THE Aviator AFRICA

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AFRAA

African Airlines Performance Update

AFRAA Secretary General
Mr. Abdérahmane Berthé

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THE Aviator AFRICA

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AFRAA

African Airlines Performance Updates

In the month of August 2021, air passenger traffic reached 46.8% compared to same month in 2019 while capacity was at 54.6%.

Domestic markets across Africa recorded a slight reduction in passenger demand although still outperforming intra-Africa and intercontinental traffic. Domestic traffic for the month under review was 58.9% compared to 22.7% for intra-Africa and 18.4% for intercontinental. On passenger capacity (seats offered), domestic, intra-Africa and intercontinental accounted for 46.5%, 26.8% and 26.7% respectively.

Globally, the COVID 19 cases continue to rise despite the fact that 24.6% of the world's population has been vaccinated. In Africa, just about 1.85% of the population has been fully vaccinated according to data available on the Africa CDC website.

The Delta variant which is the source of recent infections is not sparing younger people either. The result is an increase in the number of younger people and children infected by the virus. In Africa, the number of deaths continues to rise while vaccination is progressing at a snail pace, thus causing concerns among the travel, tourism and hospitality sectors on recovery. Worldwide, the numbers of infected cases reached 200 million of which 7 million are in Africa. The global

Mr. Abdérahmane Berthé, AFRAA Secretary General

US$8.2b

Full year revenue loss for African airlines in 2021 according to AFRAA is forecast at US$8.2b, approximately 47.2% of the full year 2019 airlines' revenue

recovery rate stands at 97.7% compared to 97.3% in Africa.

Re-start of operations on intercontinental routes by African airlines reached 77.8% in August 2021, though frequency and capacity remained constrained. This represents a month-on-month increase in intercontinental operations of 3.1%. Airlines which added new intercontinental routes to their operations in August include: Ethiopian Airlines, Royal Air Maroc and Kenya Airways. It is worth noting that, EgyptAir, Ethiopian Airlines, Royal air Maroc and RwandAir now operate to about 90% of their pre-COVID intercontinental destinations.
As previously reported, Mauritius remains the most impacted intra-Africa air travel destination in spite of the resumption of international flights in July. Abidjan and Dakar airports slightly exceeded their pre-COVID level of flights connectivity with other cities. Passenger arrivals and departures however remain depressed for both airports.

General passenger traffic continues to be low across Africa due to the ravaging impact of COVID-19, inconsistencies in the messaging regarding border closures and failure to align health protocols in some countries and across regions.
Full year revenue loss for African airlines in 2021 according to AFRAA is forecast at US$8.2b, approximately 47.2% of the full year 2019 airlines' revenue. In 2020, African airlines made a cumulative loss of $10.21b, representing 58.8% of 2019 revenues.

The poor revenue performance coupled with slow response to calls for support to African aviation and tourism sectors by governments and DFIs is a major threat to the survival of the African aviation industry. Governments should heed the calls by the African Union, AFCAC, AFRAA and other organizations to provide financial relief and support to the industry players most impacted by Covid-19 to avoid the collapse of the aviation industry.
Other related industry developments:
Victoria Falls and Kazungula (linking Zimbabwe,

Zambia, Botswana and to a lesser extent Namibia) border posts were opened for fully vaccinated tourists in a move aimed at reviving the tourism sector.

The United Arab Emirates National Emergency and Crisis Management Authority (NCEMA) announced lifting of the transit flight ban imposed by UAE in some countries including India, Nepal, Nigeria, Pakistan, Sri Lanka, and Uganda, effective 05 August 2021.
On 28 July, the UK Government announced latest policy review of its "traffic light" system stating that effective 02 August 2021, arrivals to the UK with a DCC (EU digital COVID certificate) or a US Vaccine Certificate (paper) can enter the United Kingdom without quarantine.

About AFRAA

The African Airlines Association, also known by its acronym AFRAA, is a trade association of airlines from the member states of the African Union (AU). Founded in Accra, Ghana, in April 1968, and headquartered in Nairobi, Kenya, AFRAA's mission is to promote, serve African Airlines and champion Africa's aviation industry. The Association envisions a sustainable, interconnected and affordable Air Transport industry in Africa where African Airlines become key players and drivers to African economic development●

IN THE NEWS

Egypt signs deal to buy 30 Rafale fighter jets from France

PARIS

Egypt and France sign a secrect agreement for additional 30 Rafale fighter jets in the region of €3.9 billion according to "Disclose" Investigative website.

The deal also includes a €200 million contract destined for buying equipment & munitions package for the jets. Tamer al-Refai Egyptian Army Spokesperson said on Twitter that an agreement was signed between the Egyptian Armed Forces and France's Dassault Aviation SA. He further noted that the deal was made through a financing loan to be repaid over at least 10 years. However, he did not mention the value of the deal. Disclose also noted that the Egyptian state has obtained a loan of which 85% is to be guaranteed by France. Al-Refai also recalled that a similar agreement on the purchase of 24 Rafale fighter jets was made between Cairo and Paris in 2015.

Air Djibouti to launch pilot training centre beginning January 2022

Air Djibouti has partnered with International Pilot Academy to launch a new Pilot Training Center in Djibouti starting January 2022.
The center will allow students from all over the world to register in the Integrated Airline Transport Pilot License. The license is offered by International Pilot Academy. Air Djibouti CEO Abdourahman Ali said the project is one of it's kind in the Horn of Africa. "We are glad to welcome students from around the globe to Djibouti, which is one of the most peaceful countries in the world," he said

SITA installs innovative self-service check-in, baggage-drop at Bole airport

Technology developer SITA will begin offering enhanced check-in and bag drop at Ethiopian Airlines in Bole International Airport.
The deployment, which features SITA Smart Path Drop & Fly baggage solution, has been implemented in the new extension of the check-in area with international passengers of Ethiopian Airlines benefitting from the service.

According to SITA, the self-service solutions have helped optimize the passenger experience with many travelers checking in online through the Ethiopian Airlines app, other airline applications, and through SITA self-service kiosks. The technology has been implemented in the new extension of the check-in area with international passengers of Ethiopian Airlines benefitting from the service. Passengers using the technology can directly proceed to the self-bag-drop area to check in their bags quickly and easily, avoiding long lines.

Kenya Airways, embraer's eve partner on future of advanced air mobility

Eve Urban Air Mobility Solutions has signed a Memorandum of Understanding with Kenya Airways through its fully owned subsidiary Fahari Aviation.

This collaboration aims to develop operational models for the wide accessibility of Urban Air Mobility to support Fahari Aviation's key markets.
In addition, this partnership will establish the co-creation of a foundation of concepts and procedures to safely scale electric vertical aircraft throughout the country in the coming years.

Eve will support Fahari Aviation, the Unmanned aircraft systems division of Kenya Airways that promotes safe and secure UAS usage in the region, in establishing its UAM network and collaborate on the required Urban Air Traffic Management (UATM) procedures and UAM operating environment.

RwandAir launches a loyalty partnership with Qatar Airways

RwandAir Dream miles and Qatar Airways Privilege Club have launched a partnership for frequent fliers.
This partnership has made RwandAir the first and only sub-Saharan African airline to launch a loyalty partnership with Qatar Airways.

According to RwandAir, these two carriers have joined forces to offer their loyalty members access to each other's destinations with the opportunity to "earn and burn" points across their reciprocal route networks. This means that RwandAir Dream Miles members will be able to fly to more than 140 Qatar Airways destinations using miles earned by flights bought through RwandAir under this new deal.

Uganda Airlines' two a330 neo cleared for operations

ENTEBBE

Aug. 20 (The Aviator Africa)–Uganda Airlines finally welcomes the addition of its recently acquired brand new Airbus A330-800 NEO on the company's Air Operator's Certificate (AOC).

The Airline acquired the two A330 NEO late last year with the first touching down at the country's Entebbe international Airport 40 km south of the Capital Kampala late December 2020. The additional two Airbus aircraft boosted the company's fleet to six following the earlier acquisition of the Bombardier CRJ-900. The airline has one of the world's youngest fleet with an average aircraft age of approximately one year. The narrow-body Bombardier CRJ-900 and the now cleared for takeoff wide-body Airbus A330Neo. Giving the Airline a short, Medium and long-haul international routes.

The certification process has taken more than 6 months and presided over by the Uganda Civil Aviation Authority. The airline did a demo flight to Johannesburg with one of the A330Neo on 12th this month during the final stages towards adding the A330 on the AOC.

Morocco phasing out Mirage MF-2000 for newer F-16s

The Royal Moroccan Air Force (RMAF) intends to phase out its fleet of Dassault Mirage MF-2000 for newer F-16s.

The Mirage MF-2000s have served for more than 40 years, and remains one of the most prolific fighter jets across the globe. The replacement process is expected to be complete by 2023-2024, to make way for the 25 new F-16 Block 70/72. The Dassault Mirage F1 is a single-engine French-made aircraft, developed as a successor to the popular Mirage III family. The type has been operated as a light multipurpose fighter and has been exported to more than a dozen nations.

Nigerian Air Force confirms M-346FA aircraft acquisition from Leonardo

Despite denials and controversy from Italian Leonardo, it appears that Nigeria ordered the M-346FA fighter, attack, and trainer aircraft to replace its 13-strong fleet of Alpha Jet ground-attack aircraft in an estimated $1.2 billion deal. According to Mr. Ashibel P. Utsu the Director of Air Force affairs, for the Federal Ministry of Defence (MoD), who told the local media on Thursday 26 August, twenty-four aircraft were ordered, with twelve expected to arrive this year, and the rest by next year.

The M346FA is a multi-role light-weight fighter designed by Italian Leonardo, capable of various missions like deployed in ground support roles, air-to-ground attack, tactical close air support (CAS), counter-insurgency (COIN), and interdiction with precision-guided munitions.

Egypt acquires Africa's first a320neo analog flight equipment

The Egyptian Prime Minister Dr. Mostafa Madbouly witnessed the start-up of the latest Airbus A320Neo analog flight equipment as the first operator in Africa during his visit at EgyptAir Training Academy.

Pilot Mohamed Manar, Minister of Civil Aviation, and Dr. Khaled El-Anany, Minister of Tourism and Antiquities accompanied His Excellency Dr. Mostafa while inspecting the EgyptAir Training Academy. The EgyptAir Training Academy is one of the largest regional training centers accredited in the field of Air transport in the Middle East and Africa Region.

His Excellency also witnessed the start of operation of the latest Airbus A320Neo representative flight equipment, in the presence of Pilot Muntaser Manna, Deputy Minister of Civil Aviation, and a group of leaders of the Ministry of Civil Aviation.

African airports clinch ACI service quality awards

Several African airports have been honored with the prestigious Airports Council International (ACI) World Airport Service Quality awards. According to ACI, this year's Airport Service Quality (ASQ) awards highlights the world's best airports as judged by their customers during the Customer Experience Global Summit held earlier this week.

