeper, view. When we partner with you, our consultancy is based on a bedrock of knowledge gleaned from every related field. When we join forces with you, we bring you results greater and far beyond what was originally conceived.

What are some of the changes brought into business aviation since the pandemic outbreak?

The effect of the Pandemic was unprecedented.

The first event in recent history which changed the entire Aviation industries working and the outlook was the 9/11 World Trade Tower attack. It has changed the way we fly forever.

The Pandemic, though by God's grace, almost over as per the WHO, saw the worldwide aviation fleet grounded, millions of lives affected, closing of Airlines permanently who could not weather this rough patch, and even putting the Mammoth Airbus 380 in the "not desirable" category. With borders and air-spaces close, airports wearing a deserted look, and the doubts of what will happen next, were the though of every aviation professional.

But then, I think the Humans species is reliant. It faced the two world wars, and hundreds of natural calamities and still bounced back, more strong and more focused. The pandemic is behind us now and now we need to focus on getting the Aviation landscape back into a "normal " mode and the same is being reflected as we move further and further from the Pandemic. Flights are full, Airports are bursting and there is a sense of vengeance travel bug which has bitten the industry.

It also has had a very very positive effect on Business aviation, with the Inventory of Pre-owned aircraft drying up worldwide. Swelled by the people who can afford to provide them a sterile environment of which to fly.

The Ghost of Zoom Meetings is over. People want to meet physically, face to face for business, pleasure, leisure, and entertainment. Business meetings, vacations, conferences, and conclaves are once again approaching the near normal situation.

It was a shocker, an angina pain in the heart of Aviation but IT IS OVER AND BEHIND US NOW.

What can you say about the Indian Aircraft leasing industry? What can be the reasons that left this industry so far behind when compared to international markets?

The Aviation Industry is highly Capital driven. The assets and the infrastructure are Massive. After 1947, India had other priorities. Infrastructure, food, shelter, and means of livelihood for the newly independent country were of Primary importance. A point to be noted here is that none of the Five Year Plans, which were responsible for the initial kick-starting of the Indian economy ever had any aviation development projects in their scope.

With a large geographical area, we were blessed with over 150 Airports/Airstrips built by the British or the erstwhile rulers of the princely state and were more for Personal or Military use. Most of our airports are pre-Second world war vintage.

The west realized the Military and Commercial advantages of Aviation and all the development in Aviation were in the US and Europe. More so as US and NATO needed air supremacy over the communists during the cold war and the close relationship between Europe and the US, aviation was the only preferred way to connect, fast.

Luxury, thou name is Aviation. Unfortunately, this kind of thinking, the socialistic pattern of society, and some cultural issues never helped aviation grow in India, though having Aircraft in the Indian Mythology "aka Pushpak" and with Rawana piloting one from somewhere in India to Sri Lanka.

The tax structure, the lack of rules on fractional ownership, and the policy of closed Govt. controlled airspace with the Armed forces at the top have been major hindrances to the growth of aviation in India.

India is changing. More Indians are getting educated, they are mobile and have a worldly mindset. We are proud to have Indian-origin CEO's of some of the largest corporations in the world.

The start of the IFSC (Gift City) , a financial Special economic zo,ne and the recent changes being done at the Regulatory Level with the DGCA becoming eDGCA, the launch of the various UDAN schemes under the regional connectivity programs of the Govt. of India, we will see a major change.

The entry of Private players in the Airline and Airport infrastructure will bring in much-wanted investment in the Aviation market in India.

I am hopeful that by 2030, the Indian aviation market would have matured and we would be neck to neck with other developed countries of the world.

Indian Aviation is ready to embrace the transformations lately. What could be such changes the Business /Commercial aircraft leasing industry is experiencing now?

I have tried to address it above but the availability of low-cost funds, more open-air policy, an emphasis on Aviation Infrastructure, and most importantly the Aviation professionals will take India forward.

We are one of the youngest nations by age, Indians are known to be Tech wizards, and computer savvy. Broadcasting the scope of jobs and carriers in Aviation will enable the Indian youth to enter the Global aviation market. Waiting for the day when an Indian will be the CEO of a foreign airline. We would have arrived then,

What are the various courses presently offered by CAD Ventures?

CAD Ventures is the driving force for the dissemination of Aviation Education. CAD does not impart any education directly but assists others in providing a turnkey solution for their aviation education divisions:

1. Flying School at Bhavnagar – Gujarat
2. Cabin Crew Training Academy – Ahmedabad
3. Assisting Interglobe Education in Training Aircraft Maintenance Engineers in their School of Aircraft Maintenance Engineering – Greater noida
4. Construction of various Helipads etc.
5. Providing Trainer Aircraft, assisting in locating and importing Trainer Aircraft and Trainer Simulators.

What would be your piece of advice for budding entrepreneurs to achieve their startup dreams?

Aviation is a Passion. It is a way of life. Pursue it with all your energy and I am sure Aviation will reward yu . Indians have done it with IT, if they get down to it Indians will rule the Avition world globally.

And your valuable advice for new wave of 'to be' aviators?

And so, when I ask you to join me in my journey in Aviation, I promise you this; when we complete the cycle and arrive again at the spot where we started, it will not be just ourselves we will have c...ed.....but also the world.

