

Volume 1 / May 2022



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Flying
WORLD

*Engine and
power systems*

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RIGHT OFF THE
Stratolaunch**

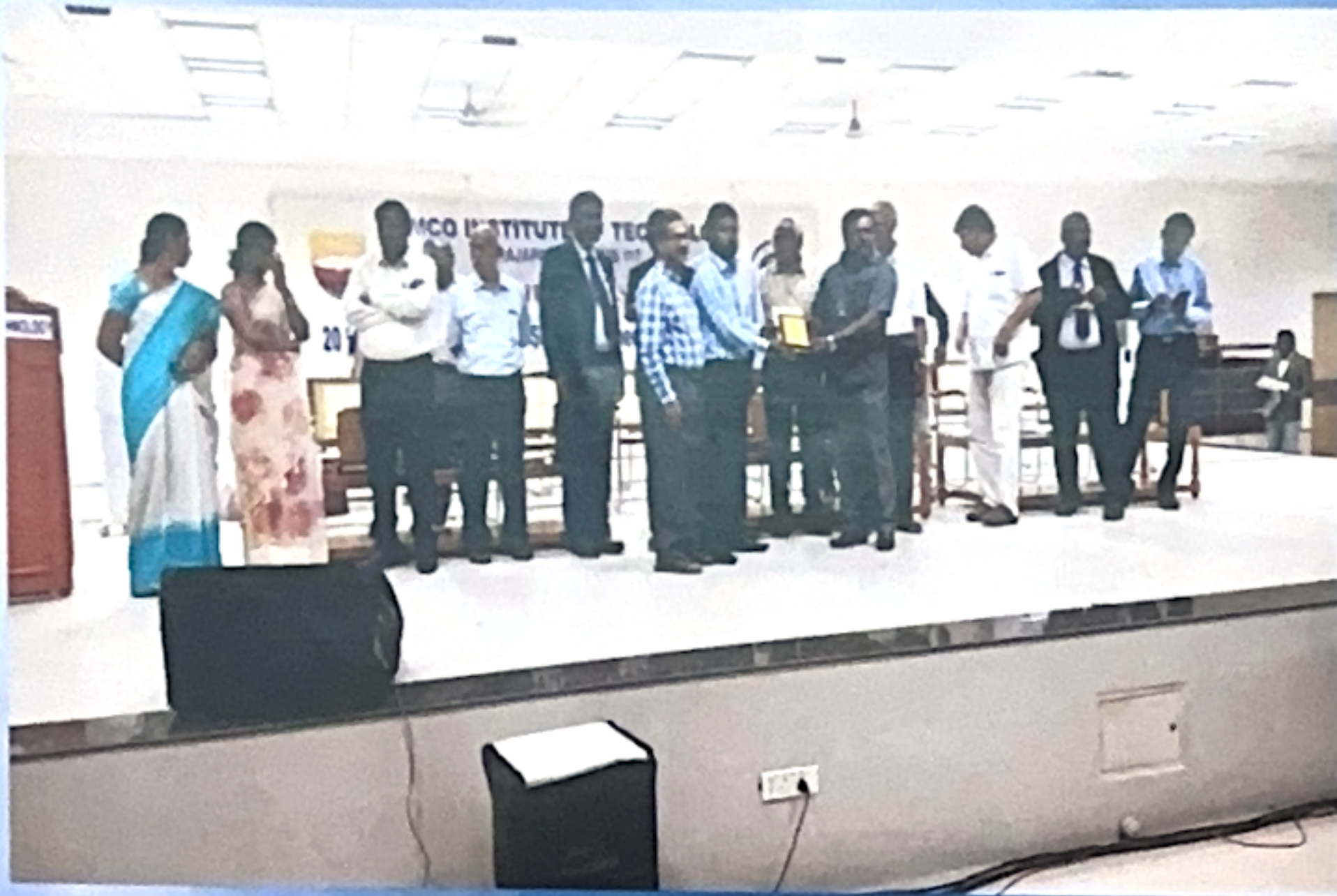


Excel Engineering College (AUTONOMOUS)

NH 544, Salem Main Road, Pallakapalayam,
Komarapalayam, TamilNadu 637303



Gallery



CHAIRMAN'S MESSAGE

"We cannot always build the future for our youth, but, we can build our youth for the future challenge" It is our fervent hope that the time that you spend in Aeronautical department enables you to equip with leadership and Managerial skill. I am extremely happy to learn that your Department is releasing this magazine and I wish to extend my congratulations for the same.