African airports represented and awarded in this year's service quality award under the "Best Airport by Size & Region" category includes; Moi International Airport – Mombasa, Kenya with under 2 million passengers per year, Kotoka International Airport – Accra, Ghana with 2 to 5 million passengers per year, Jomo Kenyatta International Airport – Nairobi, Kenya, and Nnamdi Azikiwe International Airport – Abuja, Nigeria, both with 5 to 15 million passengers per year.

Also, Sir Seewoosagur Ramgoolam International Airport – Port Louis, Mauritius was awarded the "Best Hygiene Measures by Region" for providing a reliable method of gauging customer response to new health measures. While Dakar Blaise Diagne International Airport in Diass, Senegal, Jomo Kenyatta International Airport in Nairobi, Kenya, Kotoka International Airport in Accra, Ghana, Moi International Airport in Mombasa, Kenya, SSR International Airport in Mauritius, and Tunis Carthage Airport in Tunis, Tunisia were recognized as "The Voice of the Customer" owing to their efforts in gathering passenger feedback through the Airport Service Quality (ASQ) Departures survey, to help them better understand their customers during the pandemic.

IATA urges Kenya government to reduce the $80 pcr test fees

23 September 2021 (Nairobi) — The International Air Transport Association (IATA) urged the Kenyan government to use all mechanisms at its disposal to encourage air travel, including reductions in COVID-19 test charges.

"Kenya's air transport recovery is stalling and requires ongoing support. Among the interventions, we are urging Kenya's government to reduce the cost of PCR tests for travelers, which, at roughly US$80 each, is significantly higher than the average in Africa," said Kamil Al Awadhi, IATA's Regional Vice President for Africa and Middle East. "The high cost of tests has become a major deterrent and a drag on the recovery of Kenya's air transport and tourism sectors. An alternative solution would be to permit the use of more cost-effective antigen tests," he added.

Ethiopia for africa':
Ethiopian airlines, Boeing sign strategic partnership

Ethiopian Airlines Group and the Boeing company have signed a strategic Memorandum of Understanding that seeks to position Ethiopia as an aviation hub for Africa.

In a statement on Monday, the Airline said the MoU aims at positioning Ethiopia as Africa's aviation hub – "Ethiopia for Africa". "The MoU is indicative of Boeing and Ethiopian Airlines interest to establish a mutually beneficial world class aviation partnership," the airline said. To realize their shared vision, Ethiopian and Boeing have agreed to work in partnership in four areas of strategic collaboration.

These are;Industrial Development, Advanced Aviation Training, Educational Partnership, and Leadership Development in a span of three years. Joint multidisciplinary teams have been established to implement the strategic partnership and important milestones have already been registered.

Avnon group acquires equity stake in South Africa's Alti

Israeli-based worldwide operator Avnon Group has acquired an equity stake in South Africa's ALTI Unmanned Aircraft Systems.

In a joint statement, the Avnon announced that it has "concluded an agreement to acquire a substantial equity stake in ALTI Unmanned Aircraft Systems, an award-winning hybrid UAS developer and manufacturer specialising in vertical take-off and landing UAVs designed for the security and surveillance sector".
ALTI designs and builds unmanned aircraft, offering a complete long-endurance hybrid fixed-wing VTOL unmanned aircraft, and has exported to 13 countries internationally for decades.

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THE AVIATOR AFRICA SIGNS A MEDIA PARTNERSHIP WITH AVIATION AFRICA 2022

ENTEBBE: September 28, 2021- The Aviator Africa an aviation news website, online and print magazine together with Aviation Africa 2022 summit sign a media partnership deal.

Aviation Africa summit and exhibition will return to Kigali Convention Centre, Rwanda, on 15-16 September, 2022 following the cancellation of this year's event.

The 2-days summit and exhibition has the support of the Rwandan Government to host a live, networking event and start reviving the African aviation industry post-covid.

"We are thrilled to have this partnership with Aviation Africa 2022 towards a common goal of reviving the African aviation industry post Covid-19".

Said Katatumba Tyson tommy CEO The Aviator Africa.

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DRONES

and violent nonstate actors in Africa

A drone flying above Madagascar. (Photo: W FP/Adam Marlatt)

By Karen Allen

In late 2016, the Islamic State (ISIS) reached an important milestone during the battle to secure the city of Mosul in Northern Iraq. In what is thought to be the first ever recorded use by violent nonstate actors in theatre, ISIS deployed a weaponized drone or Unmanned Aerial System (UAS). The device, with a range of about a mile and a half, had been built and loaded with explosives and detonated in a densely populated urban battlefield. The impact was both physical and psychological. Civilians found themselves trapped deeper in the city while Kurdish Peshmerga and Shi'ite militias joining Iraqi government troops, struggled to regain control.

Since that time, the use of UAS by violent nonstate actors has been observed in other conflict settings including Syria, Yemen, and Ukraine.

Expanding Applications of Drones in Africa

Within Africa, the potential for insurgent groups to emulate such tactics as those observed in Iraq, has received little attention. There has been some focus on Libya with proxy supporters of both the Libyan Arab Armed Forces coalition of militias led by Khalifa Haftar in the east of the country and the Government of National Accord supplying drones for surveillance and long-range strategic strikes. However, it is the recent escalation in hostilities in the Cabo Delgado Province of northern Mozambique that has raised the specter of violent nonstate actors in Africa deploying this technology.

Mozambique's Interior Minister Amade Miquidade reported that UAS have been deployed by militant Islamist groups in Cabo Delgado Province where a SADC stabilization force has recently been authorized. Mozambique's armed forces have been battling these militant groups who operate under the name of

This aligns with other unverified reports by private security companies operating in the region that small drones have been deployed by armed nonstate actors for surveillance purposes. Jasmine Opperman, a former South African intelligence analyst, observed that "If we look at the ease with which [the insurgents] are getting weapons and mounting attacks on the military, I will never underplay the possibility that they start making use of more technologically advanced capabilities, and with that I include drones." She added that "If you can bring in cellphones by the hundreds through illegal smuggling routes, what is preventing them from bringing in drones?"

The Mozambican experience mirrors other reports emerging from Africa. In Somalia, private security contractors have described how in the past year the violent extremist group al Shabaab has deployed UAS for surveillance purposes. Although eyewitness accounts are hard to verify, Colonel (ret.) David Peddle, a former military service member in South Africa and the UK with ongoing contact in Somalia, confirmed that armed nonstate actors have been using UAS for surveillance purposes and believes it will only be "a matter of time" before the deployment of "swarms" or clusters of offensive drones in Africa, given their accessibility and relatively low cost.

Libya has also emerged as a technological testing ground for similar aerial assets, supplied by external forces such that UAS are now a mainstay of the Libyan conflict. But informal acquisition and enhancement of commercially available or so-called "hobbyist" drones are also a trend Africa may witness more and more. Across the Bab al Mandab Strait, Yemen has also reported the use of similar aerial systems by Houthi rebels, where they have been deployed as strike platforms to mount attacks against energy installations. The global commercial drone market is forecast to reach $43 billion by 2024 with South Africa, Nigeria, and Kenya expected to be the biggest players in Africa. In addition to business uses, drones are increasingly being used for humanitarian purposes. Drones also hold much scope for expansion into other areas

such as maritime security and border policing operations.

Yet the unintended consequences of commercial or hobbyist drone proliferation and its impact on African security is an area that has attracted little research. The announcement that an EU training mission will train the Mozambican army to use drones to track militants' movements is testament to a growing drone ecosystem in Africa, with both military and customized commercial UAS sitting alongside hobbyist or shop-bought drones.

The use of UAS represents a new iteration of digital technology. The rapid rollout of mobile- and smartphone technology has seen militants in remote settings such as the deserts of Mali detonate IEDs using mobile phones where in the past they would have relied on trip wires. Smartphone applications used to pilot drones present both an opportunity and a threat. Although drone technology is largely used for positive purposes, the possibility for individuals to build

A drone used for humanitarian work in Malawi. (Photo: E U/Anouk Delafortrie)

drones with smartphones and open-source software will accelerate, and the results may be destabilizing. In short, drones are likely to be an integral part of future warfare in Africa.

Changing the Nature of Conflict in Africa

To date, most of the research on the use of UAS by violent nonstate actors has been conducted outside of Africa. However, analysts believe the experience in the Middle East where drones have been weaponized " unlocks a genie of sorts, as [ISIS] demonstrated what was possible with a little bit of sinister engineering." They can also be quickly brought to scale. When Iraqi forces took major parts of Mosul back from ISIS in November 2016, they found a n ISIS workshop dedicated to weaponizing drones. Such was the ability to scale up that, in the spring of 2017, there were between 60 and 100 aerial ISIS drone strikes each month across Iraq and Syria. The experience of the Middle East does not necessarily mean that drones may be weaponized in the same way in Africa. The experience in Libya, for example, suggests that the tactical utility of drones may be limited as a weapon. However, drones are potentially of enormous value for wider intelligence gathering, collection of footage and propaganda materials, and for precision targeting.
A study of UAS in the Sahel and East Africa concludes that the ease with which shop-bought or hobbyist drones can be acquired across Africa suggests that indigenous innovation may appear to be more likely than direct technology transfer. Given the growing ecosystem of drone use in Africa, there is a logic to this conclusion.

As a tool which is hard to detect and harder still to shoot down, UAS may offer some utility to violent nonstate actors for surveillance and targeting purposes both on land and at sea. Indeed, during the recent attacks in northern Mozambique, eyewitness accounts described how aerial vehicles were used during the Palma attack.
Nevertheless, to date there has not been a drone strike on a major piece of infrastructure such as a hotel or airport in Africa. Arguably, the psychological advantage of threatening to deploy a commercially available hobbyist drone as an instrument of intrusion or a weapon may give violent nonstate actors a degree of leverage over their adversaries as well as expanding their spheres of control.

Priorities Looking Forward

Expanding drone use in Africa for commercial and humanitarian purposes should lead policymakers to consider the unintended consequences. Mapping the use of drone activity across Africa by violent nonstate actors could be an important tool to ensure that aid programs that rely on humanitarian corridors like those established by UNICEF in Malawi, or e mergency response capabilities such as the World Food Program in Mozambique, are not compromised and the benefits of drones undermined.

"Conventional militaries no longer have a monopoly on appropriating technological innovation that will shape the battlefield." Such a mapping exercise would also

Image of a Mozambique coastal area captured by a drone. (Photo: V asco Santos)

benefit large-scale private or private-public partnerships such as oil and gas refineries, ports and harbors, airports, and military bases, to help them develop technical countermeasures such as defense shields or jamming technologies.