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Rolls-Royce Pearl 700 receives EASA type certification

Rolls-Royce's Pearl 700, the exclusive engine for the brand-new business jet aircraft Gulfstream G700 and G800, has received official certification by the European Union's Aviation Safety Agency (EASA). The engine, which was developed at the Rolls Royce Centre of Excellence for Business Aviation engines in Dahlewitz, Germany, was custom-designed to power two of Gulfstream's latest products, enabling them to fly ultra-long-range missions nearly as fast as the speed of sound.

During the comprehensive test programme, the engine demonstrated exceptional performance operating at sea-level and altitude conditions on both conventional jet fuel and 100% Sustainable Aviation Fuel (SAF). It proved its ability to withstand bird-strike, ice, hail and water ingestion as well as passing the critical fan blade containment test, during which a fan blade is deliberately released at maximum speed.

Testing was conducted at various Rolls-Royce locations in Europe and North America, including Dahlewitz in Germany; Bristol in the UK; Manitoba and Montreal, Canada; the Rolls Royce outdoor jet engine testing facility, located at NASA's John C Stennis Space Centre, Mississippi, USA; as well as the altitude test bed at AEDC (Arnold Engineering Development Center) in Tullahoma, Tennessee, USA.

Dirk Geisinger, director – business aviation, Rolls-Royce, said: "Receiving the EASA certification for our Pearl 700 engine makes us very proud, as it illustrates once again Rolls Royce's unique capabilities to design, test, build and certify pioneering aircraft engines. It also reflects the dedication of our global team to support Gulfstream and the entry into service of the G700 and G800. We have worked closely with EASA and Gulfstream to achieve this certification and I would like to thank them both for their support."

"The G700 and G800 can deliver their impressive performance capabilities thanks to the Rolls-Royce Pearl 700 engines and the advanced Gulfstream wing and winglet on the two aircraft," added Mark Burns, president, Gulfstream. "With these powerful advancements, Gulfstream customers can reap the benefits of large cabins with enhanced comfort over the worldwide flights the G700 and G800 can accomplish."

The Pearl 700 combines the Advance2 engine core, with a brand-new low-pressure system, resulting in an 8% increase in take-off thrust at 18,250lbf compared to the BR725 engine. The engine offers 5% higher efficiency, while maintaining its low noise and emissions performance. The result is an engine that is highly efficient, but also able to propel customers as fast as Mach 0.925.

Safran unveils its new center of excellence in electrical engineering

Ross McInnes, Safran Chairman of the Board, Olivier Andriès, Safran CEO, and Clément Beaune, the French minister for transport, today unveiled the Group's new center of excellence in electrical engineering in Créteil, France.

The 6,400-m² site brings together Safran Electrical and Power's design and engineering functions for electric and hybrid propulsion, power electronics, electrical distribution, and electrical conversion, which were previously spread across several sites. The new building houses the research and technology activities, development and production engineering, the test bench for electrical systems, program and customer support teams and other support functions. It has been organized to promote cooperation between different teams and to ensure the best working conditions for the 430 employees at the site.

A full electric system to reduce the carbon footprint of aircraft

This new engineering center is at the heart of the design of Safran's electrical systems. The teams define primary and secondary electrical distribution solutions for transporting and managing electricity from generator to load.

The ePower product line is also designed at the Créteil site. These products are for future 100% electric and hybrid aircraft and cover the entire electrical system, including: GENeUSPACK™ batteries, ENGINeUS™ electric motors, GENeUSGRID™ primary and secondary distribution systems, and GENeUSGRID PROPULSION™ power management systems. The GENeUS™ generators, designed in Pitstone, UK, complement this product line.

"We are proud to unveil this new center of expertise where we develop the electric propulsion systems that will soon equip small planes for tourism and for pilot training before being extended to regional commercial aircraft and ultimately to hybridize the new generation of thermal engines. Our teams are highly motivated by the idea of decarbonizing aviation through breakthrough electric technologies," says Stéphane Cueille, Safran Electrical & Power's CEO.

"Making planes electric and hybrid is one of the key elements of Safran›s strategy for decarbonizing aviation. Safran is also developing breakthrough propulsion architecture, driving the uptake of sustainable aviation fuel and reducing weight across all equipment. Together, all these initiatives will help achieve carbon neutral aviation in 2050," states Olivier Andriès, Safran's CEO.

GKN Aerospace inaugurates Malaysian aero-engine parts repair facility

GKN Aerospace has celebrated the grand opening of its all-new facility for aero-engine parts repair in Johor Malaysia with an inauguration ceremony. The ceremony was originally scheduled to take place in February 2020 but had to be postponed because of the COVID-19 pandemic.

The site is focusing on servicing engine low-pressure compressor (LPC) components for CFM56-5B, CFM56-7 and V2500 engines. The first CFM platforms have already been repaired and were delivered to customers in December 2021. The repair of V2500 fan blades kicked off in June 2022. The portfolio will be expanded with GTF 24K and CFM fan blades later this year and early in 2023.

Research is centred on the application of additive manufacturing technology into engine parts repair.

The current team of 90 employees will grow to 150 operators in 2023 and further expand to 300 within five years. GKN Aerospace is providing on-site training for employees. The expansion to Asia is an important part of GKN Aerospace's long-term growth strategy and global operating model. The facility is complementary to GKN Aerospace's existing component repair facility in El Cajon, CA to meet growing demand in the Asia Pacific region.

