

FUTURE AIR FORCE CONFERENCE

15 - 17 SEPTEMBER 2024

FUTURE AIR FORCE



FINAL REPORT 2024

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CZECH AIR FORCE COMMAND



FUTURE FORCES FORUM



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INTRODUCTORY WORDS OF THE COMMANDER OF THE CZECH AIR FORCE



Major General Petr Čepelka
Commander of the Czech Air Force

As we approach the conclusion of the Future Air Force Conference 2024, I would like to take this opportunity to reflect on some of the key themes and insights that have emerged over the past few days, particularly with regard to the crucial topic of military pilot training.

Throughout our discussions, it has become abundantly clear that the effectiveness of our air forces relies not only on cutting-edge technology and advanced systems but also on the quality of our personnel—especially our pilots. As we enter a new era of military aviation, characterized by complexity and rapid technological advancement, we must prioritize the evolution of our training programs to prepare our pilots for the challenges of tomorrow.

The conference highlighted various innovative training techniques, including the integration of virtual reality, simulation, and artificial intelligence into pilot training curricula. These technologies offer unprecedented opportunities to enhance skills, decision-making, and situational awareness in our aviators. As we have learned, adaptability in training methodologies is essential to cultivating a new generation of pilots who are not only proficient in flying but also adept at operating sophisticated systems and engaging in multi-domain operations.

Moreover, fostering a culture of continuous learning and resilience among our pilots was emphasized as a cornerstone of effective military training. We must encourage our personnel to embrace new learning pathways and remain agile in their approach, ensuring they are well-prepared to respond to evolving threats and operational demands.

As we move forward, I urge all of you to take the insights gained from this conference back to your respective organizations. Collaborating on shared training initiatives, investing in cutting-edge technologies, and sharing best practices will be vital to maintaining our air forces' strategic advantage on the global stage.

Last year at this venue, I expressed my hope that the Future Air Force Conference could become a tradition. Today I can confidently say that it is slowly but surely becoming so, and I will do my best to continue this tradition in the future.

Thank you all for your participation, enthusiasm, and commitment to advancing military aviation. Together, we can pave the way for a new era of excellence in pilot training, ultimately ensuring the safety and effectiveness of our air operations for years to come.

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EXECUTIVE SUMMARY

AIM OF THE CONFERENCE

The first large-scale use of aircraft for military purposes dates back to the First World War. Although it is the youngest branch of the military, it is safe to say that aviation has played a decisive role in determining the outcomes of armed conflicts in the past and will continue to do so in an increasingly complex and unpredictable security environment.

The level and quality of an Air Force are built on three fundamental pillars: well-trained personnel, modern equipment, and leadership. The Future Air Conference is a prestigious event that brings together esteemed professionals, industry leaders, and passionate individuals dedicated to advancing flight training in military air forces. This conference serves as a platform for exploring the latest innovations, sharing insights, and fostering collaborations that will shape the future of military flight training.

INTENDED AUDIENCE

The organizers aim to bring together experts from around the world, including military personnel, defense industry representatives, and academics. We believe that the Future Air Force Conference is an ideal platform for exchanging experiences and establishing new, beneficial relationships for all participants.

CONFERENCE ORGANIZATION

The conference is traditionally planned as a two-day event and divided into three sessions. This year, we extended the programme with an additional day, offering delegates the chance to visit the opening day of the Future Forces Forum. The conference also includes an informal gathering of conference participants during the opening Icebreaker and an evening Air Force party.

1st Block – Users' Perspective

The first block is devoted to the challenges of training Air Force personnel. Each Air Force has its own organizational structure, reflecting its size and tasks it performs. The training system for pilots and other aviation specialists is tailored accordingly. This first and most important block addresses the main areas of military pilot training and includes the following from the user's perspective:

- Exchange of experience and best practices: Countries share their knowledge and experience to improve the quality and efficiency of training.
- Joint training programmes: Military units often conduct joint training missions and exercises to enhance interoperability and cooperation between allies.
- Use of simulation and training technologies: Simulators and training technologies allow pilots to train in a safe and controlled environment, reducing the risks and costs associated with training.
- Standardisation of training procedures: Standardising training standards and procedures, particularly within alliances such as NATO, ensures that pilots from different countries can work together effectively.
- Developing and sharing training materials: Countries work together to develop training materials that cover the latest technologies and tactics.
- International exchange programmes providing training for foreign pilots: Opening training centres to foreign pilots can help spread costs while increasing the number of pilots trained.
- International training centres: Some countries host international training centres that provide training for pilots from different countries.

2nd Block – Industry Engagement

Industry undoubtedly plays an important role in developing Air Force capabilities. Technological advancements drive the development not only of new platforms (currently fifth and especially sixth generation aircraft) but also command and control systems, as well as planning and development of new training platforms and systems. For these reasons, the second block is devoted to the defense industry's contribution to Air Force development.