While policymakers in Africa may be unable to easily control the proliferation of commercial drones, there is scope for exploring early warning systems to flag the large consignments of drones procured and delivered to areas of known conflict. Research from Syria and Iraq demonstrates the supply chain of drone acquisition by ISIS. In response, a registration scheme similar to that used for mobile phones may be considered for smaller shop-bought drones that are n ot mandated to apply for a license.

There may also be scope for considering export control regimes such as the Wassenaar Arrangement, which governs the export of dual-use technologies, and possibly even the Missile Technology Control Regime (MTCR), which was designed to regulate nuclear-capable missiles able to strike from a significant distance.
Given the potential for drones to be used as a weapons delivery system, this may have some utility. However, the shortcomings of both agreements are that they are nonbinding and their classifications are considered by some scholars to be rather outdated.

At the international level, the Global Counterterrorism Forum led by Germany and the United States have developed the Berlin Memorandum under the Initiative to Counter Unmanned Aerial System Threats. It urges states to observe a number of UN Security Council Resolutions, including Resolution 1540, which prohibits states from "providing any form of support to non-state actors that attempt to develop, acquire, manufacture, possess, transport, transfer or use nuclear, chemical or biological weapons and their means of delivery." The Resolution also requires states to put in place "effective measures to establish domestic controls to prevent the proliferation of nuclear, chemical, or biological weapons and their means of delivery" with means of delivery including UAS (i.e., drones).

The Berlin Memorandum recommends that these "effective measures" include governments conducting risk assessments to identify vulnerabilities and pre-empt technological developments that may be utilized by terrorist actors, public information campaigns to advocate responsible UAS use, and crisis response mechanisms including sanctions following UAS incidents. Additionally, governments are urged to consider developing tactical countermeasures and technical solutions, while not impeding beneficial and legitimate UAS uses.

Given their growing exposure to the spread of this technology African policymakers should play an active role in shaping future drone policy. This emerging threat demonstrates how conventional militaries no longer have a monopoly on appropriating technological innovation that will shape the battlefield.

Karen Allen is a former BBC Foreign Correspondent and currently a Visiting Fellow in the War Studies Department at King's College London and a consultant at the Institute for Security Studies in Pretoria, South Africa.

Article Featured in africacenter.org

Pilot shortage next challenge for airlines globally

By Katatumba Tyson Tommy

It's all exciting and great news as Air Travel and General Aviation is picking up following several months under lockdowns and complete restrictions imposed by different governments. For peak passenger recovery, estimates range from early 2022 to 2024 and beyond. The global in-service fleet has already recovered in size to 76 percent of pre-COVID levels. In China, where the outbreak was earlier and better controlled, the in-service fleet is already at 99 percent.

However for pilots what determines the demand is fleet growth, aircraft utilization, attrition rates and regional differences in crewing specific to aircraft type. The crew ratio or number of pilots assigned to a plane could be 10-12 on a typical A320 however airlines continuing to order more aircraft and modern fleet which are quite wider like the A321 XLR, the numbers could go as high as 18.

This and more disruptions brought by the pandemic like the pilot retrenchments, closure of flight schools has further led to the huge demand for pilots and other crew. Geoff Murray during an interview with CNBC said that in recent years, airlines have provided a

more direct path to the cockpit for new pilots, expanding cadet training programs and providing financing. With COVID, many of the airline pipeline levers have come under pressure. Faced with mounting costs and a pilot surplus, cadet programs are being trimmed.

Some of the banks that have supported the financing are reconsidering the risk profile of a new pilot cadet. Finally, the attraction of a stable and lucrative career path now looks much less secure. Pilot training initially takes 18-24 months however due to lockdowns this study time has extended even when schools have resorted to new measures such as online classes. These trends have created a supply shock due to the number of those going into mandatory retirement outweighing those to fill the positions.

Boeing Co. recent 2021-2040 outlook projects a long-term demand for newly qualified aviation personnel to remain strong, as 612,000 new pilots, 626,000 new maintenance technicians and 886,000 new cabin crew members are needed to fly and maintain the global commercial fleet over the next 20 years during which airlines will take an estimated 43,600 new aircraft deliveries.
To navigate through this and in order to meet projected pilot, aircraft mechanic and flight attendant demand is wholly dependent on industry's investment in a steady pipeline of newly qualified personnel to replace those who have left or will soon exit the industry through mandatory retirement, early retirement, recent layoffs and retrenchments , and ongoing attrition.

The global aviation industry will need to keep a sharp focus and engage in collective efforts to build a robust, diverse talent pipeline through more educational outreach and recruitment, development of new pathways to aviation careers, investment in early-career learning opportunities, and deployment and adoption of more efficient learning methods.

Opportunity for aspiring aviators will abound while operators will face stiff competition in recruiting and retaining top tier talent. Boeing also stated in the recent outlook that training methodologies also continue to progress toward a holistic approach that focuses on competencies rather than prescriptive tasks.

As commercial operators and training providers look toward the future, we expect to see continued investments in artificial intelligence, machine learning, and mixed reality technology that will help tomorrow's students more quickly, efficiently, and effectively close their knowledge gaps. This will lead to a better, safer, and more efficient aviation industry.

DID YOU KNOW!

Africa's Busiest Airport

O. R. Tambo International Airport (IATA: JNB, ICAO: FAOR) is an international airport situated in Kempton Park, Gauteng, South Africa. It serves as the primary airport for domestic and international travel to/from South Africa and is Africa's busiest airport, with a capacity to handle up to 28 million passengers annually.

The airport serves as the hub for South African Airways. The airport handled over 21 million passengers in 2017.
It was originally known as Jan Smuts International Airport, after the former South African Prime Minister of the same name.

The airport was renamed Johannesburg International Airport in 1994 when the newly elected African National Congress (ANC) government implemented a policy of not naming airports after politicians. This policy was later reversed, and on 27 October 2006 the airport was re-named after anti-apartheid politician, Oliver Reginald Tambo.

Source: Wikipedia

Long hauling Uganda's Aviation dreams.

Growth amidst a crisis

By Vincent M. Mwesigye
vincentmm311@gmail.com

The Damning impact of the global Covid19 pandemic has to a large extent continued to disparage efforts to grow Uganda Airlines to desirable levels despite good efforts by Uganda government to revive the Industry. Various countries have continued to shut their airspace and impose internal lockdowns as a way of mitigating the spread of corona virus pandemic as well as obliterating the new waves of the pandemic.
In Africa, Several countries including Algeria, Benin, Kenya,Tunisia, Mauritius and Somalia are currently grappling with the fourth wave of the corona virus pandemic according to Africa's Centers for Disease Control and Prevention head Dr.John N. Nkengasong. This has continued to upend all government efforts to revive and grow the Airlines Industry. Uganda Airlines registered Ush102 billlion ($79 million) in losses in the 2019/20 financial year up from Ush15 billion ($4.2 million) the previous financial year according to a report by the Auditor General, a grim indication of the impact of covid19 pandemic on the Uganda Airlines sector.

Revamping the sector became government priority and at the start of May, the minister of works

and transport, General Katumba Wamala, sent home senior managers of Uganda National Airline Company Limited, which runs the state-owned Uganda Airlines.

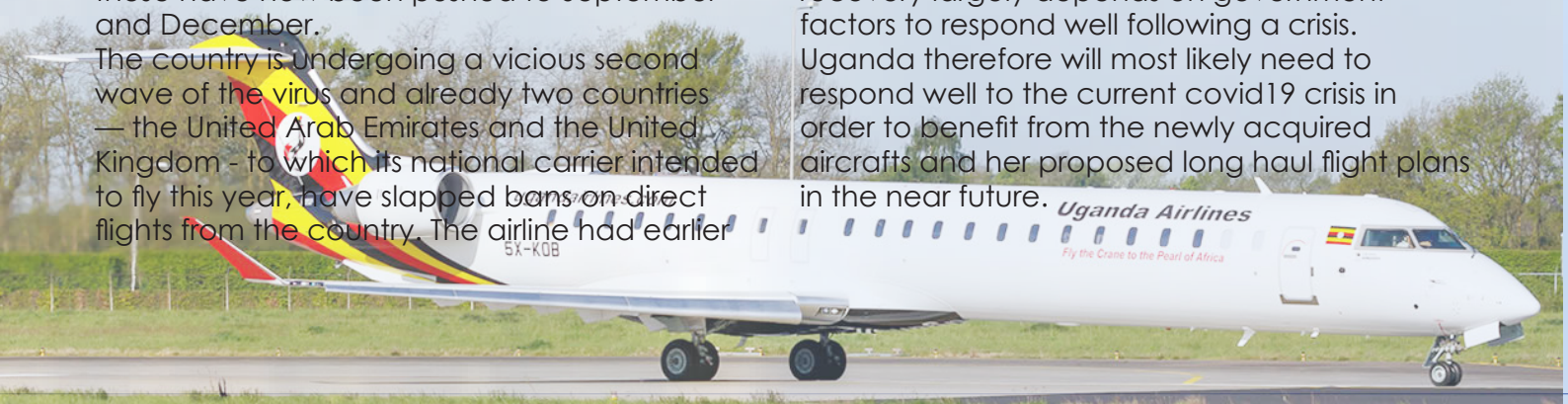
In spite of the ongoing virus and increasingly mutating corona virus pandemic worldwide, Uganda airlines has continued to grow steadily overtime. Uganda Airlines is currently running a four-craft fleet of bombardier CRJ900 aircraft. Recently, the airline added two new Airbus A330-800 aircraft to its fleet, which completed the final phase of its revival and it is these new stage of a five-phase certification process after which an AOC will be issued if it is successfully completed.
The bungling of the A330neo's induction into service is one of the key events Uganda Airlines' upper management is being held accountable for by the government given the losses the airline has incurred since its launch.

Since its inception in August 2019, Uganda Airlines has been plying a fleet of four CRJ900s on flights to Burundi, Tanzania, South Africa, South Sudan, the Democratic Republic of Congo (DRC), Kenya, and Somalia. According to the Ministry of Transport update, an application to the European Union Aviation Safety Agency (EASA) for a TCO certificate has been submitted to enable the airline to fly to London. In addition, the airline has also been designated as the Ugandan carrier for flights to the UK capital and Dubai. An application for China (Guangzhou) is being worked on.

The airline, which flies regional routes such as Kinshasa, Nairobi, Dar es Salaam, Juba, Mogadishu and Kilimanjaro, was set to start long haul trips by July from its hub at Entebbe to Europe, India, China and the Middle East, but these have now been pushed to September and December.
The country is undergoing a vicious second wave of the virus and already two countries — the United Arab Emirates and the United Kingdom - to which its national carrier intended to fly this year, have slapped bans on direct flights from the country. The airline had earlier targeted four destinations - Mumbai, London, Dubai, and Guangzhou.
Direct flights to Heathrow London, a route to which the airline has been allocated five flights a week, will commence in December following a review of the UK red list. The airline's entry will offer the only non-stop connection to the UK from the country, a market that is indirectly served by at least nine of the international airlines operating in Entebbe.
Mumbai, scheduled for November, is waiting for the Uganda government to lift a ban on direct flights between Entebbe and India. An official of the national carrier, that for Guangzhou, both Uganda and China are still in talks to sign bilateral air agreements that allow the airline to land in China. Uganda has signed bilateral air service agreements with about 47 countries around the world.