GE completes latest adaptive cycle engine tests, successfully concludes Adaptive Engine Transition Program efforts

The U.S. Air Force and GE have successfully concluded testing on GE's second XA100 adaptive cycle engine at the Air Force's Arnold Engineering Development Complex (AEDC). With testing at AEDC completed, GE has accomplished the final major contract milestone of the Air Force's Adaptive Engine Transition Program (AETP), which began in 2016.

"This is the culmination of more than a decade of methodical risk reduction and testing GE has completed with the Air Force across three different adaptive cycle engine programs," said David Tweedie, GE Edison Works' vice president and general manager for Advanced Products. "The engine performance data we gathered at AEDC continued to show the XA100's transformational capability, while also demonstrating a return on substantial Air Force and taxpayer investment. We now stand ready to transition to an Engineering and Manufacturing Development program and bring this engine to the field with the F-35 before the end of this decade."

GE's milestones during AETP include:

- Following competition, awarded one of two AETP contracts, June 2016
- Detailed design completed with U.S. Air Force, February 2019
- Initiation of testing on the world's first flight-weight, three-stream adaptive cycle engine, most heavily instrumented engine test in GE and U.S. Air Force history in Evendale, Ohio, December 2020
- Initiation of second engine testing in Evendale, Ohio, August 2021
- Beginning of first tests of an AETP engine at AEDC, March 2022
- Completion of AETP testing and data collection at AEDC, August 2022

"This engine isn't a concept, proposal, or research program. This is a flight-weight, highly product-relevant engine that would provide the F-35 with 30% more range, greater than 20% faster acceleration, and significant mission systems growth to harness the F-35's full capabilities for Block 4 upgrades, and beyond," Tweedie continued. "The XA100 is the only F-35 propulsion modernization option that has been built, fully tested, and evaluated against Air Force performance targets, and the only option that provides the Air Force the capability it needs to outpace its adversaries for decades to come."

The XA100 combines three key innovations to deliver a generational change in combat propulsion performance:

- An adaptive engine cycle that provides both a high-thrust mode for maximum power and a high-efficiency mode for optimum fuel savings and loiter time
- A third-stream architecture that provides a step-change in thermal management capability, enabling future mission systems for increased combat effectiveness
- Extensive use of advanced component technologies, including ceramic matrix composites (CMC), polymer matrix composites (PMC), and additive manufacturing

These revolutionary innovations increase thrust more than 10%, improve fuel efficiency by 25%, and provide significantly more aircraft heat dissipation capacity, all within the same physical envelope as current propulsion systems. GE's engine is uniquely designed to fit in the F-35A, as well as the F-35C without modifications to the tailhook. The XA100's improved fuel efficiency provides a significant reduction in carbon emissions and will operate on any U.S. Air Force-approved Sustainable Aviation Fuel.

Collins Aerospace opens $18M Ram Air Turbine wind tunnel test facility in Rockford

Collins Aerospace celebrated the opening of a new $18 million wind tunnel for its Ram Air Turbine product family at the company's Electric Power Systems facility in Rockford, Illinois. With fully automated, state-of-the-art technology and enhanced quality via real-time data analytics, the new wind tunnel will streamline the Ram Air Turbine testing and certification process for Collins' airframer customers.

Designed to serve as the small but mighty heart of an aircraft's emergency power system, Collins' Ram Air Turbine deploys from the wing or fuselage if a plane loses power in flight. By rotating its small turbine, the system extracts sufficient power from the airstream to allow the pilot to land the aircraft.

The new wind tunnel will use a powerful fan to create a windspeed of up to 170 knots to simulate an in-flight power loss during the testing process. It will have the ability to test Collins' full range of Ram Air Turbines for business, regional, single aisle, widebody and military aircraft. The new facility will complement the plant's two existing wind tunnels, increasing the site's overall testing capabilities and providing greater flexibility to meet customer demand. Since Collins' largest Ram Air Turbines can weigh up to 400 pounds, the new wind tunnel design will also make it easier for employees to mount and test them more ergonomically.

"Collins' Ram Air Turbines have helped save more than 2,400 lives over the past five decades," said Eric Cunningham, vice president, Electric Power Systems for Collins Aerospace. "Our new wind tunnel will help ensure we continue to meet our customers' delivery expectations for this lifesaving product in the most efficient manner, while providing our employees with the most modern and ergonomic set up available. This $18 million investment embodies our long-term commitment to our Rockford facility and our Rockford community."

"Collins Aerospace is a key component in making Rockford a leading aerospace hub in the country," said Rockford Mayor Tom McNamara. "Its continued investment in its facilities and its people locally make it an incredible asset to our entire community."

Pratt & Whitney Canada's PW812GA Engine Receives Type Certification from Transport Canada in Critical Milestone for the Gulfstream G400 Program

Pratt & Whitney Canada announced that its PW800 engine program has reached a key milestone with the Type Certification of its PW812GA engine by Transport Canada Civil Aviation. Gulfstream Aerospace Corp. announced in October 2021 that the PW812GA was selected to power the Gulfstream G400™ business jet.