Prat. Dr. A K Natesan
Chairman

VICE-CHAIRMAN'S MESSAGE

"You don't have to be great to start, but you have to start to be great" I would like to congratulate the Department of Aeronautics of Excel Engineering College for releasing the magazine "Aviatori". The Article in this magazine will be a source of insight in the technical developments in the world of Science and Technology.

Dr. N. Mathan Karthik
Vice-Chairman



PRINCIPAL'S MESSAGE

Our college gives adequate knowledge that the students can gain and apply his knowledge to standardize in Academics, Research and professional skills. Students to be in greater position with all their skills are what the institution seeks to provide every student of the Excel Engineering College.

Dr. K. Bommanna Raja
Ph.D., Principal



HOD'S MESSAGE

In the world of Aeronautical Engineering, technology changes at high velocity. I am glad to know that the department of Aeronautical Engineering has taken the initiative to publish the magazine, "Aviatori", It gives me immense pleasure to congratulate all my students and faculties

Dr S.P Venkatesan M.E.,Ph.D, HoD



DEPARTMENT OF AERONAUTICAL ENGINEERING

VISION

To empower the students with subject knowledge of Aeronautical Engineering for servicing the society in a challenging global environment.



MISSION

To provide quality technical education in tune with the challenges. To offer latest technological developments in the field of Aeronautical Engineering.

To integrate the intellectual, spiritual, ethical and social developments of the students for becoming dynamic Aeronautical Engineers.

To initiate desires for undertaking entrepreneurship and lifelong learning.

Program Educational OBJECTIVES

PEO 1

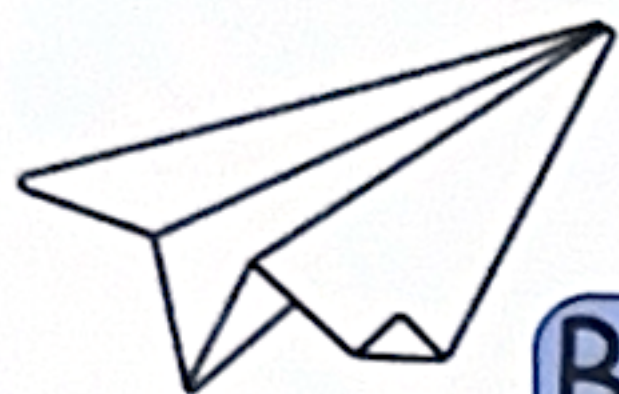
To strengthen the fundamental subject knowledge and practical skills of the aeronautical Students for meeting the requirements of Aeronautical industries and educational institutions including research Centre.

PEO 2

To give quality technical education to the students covering latest technological concepts for facilitating them to diagnose and solve industrial problems.

PEO 3

To shape the students for becoming socially, intellectually and ethically responsible Aeronautical Engineers



Boost your aerospace & defence marketing in 2022

Plan your 2022 marketing campaign by targeting the aerospace defence supply chain with the new aerospace manufacturing media pack

Hybrid Electric Flight Demo programme

BAE System has been selected by GE Aviation to provide energy management solution for the recently announced hybrid electric technology demonstrator programme