Domestic Aviation markets Southern Africa will recover to 2019 levels by 2023 and International travel by 2024 according to Wrenelle D. Stander, the Airline Association of Southern Africa (AASA) CEO. Stander foresees that recovery of Aviation in Africa will take time and will be determined by both the political economy as well as the pace and depth of governments' responses to the Covid19 crisis.

Mrs Wrenelle Stander agrees with the assessment by the International Air Transport Association (IATA) that international passenger demand will only return to 2019 levels in 2024. Similarly, Africa's airline market of 115 million passengers is unlikely to recover overnight. Moritz Breickmann, the investment Director at African Infrastructure Investment Managers (AIIM) contends that although there has been a strong response and demand to travel again since the relaxation of restrictions, consistent recovery largely depends on government factors to respond well following a crisis. Uganda therefore will most likely need to respond well to the current covid19 crisis in order to benefit from the newly acquired aircrafts and her proposed long haul flight plans in the near future.



How does Airplane Wi-Fi Work?

By Iddi Mshana, Cadet Pilot EACAA

Have you ever had this thought while traveling on a plane that how come those Wi-Fi signals are available at a height of thousands of feet above the ground, allowing you to carry your routine online activities the same as usual? How does the inflight Wi-Fi work at 35,000 feet up in the air?

It does seem like a miracle, testifying the rapid advancement in the fields of science and technology. Gone are the days when we would be disconnected from the world existing below our airplane, with no internet access, and our mobile phones asked to be turned off.

We are so much dependent on Wi-Fi access these days that we can hardly imagine a couple of minutes without it. Our expectations for seamless wireless connectivity have risen, even when we are traveling above the ground. Just as we have become accustomed to Wi-Fi access everywhere we go, all hail to public Wi-Fi hotspots, we now also expect them on our air flights while traveling for work or leisure.

Many questions arise in our minds the moment we hear that most of the airlines offer in-flight Wi-Fi facilities. How does inflight Wi-Fi work and is it safe to use it? Let us dig deeper to know all about it:

Do Airplanes have Wi-Fi?

Yes, airplanes do have Wi-Fi, especially if you are going on a long flight. On shorter flights, it might or may not be available. Generally speaking, the long-distance and domestic US flights almost always offer Wi-Fi. However, many airlines seem to be working to allow more inflight

Wi-Fi facilities.

Cost of Wi-Fi on Planes

Some airlines provide free inflight Wi-Fi.
However, most airlines might charge you for Wi-Fi usage, which have a variety of packages for you to choose from. The inflight Wi-Fi cost charged by these airlines might be quite justified as it is not easy to enable Wi-Fi access on planes. The antenna and equipment might put weight on the plane, so it has to be engineered very smartly.

How Does Inflight Wi-Fi Work?

The main source of Wi-Fi on airplanes is the antenna that serves as the powerhouse.
It gathers signals and sends them to the router, which helps in spreading the Wi-Fi signals and distributing them inside the plane. It is always recommended to go through the instructions for the inflight Wi-Fi usage provided to you before taking off.

Different companies have their own policies. For instance, some airlines might ask you to switch to flight mode and then connect to the in-flight Wi-Fi, while others might require you to download an app to get online, so it is better to go through the provided instructions by your airline to avoid any confusion.
There are mainly two operating systems responsible for inflight Wi-Fi access including:

Ground-Based Wi-Fi; It works similarly to how our mobile data operates. Airplanes have an antenna lodged in the plane body, which picks up signals

from the cell towers in the vicinity. We can say that the airplane behaves like a hotpot and passengers can enjoy normal internet access.
Satellite Wi-Fi; this uses a network of satellites to establish a connection. A satellite sends the signals to the ground stations and the plane satellite antenna picks up the signals. The plane catches signals from any satellite that is nearest to it as it continues to travel. This enables passengers to have complete internet access.

The real question is not whether Wi-Fi will be available on airplanes rather it is now about how inflight Wi-Fi is going to get faster and cheaper. As mentioned previously, the intercontinental flights provide an inflight Wi-Fi facility. The number of airlines offering inflight Wi-Fi business is increasing rapidly.
Is Inflight Wi-Fi Safe to Use?
Well, you should not be very casual while connecting to the airplane Wi-Fi. Conversely, you should be cautious, just like you are when connecting to any public Wi-Fi on the ground.
The security risks posed by the inflight Wi-Fi might be the same as the ones riding public Wi-Fi on the ground. So, it is always recommended to use a VPN in order to protect your internet connectivity on the plane against any hacker.
A VPN can shield your internet connection with an additional layer of encryption and is hard to crack. This can allow you to stay safe while using inflight Wi-Fi access although some airline prohibits use of VPN for security purpose.

The End-Take Note

Internet access on flights is already getting better, faster, more reliable, and smooth.
It is advised to make use of a VPN to stay protected during inflight Wi-Fi usage. Let us hope that in the coming years, we might see more and more airlines offering free Wi-Fi. It sure is bliss since the accessibility of the internet on flights does make the journey less boring and more fun●

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Military Helicopter Review

AH-64 APACHE

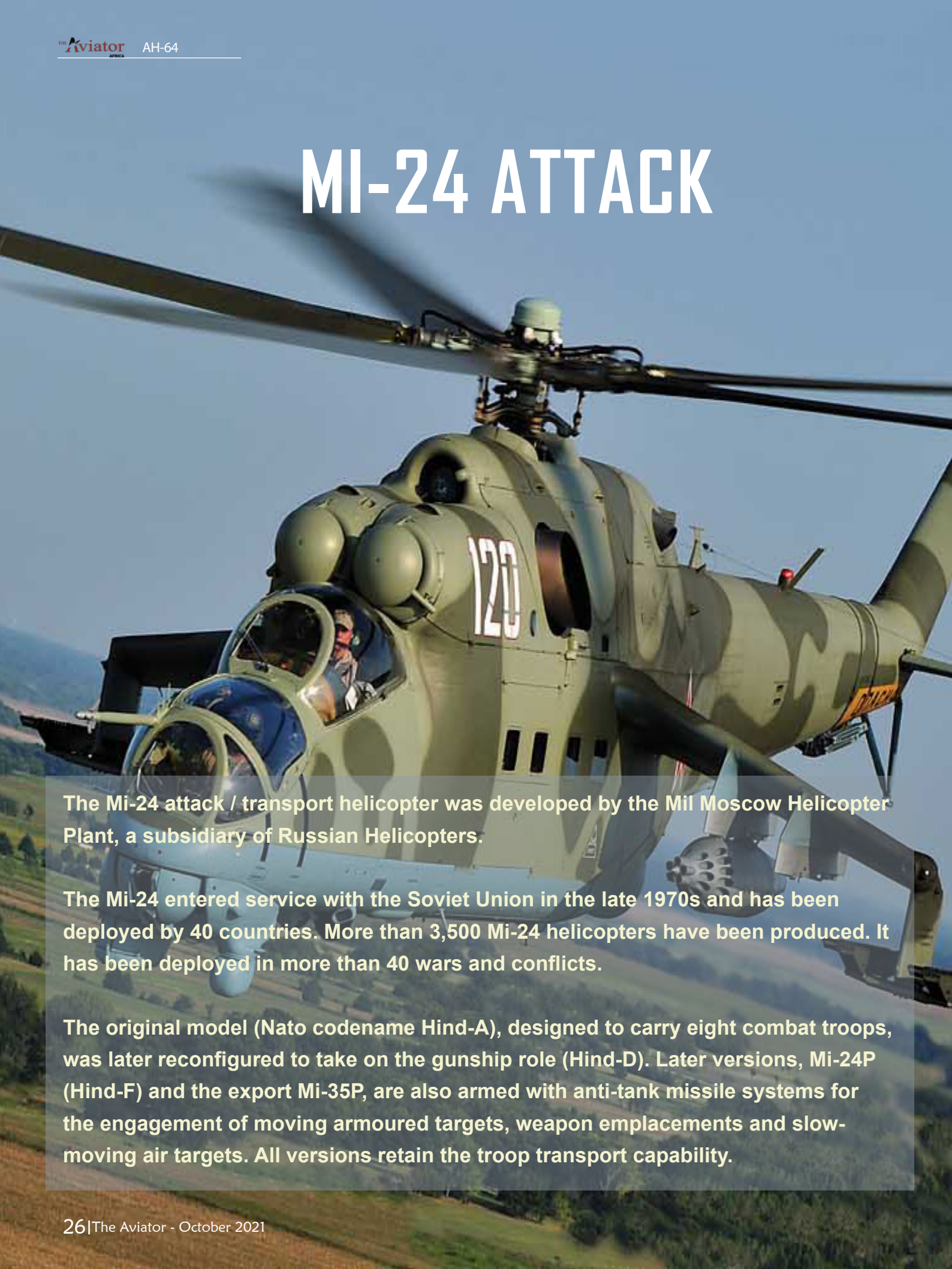
From the AH-64A in 1984 to today's AH-64E Version 6 (v6), one thing about the Apache hasn't changed: its reputation as the world's most advanced and proven attack helicopter.

With more than 1,200 aircraft in operation accumulating over 4 million flight hours, 1.3 million of which have been in combat, the AH-64 Apache represents the backbone of the U.S. Army attack helicopter fleet and a growing

Egypt is one of the African Countries operating the AH-64 Apache and Morocco has 24 on order according to Boeing.

Height	**15.49 ft. (4.72 m)**
Rotor Diameter	**48 ft. (14.63 m)**
Primary Mission Gross Weight	**15,075 lb. (6,838 kg)**
Maximum Operating Weight	**23,000 lb. (10,432 kg)**
Maximum Rate of Climb	**2,800+ ft. (853+ m) per minute**
Maximum Level Flight Speed	**150+ knots (279+ kph)**
Service Ceiling	**20,000 ft. (6,096 m)**
Ordnance 16 HELLFIRE missiles;	**76 2.75-inch rockets and 1,200 30 mm chain gun rounds**
Rate of Fire	**600-650 rounds per minute**

MI-24 ATTACK



The Mi-24 attack / transport helicopter was developed by the Mil Moscow Helicopter Plant, a subsidiary of Russian Helicopters.

The Mi-24 entered service with the Soviet Union in the late 1970s and has been deployed by 40 countries. More than 3,500 Mi-24 helicopters have been produced. It has been deployed in more than 40 wars and conflicts.