"We worked closely with Transport Canada to create an efficient and thorough certification process that successfully led us to this point," said Maria Della Posta, president, Pratt & Whitney Canada. "When it enters into service (EIS), the G400 will be the third Gulfstream aircraft to rely on our PW800 engine family. We are gratified by the steady progress the PW800 engine family has achieved based on its ability to deliver a new level of performance and efficiency to the large cabin business aircraft class."

The PW814GA-powered G500 entered into service in September 2018 followed by the PW815GA-powered G600 in August 2019. The PW800 is the most modern, efficient, and environmentally responsible engine in its class. Using the most sustainable and high-performance technologies, the engine offers double-digit improvements in fuel burn, emissions, maintenance intervals, and noise. The engine also incorporates the latest generation of technologies in every aspect, from advanced design to innovative maintenance functionality. For those aboard the aircraft, it provides an unmatched experience with an exceptionally quiet and comfortable cabin, making it the quietest engine in its class. The PW800 engine shares a common core with the Pratt & Whitney GTF commercial jet engine, which has flown more than 2.2 million hours since launch in 2016.

The PW812GA showed exceptional performance during testing with more than 3,400 hours of engine testing, including 260 hours of flight testing. Across the PW800 family, more than 175,000 hours of testing and field experience have been achieved. The PW814GA and PW815GA engines have flown more than 144,000 hours since entering into service.

"When we designed the PW800 engine, we did so with all of the engine's key stakeholders in mind – passengers, pilots and maintenance crews," said Edward Hoskin, vice-president, Engineering. "The PW800 has numerous inherent advantages and functionalities to ensure best-in-class availability and to create an exceptional engine response. It also sets the industry standard for maintenance, requiring 40% less scheduled maintenance and 20% fewer inspections than other engines in its class."

IndiAirport

An International Expo & Conference on Airport Technology

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INDIA EXPO CENTRE MART, NOIDA, NCR, INDIA

Exclusive Show on Airport Technology in India

INDIAIRPORT Exhibition to be organized on **Airport Technology,** Supported by **GATE – German Airport Technology & Equipment & Federal Ministry for Economic Affairs and Climate action of Germany.**

Radeecal Communications, India partnered with IFW Expo Heidelberg GmbH, Germany to organize INDIAIRPORT Exhibition as Pilot project at India Expo Center Mart, Noida, NCR, India during 22-24 November 2022. GATE – German Airport Technology & Equipment & Federal Ministry for Economic Affairs and Climate action of Germany announces their Supporting Partnership & Supporting authority respectively for the show. A formal announcement made from PHD Chamber of Commerce & Industry will join this initiative as Industry Partner.

After the impact of Covid Pandemic Civil Aviation, industry is looking to optimize and forcing itself to revive to pre-Covid numbers. Whereas **Government of India & PM launches Gati Shakti- National Master Plan** for infrastructure development in India with wide focus of developing and establishing domestic air connectivity via building new airport at revolutionary pace.

We aim **to support** the initiative of **Government of India and creating a platform,** IndiAirport as the first exclusive physical exhibition offering an ideal opportunity vide displaying of the latest technologies for the effective airport solutions and high quality services. The participants of the airport products, services and solutions to meet and engage with senior and middle management from **airports, airlines, government agencies, regulators, ground handlers, architects, engineers, consultancies, suppliers and the buyers will have an unparalleled access to all encompassing network opportunities.** This exhibition to witness around 200 exhibitors (National as well as International Private and Government Units/ Departments). These three days of Exhibition and Conference planned with the vision, **"Our government has the honor of bringing an aviation policy that is transforming the sector." "Atma Nirbhar Bharat" and "Make In India"** in support of our Hon'ble Prime Minister- **Shri Narendra Modi.**

India is on the path to develop its greatest air connectivity since the independence, as per the Civil Aviation Minister Jyotiraditya Scindia, Indian Airport industry to attract 1 Trillian Rs. Of investment by Year 2024 and hoping the total passenger traffic to rise to 400 million by 2023-24. As per Civil Aviation Minister Jyotiraditya Scindia until 2014, only 74 airports were built in the country, following the new government in 2014 in next 7 years another 66 new airports were added to the list of **total 140 airports in the country,** which we resolve to take to 220 by 2025, he said.

Considering rising market for the companies related to airport development and contributors of airport technologies are highly encouraged to participate in the only, standalone show of the industry named INDIAIRPORT in the month of November 2022.

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Mr Manoj Jain takes charge as Director (R&D) of BEL

Mr Manoj Jain took charge as the Director (R&D) of Navratna Defence PSU Bharat Electronics Limited (BEL) on September 26, 2022. He was General Manager of the Electronic Warfare & Avionics SBU at BEL's Bangalore Complex prior to his elevation.

Mr Manoj Jain joined BEL in August 1991 as Probationary Engineer after completing his BE (Electronics) from REC Jaipur (MNIT) with Gold medal. In an illustrious career spanning over three decades, he has made significant contributions to the field of Research & Development.

During his initial years in D&E at BEL's Kotdwara Unit, Mr Manoj Jain played a pivotal role in the development of Digital Multiplexers, Cross Connects, CDOT Exchanges and Military Switches. In 1999, he moved to BEL's Central Research Laboratory in Bangalore and was engaged in the development of technologies for Defence Networks and Network & Bulk Security Solutions. In the area of Radar, one of BEL's core businesses, he was involved in the development of VeXT, Scan Converter and Display using FPGA.