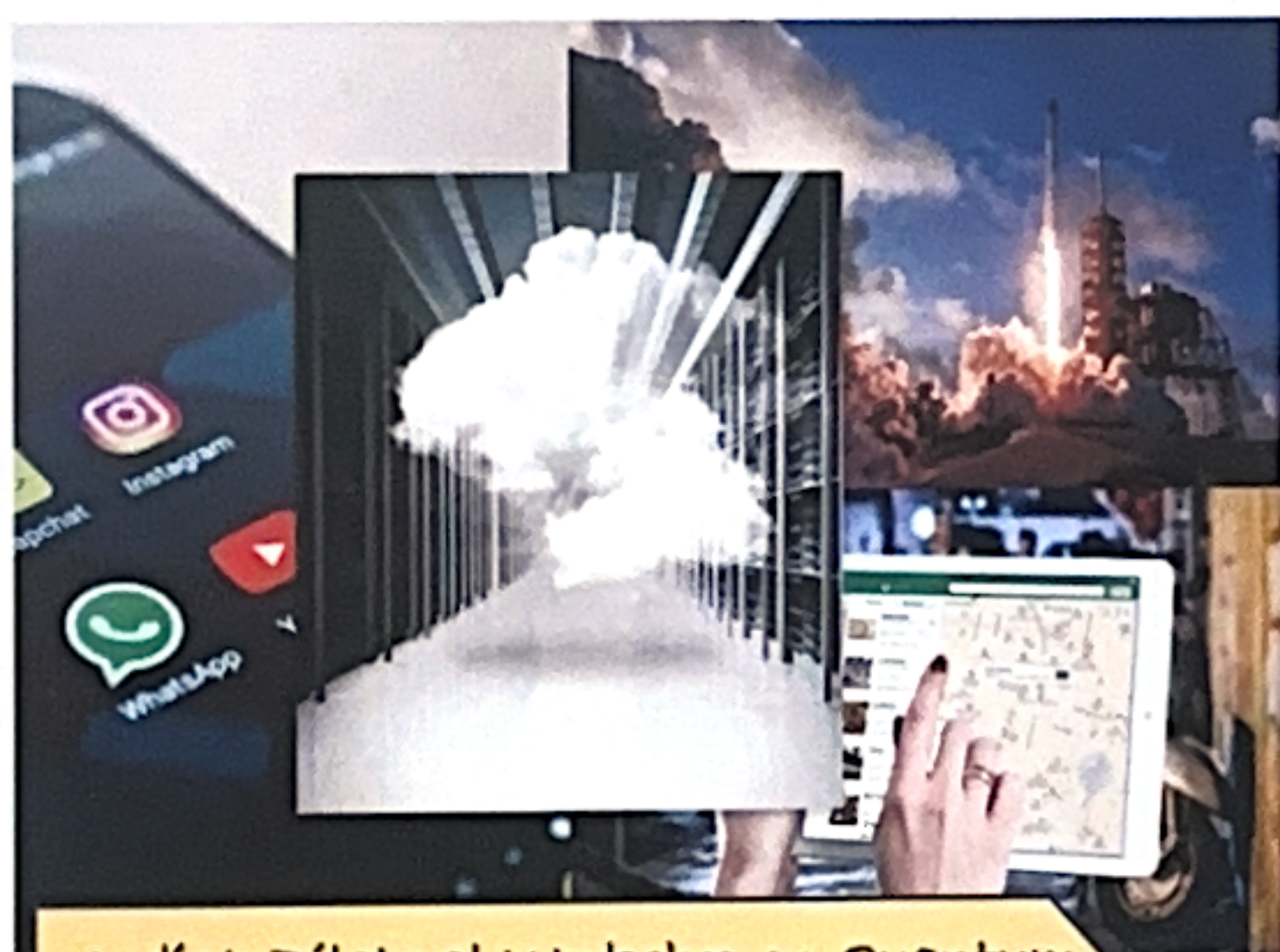


Aeralis signs manufacturing design support partnership
British jet designer Aeralis has partnered with Hamble Aerostructures, an Aernnova Group company, for integrated manufacturing design support of the common core fuselage and canopy of its modular jet



ISRO drops first pictures of chandrayaan-3 mission

Isro has said that it will be trying to launch the awaited mission by august this year. However, it seems difficult. Hit by successive delay due to covid-19 lockdown, the first pictures of chandrayaan-3 mission to the moon have finally arrived.



India's Bilateral Workshop on Quantum Technology with Israel concludes

India and Israel on recently concluded a two-day bilateral workshop on Quantum Technologies (I2QT-2022) organised by the Defence Research and Development Organisation (DRDO) and DRDO-Industry-Academia Centre of Excellence (DIA-CoE) along with Indian Institute of Technology-Delhi (IIT-D).

The MoU was to promote the development efforts on various technologies including quantum technology by joint funding by DRDO and DDR&D. The technologies developed under BIA will be available to both countries for their domestic applications



SS White Technologies, a leading supplier of flexible rotary shafts for the aerospace industry, is supplying the flexible shafts that transmit power to activate and synchronise the deployment of the Thrust Reverser Actuation Systems (TRAS) on 150 CFM International LEAP-1A turbofan engines that have been selected to power Jet2's latest order for up to 75 Airbus A321neo aircraft.



THE FUTURE IS

NOW

According to **Monica Wick** CEO and founder at RedCabin an environment built on collaboration and knowledge-sharing can enable the industry to create more inclusive, sustainable and spectacular cabin interiors that deliver the type of passenger experience we have all dreamed of.

✂ Air Shield re-purposes the airflow from overhead air vents to create protective air barriers around each passenger in the cabin(above).

Air travel is entering a new era. The pandemic and the need for a greater focus on sustainability have been the catalyst for reimagining the onboard passenger experience and helped kickstart the development of the new generation of cabin interiors.