The original model (Nato codename Hind-A), designed to carry eight combat troops, was later reconfigured to take on the gunship role (Hind-D). Later versions, Mi-24P (Hind-F) and the export Mi-35P, are also armed with anti-tank missile systems for the engagement of moving armoured targets, weapon emplacements and slow-moving air targets. All versions retain the troop transport capability.

Height	13 ft. 11 in
Rotor Diameter Main Rotor:	17.3 meters
	Tail rotor : 3.9 meters
Primary Mission Gross Weight	11,500 kg
Maximum Operating Weight	11,100 kg
Maximum speed	168 mph/ 335 km/hr
Maximum Level Flight Speed	295 kph
Service Ceiling	4,500 meters
Role	Assault, gunship, antitank

CAA @30 UGANDA

Milestone in Uganda's Aviation industry

Uganda Civil Aviation Authority (UCAA) is celebrating 30 years this year since was established in 1991.

Newly constructed VIP facility walkway to lounge at Entebbe International Airport

By Daniel Bakalangudde

At Uganda Civil Aviation Athority's establishment in 1991, Entebbe International Airport handled 118,000 passengers and the figure rose to 1,980,000 in 2019, but reduced to 565, 541 in 2020 owing to the effect occasioned by the COVID -19 pandemic.

In August 2021, Entebbe International Airport recorded 81,968 international passengers (33,941 arrivals, 37,419 departures and 10,608 transit) compared to 61,328 in July 2021, 75,472 passengers in June, 77,063 in May and 85,054 in April.

In relation to cargo, while the airport recorded 6,600 metric tonnes of cargo in 1991, 64,731 metric tonnes of cargo were recorded in 2019 prior to the outbreak of the COVID – 19 pandemic and 59,720 metric tonnes of cargo in 2020.

In August 2021, Entebbe recorded 5,154 metric tonnes of cargo compared to 5,871 in July, 5148 in June, 5,329 in May, 5,725 in April, 5,977 in March, 4,766 in February and 4,911 metric tonnes in January 2021.

Over the years, UCAA has registered a number of milestones which include;

A VVIP facility was constructed in 2007 facility to facilitate Heads of State.

VIP walkway to the various lounges

Rehabilitation of the VVIP Aircraft Parking Apron 2 and Aircraft Parking Apron 4 –Completed.

Construction of a new 100,000 tonnes Cargo center as part of the overall upgrade and expansion of Entebbe International Airport – Ongoing.

Ongoing construction of a Fuel Hydrant Line & Fuel Firm. The facility is fitted with the most advanced aviation fuel operation equipment and technology. On completion, the storage capacity will be 23 million liters. Initially, capacity will be

enhanced from the current 7.5 million litres to 16.5 million litres.
Strengthening of Runway 17/35 and its associated Taxiways -Completed.
Strengthening and rehabilitation of Runway 12/30 – 98% complete.
Landside expansion of the Passenger Terminal building. Departure area already in use and soon people will have access to the departure road and drop-off passengers by the terminal access.
In terms of automation there was implementation of the Korea International Cooperation Agency (KOICA) project funded by the Republic of Korea with a grant of USD 9.5 million, and counterpart funded by UCAA. This, among others, ensured; Improvement of Air Traffic Management (ATM) Flight Procedures, Supply and Installation of Training Equipment and the Terminal Operations Control Centre.

The International Civil Aviation Organization Council President's Certificate in aviation security following an outstanding performance in the Universal Security Audit Program with a score of 81.8% which was well above the global average of 73%.
UCAA is a pilot entity in the implementation of the new Electronic Government Procurement system (eGP). The Authority went live in November 2020.
Development of a 20-year National Civil Aviation Master Plan in 2014 covering the period up to 2033.

Acquired a new Air Traffic Control Radar in 2007 and upgraded it in 2017 to extend its life span by another 10 years.
Revival of a national airline following advice to Government from UCAA on its importance to air transport.
UCAA retained the ISO 9001:2008 Quality Management Systems Certification in 2021 from the United Kingdom Accreditation Service.
Uganda has to date concluded a total of 47 Bilateral Air Service Agreements with various countries, 25 of which are operational■

DID YOU KNOW!

FIRST FLIGHT IN AFRICA

The first manned, heavier-than-air powered flight in South Africa (some reports state in Africa itself) was made by Albert Kimmerling by taking off from the Nahoon Racecourse in East London on the 28 December 1909.

On 28 December 1909 in a Voisin biplane, Albert Kimmerling a pioneer aviator made the first airplane flight in Africa, taking off at the Nahoon Racetrack at East London, South Africa.

In October 1909 he was employed by Voisin Freres, a French aircraft manufacturing company, and was sent to promote the company in South Africa. He arrived at East London along with Voisin mechanic J. Moller and an aircraft on 18 December 1909 on board the RMS Kenilworth Castle.

Airlink Inaugural flight in pictures at Entebbe International Airport

Airlink the independent southern African Regional airline, added a new route to its expanding intra-Africa with the launch of its Johannesburg- Entebbe service.

The launch was originally scheduled for July 2021 but was postponed due to the Covid19 pandemic that caused both countries; Uganda and South Africa, to temporarily instigate tight travel restrictions.

The Inaugural flight touched down at Entebbe International Airport at 1430hrs EAT September 20, 2021 and was welcomed by the State Minister for Transport, Hon. Fred Byamukama, High Commissioner of South Africa in Uganda HE Ms. L Xingwana and other officials from the Uganda Civil Aviation Authority.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PERFORMANCE

Maximum Range [1] 8,000 nm | 14,816 km

High-Speed Cruise Mach 0.90 | 956 km/h

Long-Range Cruise Mach 0.85 | 904 km/h

Maximum Operating Mach Number (Mmo) Mach 0.925

6,000 ft | 1,829 m

Initial Cruise Altitude 41,000 ft | 12,497 m

Maximum Cruise Altitude 51,000 ft | 15,545 m

MEASUREMENTS

Finished Cabin Height 6 ft 3 in | 1.91 m

Finished Cabin Width 8 ft 2 in | 2.49 m

Cabin Length (excluding baggage) 46 ft 10 in | 14.27 m

Total Interior Length 53 ft 7 in | 16.33 m

Cabin Volume 2,138 cu ft | 60.54 cu m

Baggage Compartment Volume 195 cu ft | 5.52 cu m

Exterior Height 25 ft 6 in | 7.78 m

Exterior Length 99 ft 9 in | 30.40 m

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One on one with Captain Esther Mwesigye Kyokunda

Q&A

In our October Issue we bring you Uganda's very First Female Flight Instructor, Esther Mwesigye Kyokunda aka Captain Theo in a one on one question and answer for our "Women in Aviation" Segment. Get to know more about Captain Theo and her career in the male dominated industry and what she has to say to the NXT-Generation of Women Aviators out there:

Qn: Kindly Introduce yourself. Who is captain Theo? Where are you from?

My name is Esther Mwesigye Kyokunda, 26 yrs of age. I am a pilot, currently a flight instructor to be specific. I am Ugandan from Rweibare, Rutooma, Mbarara District.

Qn: Briefly tell us about your education background.

I did primary from Kabojja Junior School, thereafter O'level from Maryhill High School, A'level from Nabisunsa Girls' School and then did my flight training course from Flight Training College, George, South Africa.

Qn: What inspired you to become a pilot?

Being a pilot had always been a childhood dream. From as far as I can remember, I had always wanted to be a pilot and the passion has always been there. I can also say, growing up and seeing mostly men as pilots in various environments made me curious as to why I was not seeing females, this also inspired me as i wanted to be in their place.

Qn: Take us through a day in your life.

On a typical work day, depending on my schedule for the day, I will go to work (Kajjansi Flying School) and do flying with my students. With my students, we have a pre-flight debrief first to discuss what we shall do in the flight, then the actual flight and the post flight debrief after the flight to recap the flight and also let the student know what we will do in the next fight. Depending on the day, I

can have from 1 to 4 flights a day and I can find myself at work from morning to evening, a 7-5 day, or in the morning only or afternoon only. My schedule is pretty flexible and it is not necessarily fixed.

Qn: How long did it take you to actually fly a plane?

I did my first flight ever on 26th April 2013 and went solo on 13th August 2013.

Qns: Which aircraft did you fly first?
What aircraft do you fly?
What is your experience?

The first aircraft I ever flew was a Cessna 172 registration ZS-MAE. However, I did most of my training on the Cessna 150 and the Cessna 152. I finished my CPL with an Instrument Rating on a Multi Engine (Beechcraft Duchess 76). I currently hold a CPL under UCAA, a CPL with SACAA and a CPL with KCAA.

Qn: What's the most interesting thing about

flying a plane?

Personally, the thing I find most interesting thing about flying is the fact that every flight feels different. Doesn't matter whether I am flying the same exact aircraft, the same route, on the same runway, with the same person, the feeling for each flight is different. The thrill and the excitement is different for every single flight.

Qn: What can you say about the future of African women in aviation?

I can say the future is definitely bright for women in aviation. Every now and then, you will read a story about a female being the first to do this and achieving something. Also, more people are realizing that aviation is an option for their daughters as they see more ladies doing great things in the industry.

Qn: What can you tell a young woman out there who has a dream to become a pilot?

All I can say is keep the dream valid and never let anyone tell you, you cannot do it. Many people will try to discourage you but you have to keep the negativity away and keep pushing for your dream. If myself and other females can be pilots, why not you.
‘

Qn: As female pilot in Africa, do you know of any programs to encourage girls to join piloting? If yes, which ones so you recommend?

I can say the future is definitely bright for women in aviation

I have not personally interacted with them but I know of African section of 99s which is part of the Ninety Nines organisation for Women Pilots that was founded by Emelia Hart in 1929. They have sectors all over the world and the African sector is one of them.
There is also iFly Global founded by Derek Nseko, not necessarily for women, but he is encouraging young people to join the industry.
In Uganda, there is Young Aviators Club Uganda, located in Jinja under Vine Air Flight Academy. They have programs to help initiate the younger generation into the industry.

Qn: What challenges do you face as a female pilot?

Personally, I haven't faced any challenges being a female pilot in the aviation industry in Uganda. The industry is very warm and welcoming to females and is encouraging more females to join the industry.

Qn: What changes would you want to be made in the industry to favour female pilots?

I would want the industry to sensitize the population and show them that being a pilot is a possibility for females. I once did a talk in Bushenyi with Dare to Dream and most of the girls had never seen a female pilot in their lives before and could not believe that I was actually a real person.
I wish we could come together as an industry and educate people that their daughters can be pilots or anything else in the aviation industry.

Qn: Any quotes, words of advice or encouragement you'd like to give to young people in Africa?

Do not compare your progress with other people's progress. We are not living the same lives and we are all living under different circumstances. Pray, be patient, do what you can and watch things fall into place.