Mr Manoj Jain served as Chief Scientist of CRL-Bangalore from December 2017 to May 2019, overseeing technological developments in all technical areas. He took over as General Manager of BEL's Product Development & Innovation Centre (PD&IC) in June 2019. During his two-year stint here, PD&IC developed many new products/sub-systems required for BEL, thus ensuring innovation and value addition, leading to self-reliance.

Mr Manoj Jain took over as the General Manager and Head of the Electronic Warfare & Avionics SBU at BEL-Bangalore, in June 2021. Apart from overseeing all the business operations of the SBU, he provided the much-needed vision for this business vertical.

Mr Manoj Jain has received various R&D awards, Key Contributor Awards, Raksha Mantri's Award and SODET Awards. He has published many technical papers, applied for several patents and delivered talks to Defence users and DRDOs.

US Air Force Selects Raytheon Missiles & Defense, Northrop Grumman to Deliver First Hypersonic Air-Breathing Missile

Raytheon Missiles & Defense, a Raytheon Technologies business, in partnership with Northrop Grumman Corporation has been selected to develop the Hypersonic Attack Cruise Missile (HACM) for the U.S. Air Force (USAF). HACM is a first-of-its-kind weapon developed in conjunction with the Southern Cross Integrated Flight Research Experiment (SCIFiRE), a U.S. and Australia project arrangement.

Under this contract, the Raytheon Missiles & Defense and Northrop Grumman team will deliver operationally ready missiles to the USAF.

"Raytheon Missiles & Defense continues to be at the forefront of hypersonic weapon and air-breathing technology development," said Wes Kremer, president of Raytheon Missiles & Defense. "With advanced threats emerging around the globe, the Hypersonic Attack Cruise Missile will provide our warfighters a much-needed capability."

The Hypersonic Attack Cruise Missile is an air-breathing, scramjet powered munition. Scramjet engines use high vehicle speed to forcibly compress incoming air before combustion, which enables sustained flight at hypersonic speeds – Mach 5 or greater. By traveling at these speeds, hypersonic weapons, like HACM, are able to reach their targets more quickly than similar traditional missiles, allowing them to potentially evade defensive systems.

"The Hypersonic Attack Cruise Missile creates a new class of strategically important weapons for the U.S. military," said Mary Petryszyn, corporate vice president and president, Northrop Grumman Defense Systems. "Our scramjet propulsion technology is ushering in a new era for faster, more survivable and highly capable weapons."

Northrop Grumman to Unveil the B-21 Raider

Northrop Grumman Corporation, in partnership with the U.S. Air Force, will unveil the B-21 Raider during the first week of December at the company's Palmdale, California facility.

The B-21 Raider unveiling will be a historic moment, providing an exclusive view of the B-21 aircraft.

"The B-21 is the most advanced military aircraft ever built and is a product of pioneering innovation and technological excellence," said Doug Young, sector vice president and general manager, Northrop Grumman Aeronautics Systems. "The Raider showcases the dedication and skills of the thousands of people working every day to deliver this aircraft."

Since contract award in 2015, Northrop Grumman has assembled a nationwide team to design, test and build the world's most advanced strike aircraft. The B-21 is a product of Northrop Grumman's pioneering digital engineering practices and advanced manufacturing techniques together with breakthrough stealth technology.

"Northrop Grumman is proud of our partnership with the U.S. Air Force as we deliver the B-21 Raider, a sixth-generation aircraft optimized for operations in highly contested environments," said Tom Jones, corporate vice president and president, Northrop Grumman Aeronautics Systems.

Six B-21 test aircraft are in various stages of final assembly in Palmdale, California. Northrop Grumman and the U.S. Air Force confirmed in May that the B-21 first flight is projected for 2023. The actual timing of first flight will be based on ground test outcomes.

The unveiling will take place at Northrop Grumman's Palmdale site, during an invitation-only event.

DRDO & Indian Army successfully conduct six flight-tests of Quick Reaction Surface to Air Missile system off Odisha coast

Defence Research and Development Organisation (DRDO) and Indian Army have successfully completed six flight-tests of Quick Reaction Surface to Air Missile (QRSAM) system from Integrated Test Range (ITR) Chandipur off the Odisha coast. The flight tests were conducted as part of evaluation trials by the Indian Army.

The flight-tests were carried out against high-speed aerial targets mimicking various types of threats to evaluate the capability of the weapon systems under different scenarios, including long range medium altitude, short range, high altitude manoeuvring target, low radar signature with receding & crossing target and salvo launch with two missiles fired in quick succession. The system performance was also evaluated under day and night operation scenarios.

During these tests, all the mission objectives were met establishing pin-point accuracy of the weapon system with state-of-the-art guidance and control algorithms including warhead chain. The performance of the system has been confirmed from the data captured by a number of Range instruments like Telemetry, Radar and Electro Optical Tracking Systems (EOTS) deployed by ITR. Senior officials from DRDO and the Indian Army participated in the launches.

These tests were conducted in the final deployment configuration consisting of all indigenously-developed sub-systems, including the missile with indigenous Radio Frequency (RF) seeker, mobile launcher, fully automated command and control system, surveillance and multi-function Radars. The uniqueness of the QRSAM weapon system is that it can operate on the move with search and track capability & fire on short halt. This has been proven during the mobility trials conducted earlier.