Modern aircraft interiors are built primarily around three elements: hygiene, privacy, and comfort. During the pandemic many airlines revamped their soft product and onboard amenities to meet the evolving hygiene needs of travellers. Two years later, the hard products are now advancing too.

Traditionally, innovation finds a home in the premium cabin first. In recent months we have seen the unveiling of Finnair's new business class cabin, built around the Air lounge seat from Collins Aerospace. The seat has large cocoons passengers for enhanced privacy-replicating the feel of a residential armchair. Divider screens and flexibility to use the lounge space in the way that best suits their needs, offering new levels of actual of and perceived comfort.

- SETHURAMAN V
IV year



Digital transformation on AIRPORT PROCESSES!

The impact of the digital transformation on airport processes,
business model and passenger experience

Over the past 10 years, a number of business terms have come into common usage in the aviation industry. We now talk about the “connected traveller”; the “smart airport”; the “self-service airport”; the potential for in-terminal “location-based services”; management “process visualisation”; and “collaborative decision-making”

All of these terms relate to the ongoing digital transformation of airports which is not really a new trend but something which has been evolving for decades. Since the first automated baggage sorting systems appeared in the 1990s and the first e-ticket was issued in 1994, it has affected both the passenger journey and internal processes

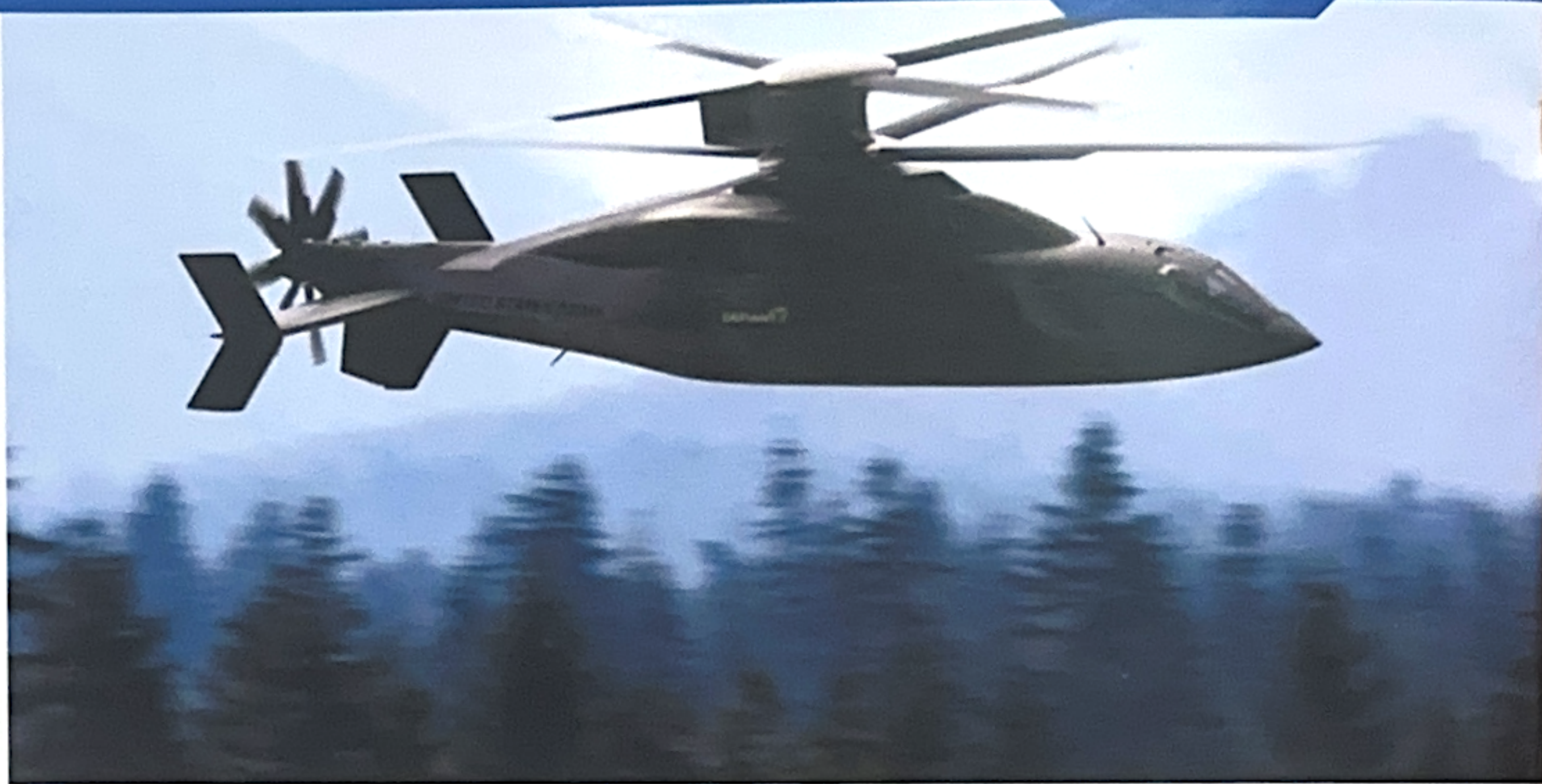
Digital transformation of airports is intensifying and manifested by digitisation, connectivity and big data trends.