Qn:Please share your social media handles where people can follow you and get to know you better

My social media handles, Instagram @that_aviator_ and Twitter @theo_astar.

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The Checkmate:
future-proofing aerial dominance and the African nexus

Russian aircraft manufacturer Sukhoi unveiled the Checkmate fighter jet on July 20 during the MAKS 2021 aviation show, under a marketing and PR frenzy.

By Ekene Lionel

The new fighter jet was launched amid a media frenzy at the MAKS-2021 air show in Moscow, and named "Checkmate," also referred to as the Su-75.

With the stealth jet's specifications, it does appear to possess all of the hallmarks of an impressive next-generation aircraft that can potentially rival the US Air Force's F-22 and F-35 stealth fighters, as well as those currently being developed elsewhere in Europe and Asia.

The Checkmate will compete against the United States' F-35 Lightning II, and China's FC-31 Gyrfalcon both in the international arms market and on the battlefield. Although, the Chinese FC-31 Gyrfalcon is steps ahead of the Checkmate, and has already made significant development progress and even test flights. Judging from the aerodynamic design, the Checkmate features a divertless inlet below the cockpit, a v-shape tail, and internal weapons bays all of which contribute to a small radar signature, and can carry both air-to-air and air-to-ground ordnance, including both infrared- and radar-guided air-to-air missiles, air-to-ground and anti-ship missiles, guided and unguided bombs, and rockets.

At the same time, by contemporary standard, the Checkmate is quite small but with a large diamond-shaped wing which implies that it will be capable of high altitudes flight - upwards of 40,000 feet. Likewise, its split angled tails, a narrower fuselage, and one engine a short takeoff-and-landing fighter jet with a combat radius reported being

1,500 kilometers (932 miles). That is the whole distance a fully armed Checkmate fitted can travel, fight, and then return to base without aerial refueling. This range is about 250 miles further than an F-35 can travel in the same configuration.

Generally, twin engines like on the F-22 or Russia's Su-57 allows for greater speed and reliability, but it will have to sacrifice unit cost, weight, and ease of maintenance.
Other innovative aspects announced by United Aircraft Corporation -an umbrella corporation that includes Mikoyan-Gurevich (MiG) and Sukhoi design bureaus, is that the plane will feature Artificial Intelligence in some capacity, though, the officials didn't specify whether it is for improved targeting or unmanned operations. Like the F-35, the Checkmate will be able to share real-time data with other fighter jets and will also be able to control several unmanned versions in battle.

"For aerial combat, the Checkmate jet will have an active electronically scanned array (AESA) radar able to engage six targets at once, even under conditions of strong electronic interference, says UAC, and the radar will work with the sensors and electronic warfare capabilities of the jet to deliver a unified picture of the battlespace."
Russia's Checkmate stealth fighter jet on paper seems to have good prospects especially with claims the fighter will cost less than half as much as the F-35 Joint Strike Fighter. Stealth aircraft are not, by any standard cheap, the unit price for the Russian aircraft is pegged at $25 to $30 million. That's

UAC says:

"For aerial combat, the Checkmate jet will have an active electronically scanned array (AESA) radar able to engage six targets at once, even under conditions of strong electronic interference"

less than half the flyaway cost of the F-35, which currently costs about $78 million.

If Rostec can keep the cost imbalance between both stealth jets, that will certainly help the Checkmate's prospect in the international defense market.
Sergei Loktionov, an official of United Aircraft Corporation told The Aviator Africa that "the Checkmate is the fifth generation fighter with the very competitive costs of the purchase and use."

Likewise, during the unveiling of the Checkmate stealth aircraft, Rostec CEO Sergey Chemezov, told the media that foreign countries have expressed interest in the aircraft and that Sukhoi parent company United Aircraft Corporation, is targeting Middle Eastern and African countries as potential customers.
"The machine can perform a wide range of tasks and is not whimsical in maintenance," a UAC official said. "Moreover, the aircraft has an open architecture and can be assembled in several configurations, configured per the desires of the customer.
On the day of the unveiling of the Checkmate jet, Deputy Prime Minister Yuri Borisov told reporters that "firstly, the aircraft will be oriented toward African countries, India, and Vietnam." Yuri Borisov noted that there's a market for 300 of the aircraft in these regions.

President Vladimir Putin was personally on hand to inspect the aircraft which United Aerospace Company, says the prototype will fly in 2023, with actual deliveries of combat-ready airplanes to begin in 2026.
Observers widely expect the Checkmate to operate act as a lightweight complement to the heavier twin-engine Sukhoi Su-57 "Felon" however, the stated timeframe for the Checkmate's development schedule, from mockup, prototype, and then to deliveries of combat-ready planes in just 6 years, is very ambitious.

A handful of the heavier twin-engine Sukhoi Su-57 "Felon" stealth aircraft are already flying with the Russian Aerospace forces.
To meet up with such a hurried development timeline, Sukhoi would need to rely heavily on its experience and technologies in developing the Su-57, Su-35S, and also using Artificial Intelligence-assisted production methods and digital engineering techniques similar to how the U.S. Air Force designed and flew its own secret new stealth fighter jet in under a year.
Bottom line is, in the long run, there is a wide gap between unveiling a mockup airframe and mass-producing a stealth fighter for export. Using the F-35 development timeframe as a yardstick, it took nearly twenty years between concept, prototyping, and mass production.

Granted, such an elongated timeline is not a given for all stealth aircraft programs, given China's rapid progress in building and fielding two aircraft in quite a short time. Nevertheless, complications could emerge in the airframe, avionics, or even in the software needed to fly the aircraft.
On the economic side of things, the general assumption is that Russia will rely heavily on financing from foreign countries to make the Checkmate viable, as Russia can barely afford to finance the Su-57 program.
Completing the development and getting the Checkmate into series production, which could potentially end up costing tens of billions of dollars, funds which are in short supply.

Miguel Miranda, defense author, researcher, and director of the 21st Century Asian Arms Race, a defense website that focuses on military acquisitions echoes this same opinion, noting that "stealth fighter programs are usually problematic, and long gaps between planning and funding are normal. This certainly happened in the 1990s with the F-35 Lightning II and is now apparent in the stealth fighter programs of India and Japan and Turkey.
Even China's aviation sector spends decades accumulating the necessary research to assemble a genuine fifth-generation fighter. So the Checkmate is indeed promising but doesn't

expect overnight success."
"When you consider the unproven Checkmate and its potential users outside Russia the choices do appear illusory. The F-35 Lightning II, specifically the F-35A and F-35B, are poised to enjoy strong sales to US allies this decade with Japan and the UAE being the potentially largest operators with $40 billion-plus in potential sales."

Checkmate and the African Nexus

Across the globe, resurgent activities the return of great power military competition, and Africa is not exempted.
Foreign national powers such as France, China, Turkey, and Russia compete for regional hegemony in the continent, while rogue regimes like Iran and sub-states threats like in Libya, Mozambique, and the Sahel continue to create regional instability. And lastly, threats from designated Violent Extremist Organizations (VEOs).

More importantly, force-on-force military operation for domination between nation-states or coalitions and alliances of nation-states in Africa continues to worry experts most especially the recent Egypt -Sudan -Ethiopian dispute over the Grand Renaissance Dam project, and the growing Algerian, Moroccan, and French tension over the ownership of Sahrawi.
In today's world, very few militaries have the resources and financial wherewithal to position strategic assets to meet tomorrow's threats. This declaration is a truism for African forces especially those grappling with insecurities below the threshold of outright war.
Currently, except for a handful, the competitive edge of most African countries has been eroded in every domain of warfare. Adapting to evolving technology will certainly remedy this deficiency, and provide a decisive military superiority to African forces.

Global advances in aerial warfare, electronic warfare, and artificial intelligence make it necessary for the African forces to develop capabilities to counter and retaliate against such measures including an increase in

the development of naval capability, modernization of the land, and aerial offensive posture and improve both cyber and space capabilities.

African militaries to be prepared for these contingencies and work to at least match these military capabilities. To make this possible, they would need to focus their efforts on capability development and prioritize funding for defense, research and development.
The unveiling of the Checkmate fighter jet, and the fact that it is being pitched to African, Asian, Latin American, and other air forces with lower purchasing power is quite significant for several reasons.

Most African air forces, except for a privileged few operate capital aerial assets that are grossly limited in air defense capability. These forces are mostly found in sub-Saharan Africa combat aircraft in meager numbers to make any significant difference in current or future near-peer competition.
Even though we're in the age of counter-terrorism and counter-insurgency where drones, helicopters, and light attack aircraft play the most important part, and higher-end air superiority aircraft having no part in this type of mission.
Echoing this sentiment, Jimi Isafiade a Nigerian-based defense observer told The Aviator Africa that "the aircraft [Checkmate] is an overkill in the west African subregion."
Jimi noted that for the Nigerian Air Force, "It is some Gulf of Guinea threats that it is relevant for... Aside from the capability to go into Chad, Mali, Niger, or Cameroon without permission to interdict terrorists and destroy their camps."

It is indeed correct to say that African air forces do not need a super-capable fighter fleet due to the perceived threat level intelligence as well as financial reasons.
Miguel Miranda explained that "as for the Checkmate? It's still under development and no foreign sales are guaranteed. I'm sure you're aware African air forces have modest budgets and frankly, with the persistent insurgencies we are seeing along the Sahel and Central Africa, cost-effective air support is more valuable such as the Mi-24 or Mi-35 attack helicopter."

However, this unidirectional school of thought fails to put into consideration the possibility of a future peer and near-peer competition in an ever-increasing uncertain world where various national powers vie for influence.
Looking at the previous combat aircraft procurement trend in sub-Saharan Africa, it is unlikely that any air force in the region would consider acquiring the next-generation stealth aircraft being marketed by Russia. But that doesn't seem to be the case for North African countries like regional hegemon Egypt and middle-power heavy-spender Algeria with big budgets.
As it happens, the new Checkmate jet appears oriented toward the foreign export market, and the prospective clients aside from the Russian air force are India, Vietnam, and African countries.

Egypt, Africa's most militarily powerful country shares a common border with Israel, which remains the only country in the Middle East to fly F-35s along with highly advanced versions of the F-15 and F-16.
Turkey, a regional rival of Egypt plans to build and field its indigenous TAI TF-X combat fighter aircraft being developed by Turkish Aerospace Industries (TAI) to replace the existing fleet of F-16 fighter jets in service with the Turkish Air Force.

Egypt and Turkey both have the F-16s as the mainstay of their respective air force, with Ankara flying 270 F-16s, and Egypt about 210.
The United States imposed Countering America's Adversaries through Sanctions Act (CAATSA) on the Turkish arms industry in December 2020 in response to the purchase of the Russian-built S-400. Although these did little to dampen Turkey, Ankara is forging ahead with the ambitious project to produce a home-

grown next-generation fighter jet.
Similarly, the United States has routinely withheld funds from reaching Egypt due to alleged human rights violations. In the most recent, the Biden administration in September blocked $130 million worth of military aid to Egypt until Cairo takes specific steps related to human rights.