Raksha Mantri Shri Rajnath Singh has complimented DRDO and Indian Army on the successful flight trials. He exuded confidence that the QRSAM weapon system will be an excellent force multiplier for the Armed Forces.

Secretary, Department of Defence R&D and Chairman DRDO has congratulated the teams associated with the successful series of trials and said that the system is now ready for induction into the Indian Army.

Successful Flight Tests of Very Short Range Air Defence System (VSHORADS) Missile by DRDO

DRDO conducted two successful test flight of Very Short Range Air Defence System (VSHORADS) missile on 27 Sep 2022 from a ground based portable launcher at the Integrated Test Range, Chandipur, off the coast of Odisha. VSHORADS is a Man Portable Air Defence System (MANPAD) designed and developed indigenously by DRDO's Research Centre Imarat (RCI), Hyderabad in collaboration with other DRDO laboratories and Indian Industry Partners.

VSHORADS missile incorporates many novel technologies including miniaturized Reaction Control System (RCS) and integrated avionics, which have been successfully proven during the tests. The missile, meant for neutralizing low altitude aerial threats at short ranges is propelled by a dual thrust solid motor. The design of the missile including launcher has been highly optimized to ensure easy portability. Both the flight tests have completely met the mission objectives.

Hon'ble Raksha Mantri, Shri Rajnath Singh complimented and appreciated the efforts of DRDO and industry partners and said that this new missile equipped with modern technologies will give further technological boost to the Armed Forces. Secretary DDR&D and Chairman DRDO congratulated the entire VSHORADS team for this tremendous success.

Boeing selects Collins Aerospace for F-15EX wheels and brakes

Collins Aerospace announces its selection by Boeing to provide boltless wheels and carbon brakes for lots one through three on the F-15EX aircraft in production for the U.S. Air Force. Collins' equipment replaces the platform's legacy wheels and brakes on the Boeing production line.

Collins has worked closely with the U.S. Air Force on the Wheel and Brake System Improvement (WBSI) program to design, develop, and qualify the F-15 wheels and brakes while achieving installation approval from Boeing for the F-15C/D and F-15E variant aircraft. After five years of operations, Collins' wheels and brakes continue to meet or exceed all U.S. Air Force performance standards for the WBSI program. Collins set out to drive down the lifecycle cost over the lifespan of the aircraft while increasing the longevity of the wheel and carbon brakes.

"Our world-class engineering team designed and developed a state-of-the-art wheel and carbon brake system that upends legacy systems currently in use," said Matt Maurer, executive director, Landing Systems Military Wheels and Brakes for Collins Aerospace. "Our solution provides superior product that is sustainable, reliable and cost effective for the U.S. Air Force and Boeing."

The Collins lock ring wheel and carbon brake system improves thermal management for safer operation and reduces life-cycle cost. The system features a 25,000-mile fatigue life, 1,400 landings per overhaul, reduced maintenance intervals and lower peak brake fluid temperatures. The Collins wheel and brake technology offers a product upgrade to its customers compared to the legacy wheel and brake originally designed in the early 1970's.

Collins is a leading provider of wheels and brakes for military platforms, including the U.S. Air Force's F-15, F-16, C-5, C-130 and Global Hawk fleets. Earlier this year, the company was selected by the U.S. Air Force to design and develop a new wheel and carbon brake for the B-52. Collins has also completed wheel and brake upgrades for several air forces around the globe.

Saab Partners with Swedish Electric Aircraft Company Heart Aerospace

Saab and Heart Aerospace have also signed a collaboration agreement regarding the supply of subsystems and the exploration of further areas of collaboration, including certification and manufacturing. This is in line with Saab's ambition to support the transition to sustainable aviation.

"This underlines our commitment to innovative technology and solutions for sustainable aviation. Heart is a pioneer within commercial electric aviation and we look forward to contributing to the future of aviation with our experience of developing solutions at the forefront of technology," says Micael Johansson, President and CEO of Saab.

Heart Aerospace develops the ES-30, a regional electric airplane with a standard seating capacity of 30 passengers powered by batteries, allowing it to operate with low noise and with zero emissions.

Other Heart Aerospace investors include Breakthrough Energy Ventures, EQT Ventures, European Investment Council, Lower Carbon Capital, Mesa Air Group, United Airlines Ventures and Air Canada.

New Jetstar CEO announced

The Qantas Group has appointed Stephanie Tully as the new Chief Executive Officer of Jetstar. This follows the announcement in June that current Jetstar CEO, Gareth Evans, will leave his role by the end of calendar 2022.

Ms Tully joined the national carrier in 2004 and has worked across operational, commercial, marketing and customer loyalty functions in progressively more senior roles. She has been a Group Executive and Chief Customer Officer since 2019.

As a result of this appointment, Markus Svensson will be promoted to the Chief Customer Officer role and become a member of the Group Executive Committee reporting to the Group CEO.

Mr Svensson is currently the Executive Manager of Network, Revenue Management and Alliances, responsible for overseeing a large part of the commercial strategy for Qantas International and Qantas Domestic. He was previously Regional General Manager for Qantas in the UK, Europe and the Middle East. Before joining Qantas in 2011, Mr Svensson held senior roles at Bain and Co and in telecommunications in Australia, Sweden and Korea.