Digitisation of airport processes

Digitisation of processes, products and services is not a new driver but has been around in one form or another, since the advent of the Internet. Businesses have been mostly keen to shift online and use digital marketing tools such as websites, emails and social media to communicate and manage customer relations. These tools have gradually become more sophisticated, allowing interaction with the general public and no longer confined to one-way communications.

When looking at the overall rate of digitisation adoption, airports are considered laggards compared to other industries. This is mainly due to their traditional B2B business model and heavy reliance on aeronautical revenues. Today however, with non-aeronautical revenues becoming a driving force and passengers an increasingly important customer segment, airport digital marketing is growing more sophisticated.



Engine and power systems for Black Hawk replacement selected

Honeywell engine and power systems have been selected for Sikorsky-Boeing's Defiant X helicopter, which is currently a contender for the US Army's Long-Range Assault Aircraft (FLRAA) competition

Team Defiant selected Honeywell's GTCP 36-150 auxiliary power units (APUs) series, as well as its main engine generator and APU generator.

These new selections come after Lockheed Martin Sikorsky-Boeing recently announced the selection of Honeywell's HTS7500 turboshaft engine for the Defiant X.



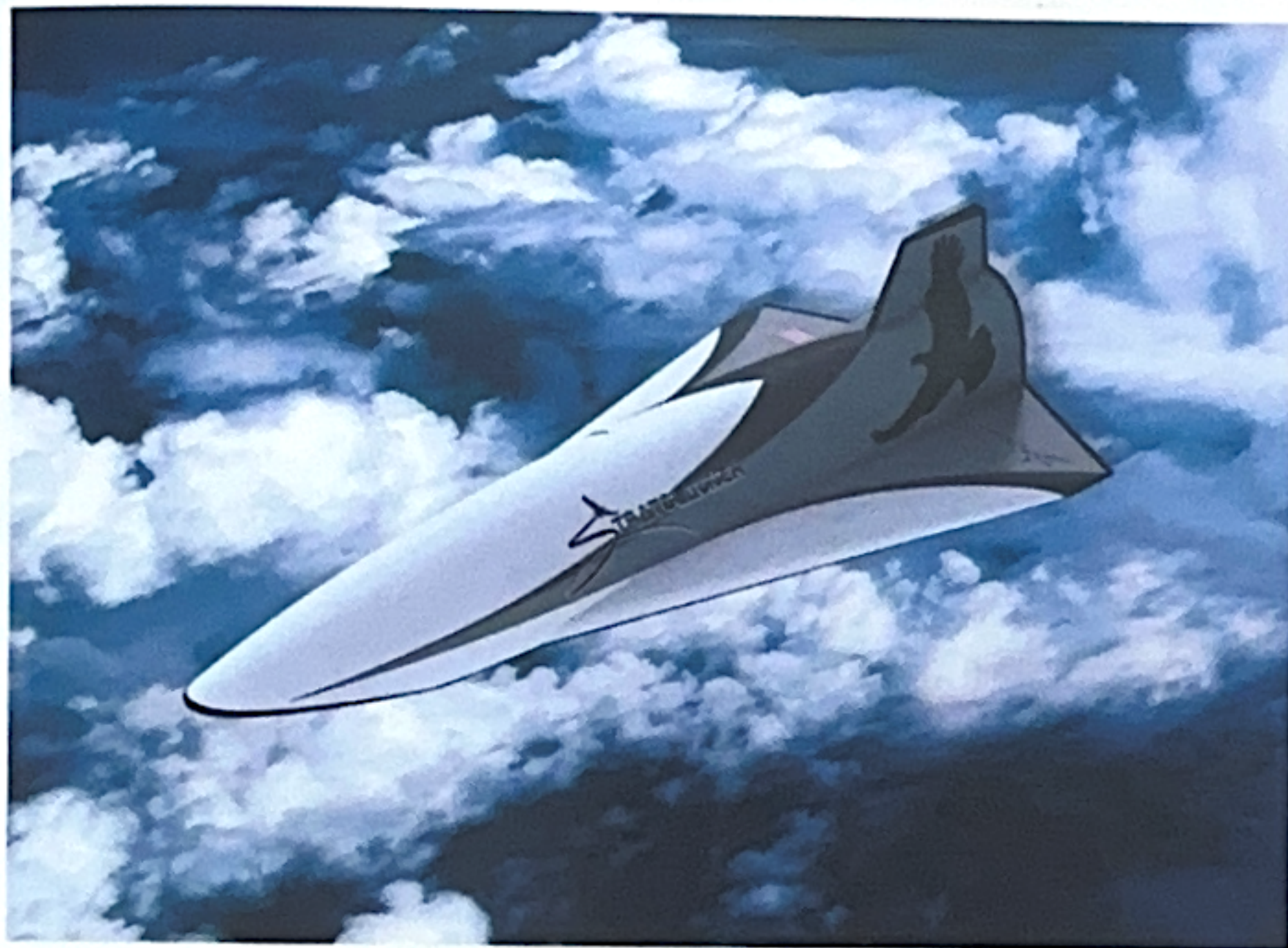
Honeywell's APU for the Defiant X is a derivative of the existing GTCP 36-150 APU series. This new version is equipped with the latest compressor technology originally developed for the commercial aircraft sector. The APU was customised to meet the aircraft installation and performance objectives of the US Army. More than 20 proven variations modified for military and commercial aircraft are flying today.