Egypt is always under threat of US sanctions, which is straining relations between both countries for its recent acquisition of Russian fighter jets namely the next-generation Sukhoi Su-35, and the Mikoyan MiG-25M/M2. Cairo consistently follows a policy of procuring military equipment from diverse sources.

Thus, Egypt and Turkey are, therefore, left with limited options when it comes to the modernization of their fighter jet fleet to safeguard their future aerial warfare capacity. Miguel Miranda, a defense author, and researcher, however, argued that unless "the Russians can complete its flight testing in five years and secure funds from a client, perhaps the Checkmate will be ready after 2025-2026."
"I don't see the need for Egypt to acquire a stealth fighter as a contingency vs. Israel's squadrons of F-35 Adir. Egypt's air force has the Rafale and the Su-3 -both are superb multirole fighters. Furthermore, Egypt and Israel have had a long-term peace treaty in place since 1979 so this dampens any risk of an arms race.

However, Egypt must be wary of Turkey whose geopolitical goals are beginning to threaten Egypt's sense of regional security. It's important to point out Turkey has stealth ambitions of its own and is developing a twin-engine prototype called TAI-FX. If Egypt anticipates a difficult relationship with Turkey in the future then a similar twin-engine fighter is in the cards. Does this make the Su-57 viable? Perhaps."
In Africa, Algeria and Egypt are two of Russia's major arms importers who would potentially be interested in the Checkmate. Both countries have recently bought significant arms from Russia in the past few years.

Just last year, the Algerian Air Force began taking delivery of its first Russian-made MiG-29M/M2 multirole combat in a deal that is expected to increase the size of the country's combat fleet and replace legacy systems operated by the 193rd fighter squadron.
Algeria ordered 14 MiG-29M/M2 jets at the MAKS 2019 air show, comprising of new single-seat MiG-29M and dual

AVIATION JOKES

Here are some of our favorite pilot joke lines over the time.

Q: How do you know there's a pilot in the room?
A: He or she will tell you.

Q: Why was the little airplane sent to his hangar?
A: Bad altitude.

Q: Who built an airplane that couldn't fly?
A: The Wrong brothers.

Q: What do airplane builders say about their job?
A: It's riveting.

Q: What happens to a bad airplane joke?
A: It never lands.

Q: What's the difference between God and a pilot?
A: God doesn't think he's a pilot…

Kid: "I want to be a pilot when I grow up!"
Parent: "You can't do both!"

Pilot: "5Y-XYZ, Roger."
Passenger: "Oh, that's nice you know him."

Grandchild: "I want to die in my sleep peacefully like my grandfather, not screaming in terror like his passengers."

seat MiG-29M2. The contract will see Algeria acquire an additional 16 Su-30MKA and 14 MiG-29M/M2 fighters from Russia in a contract worth nearly $2 billion excluding weapons and training. The MiG-29M is the most capable variant of its class and is also operated by the Egyptian Air Force.
On the other hand, Egypt has taken delivery of all its MiG-29M/M2 fighter jets it ordered from Russia and has started receiving its two dozen Su-35 fighters.

Five Su-35s were delivered to Egypt in 2020, from an order of 24 Su-35S fighters signed in 2018/19, with delivery to be completed by 2023. Twelve Egyptian Air Force (EAF) Su-35s were spotted in satellite imagery outside the Komsomolsk-on-Amur plant ahead of delivery. Egypt signed a $2 billion deal for the supply of around two dozen Russian Sukhoi Su-35 aircraft in March 2018, despite the threat of US sanctions, straining relations between Cairo and Washington. Thus, making it the second country after China to acquire the Su-35, the most advanced 4th generation in the Russian inventory.
Algeria has been identified as a possible candidate for Russia's first fully developed stealth fighter jet, the Su-57E "Felon" stealth aircraft.
CEO of Russia's Rosoboronexport state arms seller Alexander Mikheyev stated at the MAKS 2021 international aerospace show that "Rosoboronexport is currently considering the requests for the fifth-generation Su-57E fighter from five countries of the Asia-Pacific region, Africa and Europe."
Although the Russian official declined to name the particular customer, he did say that countries of the Asia-Pacific region, Africa and Europe have shown interest in the fifth-generation Sukhoi Su-57 stealth fighter jet.

Joseph P Chacko - Author of Foxtrot to Arihant: The story of the Indian Navy's Submarine Arm, Co-Author - Warring Navies -India and Pakistan. Publisher Frontier India. Analyst - Military and International affairs told The Aviator Africa that the "Su-75 Checkmate is a product borne out of the Algerian requirement for a sophisticated fighter after Israel divulged its plans to acquire Lockheed Martin F-35.
Russia realized that it had nothing to offer its traditional arms market operating with the MiG type light fighters to counter potential Israeli acquisition.

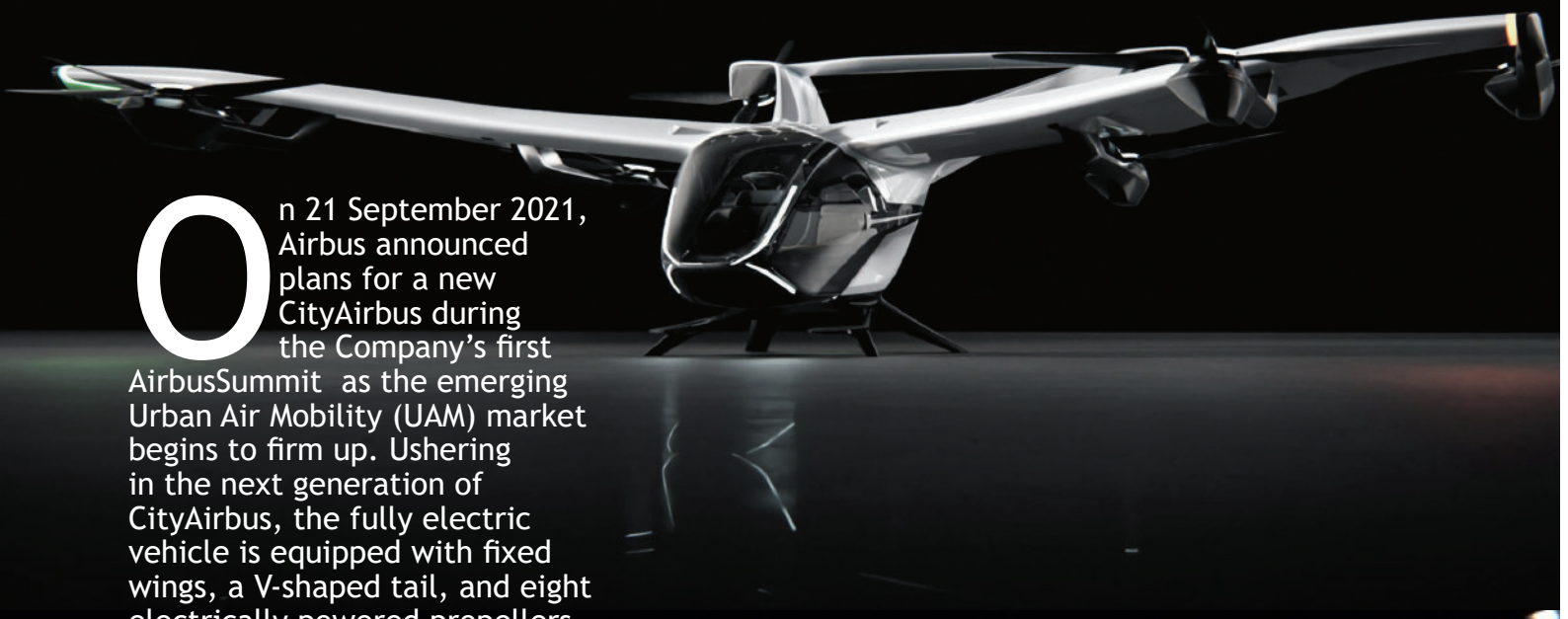
In 2019, Algeria and Russia were reported to have inked a deal for 14 units of stealth fighters which everyone assumed was for the Su-57 fifth Generation Fighter. In 2020, a mural on the wall of the Ministry of Defense of Algeria building depicted a fifth-generation fighter. Since Algeria was not satisfied with the MiG-29M/M2, Russia had offered the country the Su-35 which is not an exact fit for the Mig-29 type requirement. Unlike highly publicized Egyptian sales in past, Algeria has been a quiet buyer of the latest Russian planes for a long time.

Algeria was the first to purchase the Mig-25 from the USSR. Algeria is the largest purchaser of Russian defense wares in Africa and is the second-largest customer for Russia after India. Though not officially acknowledged, Algeria plans to acquire 14 units of Su 57 initially to replace the Mig-25 Foxbats which have now aged. There is no indication yet but Egypt may follow Algeria in purchasing a stealth fighter, not necessarily a Su-75, as the country is a frontline African state against Israel."

By Tyson Tommy Katatumba

CityAirbus prototype first flight revealed

A safe, sustainable, and fully integrated Urban Air Mobility solution



On 21 September 2021, Airbus announced plans for a new CityAirbus during the Company's first AirbusSummit as the emerging Urban Air Mobility (UAM) market begins to firm up. Ushering in the next generation of CityAirbus, the fully electric vehicle is equipped with fixed wings, a V-shaped tail, and eight electrically powered propellers as part of its uniquely designed distributed propulsion system.

Airbus said during the event that it is designed to carry up to four passengers in a zero emissions flight in multiple applications. "We are on a quest to co-create an entirely new market that sustainably integrates urban air mobility into the cities while addressing environmental and social concerns.

Airbus is convinced that the real challenges are as much about urban integration, public acceptance, and automated air traffic management, as about vehicle technology and business models. We build on all of the capabilities to deliver a safe, sustainable, and fully integrated service to society," said Bruno Even, Airbus Helicopters CEO. Developed to fly with a 80 km range and to reach a cruise speed of120 km/h, the CityAirbus is perfectly suited for operations in major cities for a variety of missions.
Sound levels are a key factor for an urban mission; Airbus' extensive expertise in noise-friendly designs is driving CityAirbus' sound levels below 65 dB(A) during fly-over and below 70 dB(A) during landing. It is optimized for hover and cruise efficiency, while not requiring moving surfaces or tilting parts during transition.