Stephanie and Markus will begin transitioning to their new roles shortly with detailed handovers made possible by the internal succession, ahead of a formal handover in November.

GROUP CEO COMMENTS

Announcing the changes, Qantas Group CEO Alan Joyce said: "These appointments come at an important time for us. The team is working incredibly hard to overcome challenges facing the whole industry as it gets back on its feet, and the data shows we're almost there.

"Managing this kind of executive renewal internally means we keep our momentum and can leverage a huge amount of corporate knowledge, including through the transition.

"Stephanie has worked across several different parts of the airline, from crewing to marketing, and has a deep understanding of customer experience. She's an outstanding leader and she'll be leading a very experienced senior team at Jetstar to keep building on the strengths of that business.

"Markus has navigated incredible levels of complexity in recent years, managing most of the commercial elements of the Qantas network through several waves of lockdown and recovery, and also managing our relationships with alliance partners around the world. His knowledge of airlines means he understands the many elements that have to work to deliver exceptional customer service, which is a key focus for us.

"Gareth has been a superb member of the Qantas Group Executive team for many years. We're pleased to have his knowledge and experience in the months ahead to help with this transition and key projects in our recovery."

Lockheed Martin Announces New Leader for Greenville, S.C. Site

Lockheed Martin has announced that Danya Trent, vice president of Lockheed Martin Aeronautics' F-16 Programs, will now also serve as site lead of the company's Greenville, South Carolina facility. In this role, in addition to leading the overall F-16 product portfolio, Trent will be responsible for the strategic direction, performance and growth of the Greenville operation.

As the global home of the F-16, the Greenville site continues to ramp up F-16 production and is planning to deliver the first Block 70 jet to Bahrain in the first half of 2023. The team also provides sustainment support to the F-16 platform, as well as other platforms, such as the Lockheed Martin C-130.

"I am honored to be a part of the highly skilled and talented Greenville team of more than 1,000 employees who provide critical capabilities to the warfighter," said Trent. "The future of our Greenville site is bright, and I am excited for all that we will continue to do to help our customers stay ahead of ready."

Throughout her 21-year career with Lockheed Martin, she has held various leadership roles, including vice president of Lunar Exploration Campaigns, vice president of Program Management at Lockheed Martin Space and director of the Integrated Fighter Group (IFG)'s portfolio in the Southwest Asia, Middle East and North Africa (SAMENA) Region for Lockheed Martin Aeronautics.

"Our Greenville site has been a part of South Carolina's aerospace industry for more than 38 years and continues to grow and evolve to meet our customers' needs," said OJ Sanchez, vice president of Lockheed Martin's Integrated Fighter Group. "Danya's leadership of our F-16 programs has positioned the platform for even more growth and success around the world, and her thoughtful, strategic approach will enable our Greenville team to continue to support our national defense and allies worldwide well into the future."

Victoria Foy appointed President of Safran Seats

Effective January 1, 2023, Victoria Foy is appointed President of Safran Seats, succeeding Vincent Mascré, who is retiring. Victoria Foy joins Safran's Executive Committee. Between now and the end of the year, Victoria will participate with Vincent Mascré in the key business milestones of Safran Seats.

« I would like to warmly thank Vincent Mascré for having placed his skills at Safran's service for more than forty years. In particular, he led the management and transformation of Safran Nacelles, Safran Landing Systems and Safran Seats, and played a key role in the integration of Zodiac Aerospace during its acquisition in February 2018 as Chairman of the Executive Board. I wish Victoria Foy every success in her new responsibilities. Comments Olivier Andriès, Safran CEO.

Victoria Foy has held a number of Board level positions working in worldwide operations. She joined Safran Nacelles in 2012 as UK Finance Director before taking the role of UK Managing Director in June 2016. In 2019, Victoria Foy joined Safran Seats and was appointed EVP for Safran Seats GB, 1st January 2020.

Victoria Foy aged 52, is a qualified Chartered Management Accountant with an MBA (Manchester Business School 2006).

Thales names new Singapore country director, CEO

Thales announced that it has appointed Emily Tan as country director for Thales Singapore and as chief executive officer for Thales Solutions Asia Pte Ltd. A Singaporean native, Tan succeeds Kevin Chow who will continue his Thales career in a senior leadership role at Thales' Airspace Mobility Solutions business in France.

As country director, Tan will lead over 2,000 Thales employees and drive the company's growth across three sites in Singapore, including the group's largest multi-module Digital Identity & Security manufacturing centre located at Ayer Rajah Crescent, and the group's largest avionics production and Maintenance, Repair & Overhaul (MRO) facility at Changi North Rise.

Prior to joining Thales, Tan spent 14 years with Shell, most recently as general manager, City Solutions for Shell's Renewables and Energy Solutions business. In this role, she led global teams based in Asia, Europe and the United States, supporting global clients in navigating energy transition and developing cities' decarbonisation plans. As general manager for Shell Bitumen from 2013 to 2017, Tan played an instrumental role in establishing the company's market lead in Asia and the Middle East.