Ajai kishore
III year



Stratolaunch

Hypersonic vehicle guidance system



Stratolaunch is equipping its Talon-A hypersonic test vehicle with flight software developed by Draper.

Talon-A is a fully reusable, autonomous, rocket-powered Mach 6-class hypersonic vehicle. The vehicle is designed for use by government, including the Department of Defence, the commercial sector, and academia, who will contract for payload capacity to advance hypersonic materials and technologies.

Development and delivery of the GNC algorithms and flight software are the latest milestone in Draper's capabilities operating in a hypersonic flight envelope.

The effort benefited from Draper's decades-long experience in space GNC systems that dates to the Apollo Program, continued with the Space Shuttle missions and the International Space Station and includes current programs such as Orion and Space Launch System.

Under a multi-year contract, Draper designed, developed, tested and delivered the guidance, navigation and control (GNC) software that will allow the hypersonic vehicle to operate autonomously.



Samerjit sing
III year



Boeing's CST-100 Starliner spacecraft arrives at the launch pad for the OFT-2 mission. Boeing said at a May 11 briefing the company is considering a valve redesign as a long-term solution to a corrosion problem discovered last year. Credit: NASA/Ben Smegelsky

WASHINGTON — Boeing says it is considering redesigning the propellant valves on future CST-100 Starliner commercial crew spacecraft as a long-term solution to the corrosion problem those valves suffered last year.

At a May 11 briefing about the upcoming Orbital Flight Test (OFT) 2 mission, Boeing's manager for the program said that while a solution to prevent corrosion of the valves is working for the upcoming mission, a valve redesign is "definitely on the table" as a long-term fix, something the company had not previously acknowledged.

The launch of OFT-2 last August was scrubbed and eventually canceled when more than a dozen oxidizer valves in the spacecraft's service module failed to open when commanded during pre-launch tests. An investigation by Boeing and NASA concluded that nitrogen tetroxide (NTO) propellant seeped through Teflon seals in the valve and reacted with ambient moisture.

Goutham N

II YEAR

Rocket manufacturer Orbex has unveiled the first full-scale prototype of its Prime orbital space rocket on its dedicated launch pad for the first time.



The unveiling of the first of a new generation of European launch vehicles – designed to launch a new category of very small satellites to orbit - represents a major step forward for the British rocket company as it prepares for the first ever vertical rocket launch to orbit from the UK.

Orbex's Prime rocket is the first 'micro-launcher' developed in Europe to reach this stage of technical readiness.

Prime is a 19m long, two-stage rocket that is powered by seven engines, that is being designed and manufactured in the UK and Denmark. The six rocket engines on the first stage of the rocket will propel the vehicle through the atmosphere to an altitude of around 80km.

Suganthi U
II year

MAGAZINE

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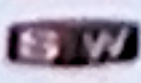




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