The CityAirbus NextGen meets the highest certification standards (EASA SC-VTOL Enhanced Category). Designed with simplicity in mind, CityAirbus NextGen will offer best-in-class economic performance in operations and support. Airbus is benefitting from years of dedicated research, innovation, two electric Vertical Takeoff and Landing (eVTOL) demonstrators, and development on sound technology across its portfolio of products, as well as decades of experience in certifying aircraft. The Vahana and CityAirbus demonstrators have jointly conducted 242 flight and ground tests and have flown around 1,000 km in total. Furthermore, Airbus has used extensive subscale flight testing and wind tunnel campaigns and has leveraged its computing and modelling power.

CityAirbus NextGen is in a detailed design phase right now and the prototype's first flight is planned for 2023.
"We have learned a lot from the test campaigns with our two demonstrators, CityAirbus and Vahana", said Even. "The CityAirbus NextGen combines the best from both worlds with the new architecture striking the right balance between hover and forward flight The prototype is paving the way for certification expected around 2025●"

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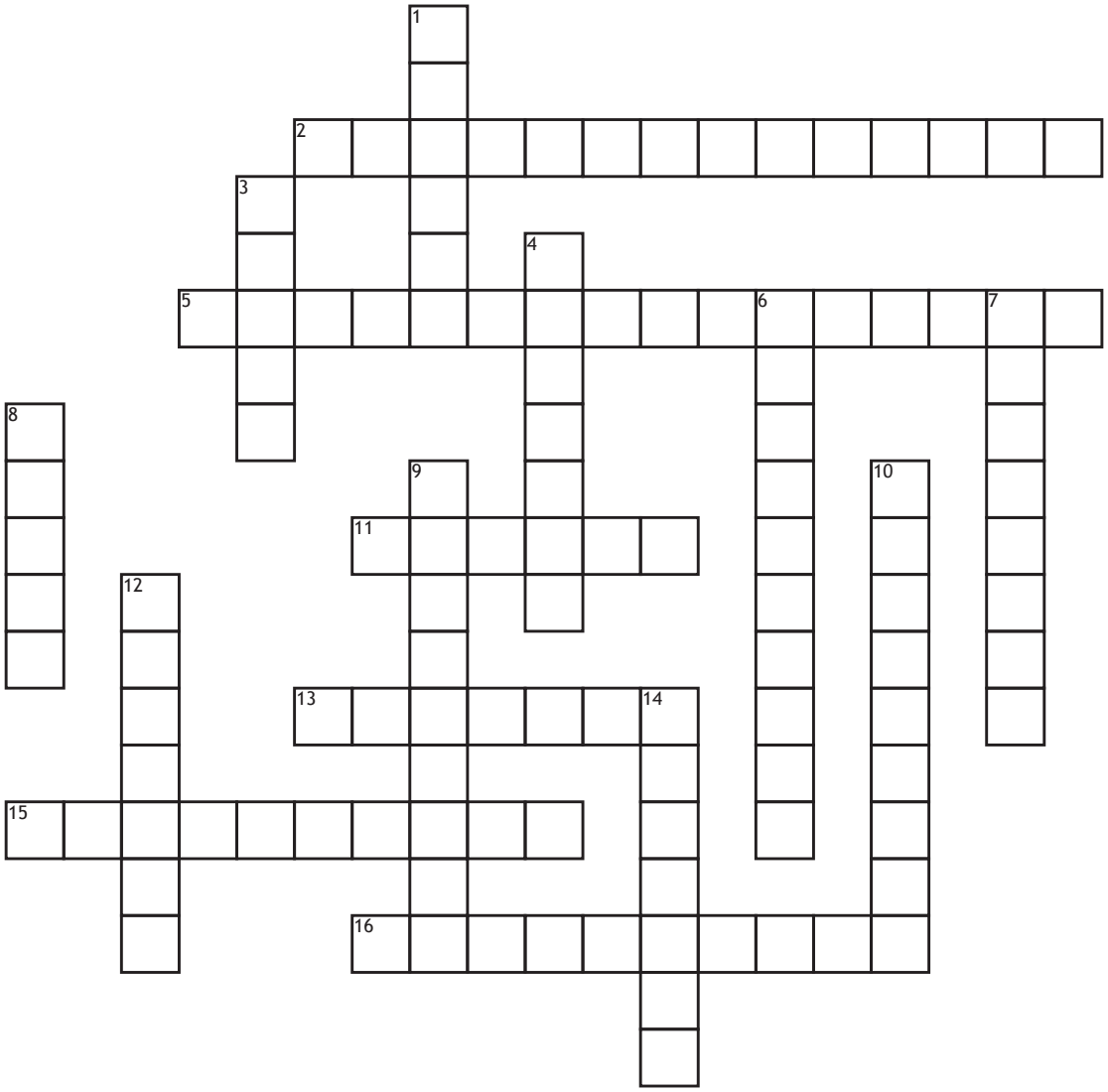
Aviation Vocabulary



Across

2. two brothers that made first flight in a powered aircraft

5. between or among continents

11. protect from danger, risk, or injury

13. compartment for the pilot in the aircraft

15. one piece of clothing worn by military pilots

16. lift from one or morsels of revolving overhead rotors

Down

1. an aircraft which is not powered but instead glides on air

3. horizontal structures on both sides of the plane supporting it in the air

4. protect eyes from dust, glare, water, etc.

6. process of finding ones location and planning a route

7. powered flying vehicle, fixed wings, weighs more than air it displaces

8. escape from aircraft by being explosively propelled out

9. material that opens up to slow landing

10. revolving shaft with blades

12. coming or bringing to land

14. become airborne

Name: _____

Aviation Word Search

U A C R N P O A T T I T U D E I N D I C A T O R
R W Y T I H R O T A C I D N I G N I D A E H W P
O E U T D B A I R P L A N E A L T I M E T E R M
T K C D Z J T Y W P R E T E M O H C A T A X H F
A H T K R X G G J D D H R U D D E R P E D A L S
C N T A M M C O N T R O L S T I C K Y S I Y P L
I B Q G V I S I B I L I T Y P B E Y U R I D E I
D P T E C A D V Y X R W A Y E F E N S U H N L S
N N D E P J Y M Y E V P R O D L G P S N A N C T
I T T C N P W K L R N U R J T Q E A R P J S D A
D F L A R E G L Y D O D M T J E G Q T Y N D N R
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E Z F A N P K Y O A K R N I S Q E N F S V U U S
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L C P E Z E M T D N I A R R T H J G F V M X W T
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C N D E Y D I I A H M S V O Y D I G O Z Q N W H
I A L V M M Y T F T N A Z H W C A X J B H P K H
T B J A D R O D I I R R L C T T K H Q W Z N A Y
R K T T W R P I F G M O B I E C F R U Z A Y C M
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altimeter
attitude indicator
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drag
elevators
engine
flare
fly
friction
fuselage
gravity
heading indicator
instrument panel
knots
lift
navigate
pitch
propeller
rudder pedals
stall
start switch
tachometer
throttle
thrust
vertical speed indicator
visibility
wing
yaw

AVIATION

- Passenger and Cargo Air Charter Flights
- Aviation Fueling
- Flight support services e.g fueling, handling, aircraft permits, meet & greet e.t.c
- Co-ordinate Aviation Training
- GSA for air operators

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- Hotel Reservations
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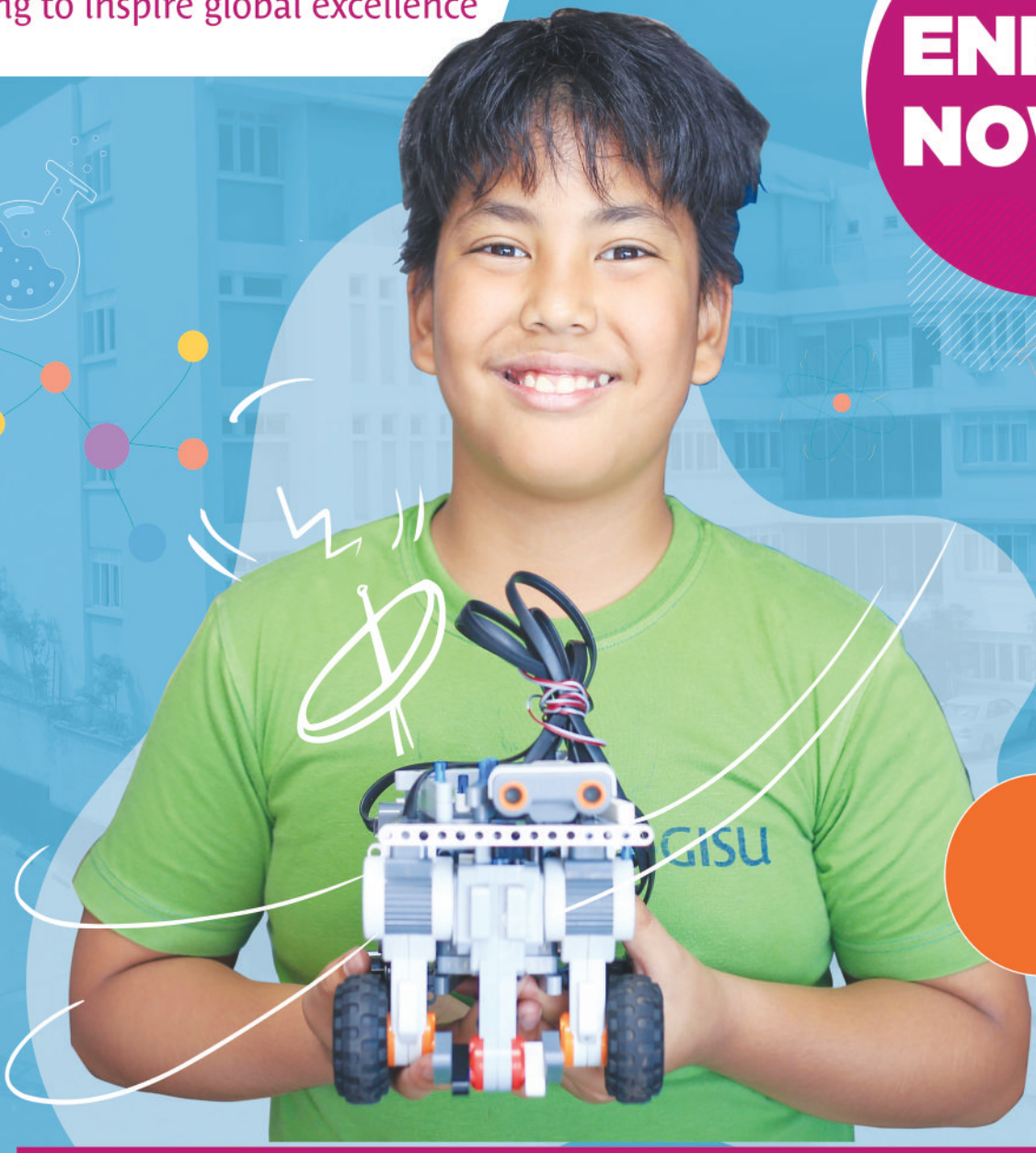

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