"I am pleased to welcome Emily to Thales and to support her as she begins charting the way forward for Singapore. Her outstanding career here and abroad, together with her appreciation of key technologies that Thales is investing in, makes her a natural fit to lead our Singapore team. Over the last fifty years, Thales has made deep investments in Singapore to grow our presence and reputation as a digital technology leader here. We look forward to deepening our customer relationships and expanding our business under Emily's leadership, notably in new and fast-growing areas such as 5G, Cloud, Biometrics and FinTech," said Nicolas Bouverot, vice president, Thales Asia.

"Thales's dedication to design, develop and invest in future-proof technologies was what drew me to join the Group. I am thrilled to be part of a forward-looking and innovative organisation that aims to revolutionise the technologies we use, ensuring they help build a safer, sustainable and trustable future for everyone. The Group's ambitions also aligns closely to that of Singapore's, and I am excited for the many potential opportunities this brings, where Thales can play a collaborative role with key stakeholders to support Singapore as a smart and sustainable nation," said Tan.

Embraer and L3 Harris to Develop New Agile Tanker via KC-390 to Support Air Force Operational Imperatives

Embraer and L3Harris Technologies announced a partnership to develop an "Agile Tanker," a tactical aerial refueling option to address the U.S. Air Force's operational imperatives and joint force refueling requirements especially for contested logistics environments. The companies signed an agreement to expand the capabilities of Embraer's KC-390 Millennium tactical tanker aircraft. Enhancements include the addition of advanced boom operations and mission systems to support agile basing and sustainment for operations in contested areas, and resilient communications supporting JADC2 requirements.

"U.S. Air Force strategic planners have stated agile combat employment will require refueling platforms optimized to support a disaggregated approach to air dominance in contested logistics environments," said Christopher E. Kubasik, Chair and Chief Executive Officer, L3Harris.

"Collaborating with Embraer to develop and integrate new capabilities to the multi-mission KC-390 provides a cost-effective, fast-to-field solution that embodies our trusted disruptor approach." Aircraft enhancements will complement the tanker's existing capabilities, which already include the ability to refuel aircraft with a variable speed drogue, receive fuel, and to take off and land from short and improvised runways, allowing for greater mission area coverage.

"We continue seeking meaningful and strategic partnerships that generate new developments and expand the KC-390 Millennium's market reach," said Francisco Gomes Neto, President and CEO of Embraer. "Our aircraft is capturing the attention of Air Forces around the world, and we're thrilled by this opportunity to combine Embraer's state-of-the-art platform and systems with L3Harris' mission-driven solutions to deliver on the U.S. Air Force's operational imperatives."

The Air Force operational imperatives are a roadmap for successfully bringing about the new technologies, thinking, and cultures the Air and Space Forces must have to deter and, if necessary, defeat modern day adversaries.

The speedy, versatile, customizable KC-390 Millennium can support a range of missions and possesses a high reliability rate. By combining L3Harris' experience as an aircraft missionization prime with Embraer's state-of-the-art jet-powered KC-390 Millennium platform, both companies are ready to provide the next generation of tanker solutions for the Department of Defense and the US Air Force. To support the Buy American Act requirements, the parties are studying the Agile Tanker program production with final assembly in the U.S., followed by aircraft modernization and missionization at the L3Harris' Waco, Texas, aircraft modification center.

Boeing Reveals First of New Innovative Defense Factories

Boeing's Defense, Space & Security (BDS) business unit unveiled on Sept. 12 its new Advanced Composite Fabrication Center, which has been purpose-built to produce advanced composite components for future combat aircraft.

The new facility in Mesa, Ariz., will be a secure production facility operated by Phantom Works, BDS' proprietary research, development and prototyping division. The construction phase of the 155,000 square-foot facility is now complete, and the center is expected to be fully operational this fall.

"Boeing pioneered a new era of digital aerospace engineering on programs like the T-7, MQ-25 and MQ-28, and now we're leading the way again by digitally transforming our entire production system to build the next generation of advanced combat aircraft," said Ted Colbert, Defense, Space & Security president and CEO. "The new Advanced Composite Fabrication Center and the factories that will follow it position Boeing to deliver the most digitally advanced, simply and efficiently produced and intelligently supported aircraft to military customers."

Leveraging best practices from recent new-start programs like the MQ-28 Ghost Bat, MQ-25 Stingray, T-7A Red Hawk and proprietary efforts, the ACFC will enable Boeing to scale a platform-agnostic, modular and flexible digital production system across future BDS programs, providing unprecedented speed, agility and cost efficiency. Additional new factories supporting subsequent phases of production are under construction in the St. Louis region and slated to come online over the next few years.

"The ACFC capitalizes on the latest in digital engineering – from initial concept and design to the production floor and sustainment – and its capabilities are aligned directly with our customers' need to design, build and field advanced combat aircraft on dramatically accelerated timelines," said Steve Nordlund, Boeing Phantom Works vice president and general manager. "We are committed to a future where our platforms are more modular and adaptable, our software is more modifiable and scalable, and where our customers have a common experience across all of our products – providing disruptive advantages from seabed to space."

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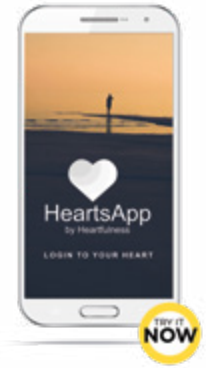

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