The defense industry can enhance the effectiveness of military pilot flight training in several ways:

- Development and production of trainer aircraft: The defense industry can develop and produce specialized trainer aircraft essential for the initial stages of pilot training.
- Simulation technology: Investments in advanced simulators and virtual reality allows pilots to train in a safe environment, reducing risks and costs associated with real-world flying.
- Upgrading training facilities: The defense industry can provide the latest technology and infrastructure for training centres, which improves the quality and efficiency of training.
- Cooperation on international projects: Involvement in projects such as NATO Flight Training Europe (NFTE) can expand the number of trained pilots and increases the efficiency of flight training.
- Research and development support: The defense industry can fund research and development for new technologies and training methodologies that can improve overall pilot readiness.
- Ensuring interoperability: Unifying training procedures and standards across different countries and aircraft types helps ensure that pilots are able to work together effectively in an international environment.
- Investment in personnel and infrastructure: Enhancing the skills of instructors and investing in training infrastructure contribute to higher efficiency and quality of training.

These approaches help ensure that military pilots are well-prepared for current and future challenges in the combat environment.

3rd Block – Current Issues and Short/Midterm Challenges

The third session, which can be referred to as the "libero" in football terms, focuses on the most pressing issues related to the use of airpower in the near and midterm future, or sharing lessons learned from current conflicts. This year's thematic focus, therefore, was on the use of unmanned aerial vehicles and everything related to this new platform, from pilot selection and training to mission planning issues.

The conference is organized by a committee of experts with extensive experience in the field of Air Force capability development.

Key Highlights of the 2024 Future Air Force Conference:

Engaging Discussions: Participants had the opportunity to engage in enlightening discussions and gain valuable knowledge from renowned experts and military Air Force leaders.

Cutting-Edge Technologies: Showcased the latest technologies revolutionizing flight training practices, as presented by top subject matter expert of aviation industry.

Collaborative Efforts: Attendees fostered collaborations aimed at elevating the standards of flight training worldwide.

Key Takeaways

Here are the main takeaways from the 2024 Future Air Force Conference:

Emerging Disruptive Technology to Make Flight Training More Efficient and Less Costly

- The conference highlighted several cutting-edge technologies that are revolutionizing flight training practices. These technologies aim to enhance efficiency and reduce costs associated with pilot training.

International Cooperation and Industry Engagement in Flight Training

- International cooperation and effective industry engagement were emphasized as key factors in making pilot training more effective and less costly. Collaborative efforts among different countries were discussed, showcasing the benefits of shared resources and knowledge.

Lessons Learned from International Cooperation

- Participants shared valuable lessons learned from international cooperation in flight training. These insights are crucial for improving future collaborations and achieving better outcomes in pilot training programs.

Unmanned Aerial Vehicle (UAV) Pilot Training

- The conference also addressed the training and mission planning for UAV pilots, including discussions on the latest advancements in UAV technology and how they can be integrated into pilot training programmes to enhance mission effectiveness.



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More information



PARTICIPANTS OF THE FAF 2024

We are very pleased to see that the number of participants in the Future Air Force Conference continues to grow. We truly appreciate it and hope to keep this trend going for several more years. A total of 128 participants registered this year, representing users, the defense industry, academia, and the press. Looking at the participation from a national perspective, we are very proud to say that representatives from all continents took part. In particular, we greatly appreciate the participation of those who crossed several time zones to attend, such as representatives of North America, Canada, Australia, Indonesia, the Philippines, and Africa. Their participation is a great commitment to us for the future. This year, 31 delegations from 31 nations and 3 international organizations participated. Of the 128 delegates, 6 were Air Force Commanders, 27 were Generals.

National Delegations



GEN *** Afonso Carlos **Neto**
Secretary of State for Defence
Angola



GEN *** Virginio Antonio da **Cunha Pinto**
Air Force Commander
Angola



GC IIII Michael **Sleeman**
Director Air and Space Power Centre
Australia



COL IIII Georg **Unzeitig**
SO Fighter Aircraft Systems
Austria



GEN **** Mauricio Augusto Silveira **de Medeiros**
DG Science and Technology
Brazil



BG * John **Alexander**
Commander 2 Air Division
Canada



MG ** Franck Ngama **Lebe**
Chief of Air Staff
Dem. Rep. Congo



MG ** Petr **Čepelka**
Air Force Commander
Czech Republic



LTG *** Yilma Merdasa **Gnapa**
Air Force Commander
Ethiopia



COL IIII Gilles **Revel**
Assistant Director Schools & Training
France



BG * Alexis **Nguema**
Deputy Chief of Air Staff
Gabon



LTC III Klaus Peter **Bernewasser**
Head of UAV Department
Germany



BG * Nikolais **Tsivourakis**
Branch Director
Greece



ACDR * Abdul **Harris**
Sector Air Ops Commander
Indonesia



COL IIII Giovanni Maria **Pasquualucci**
Training Branch Deputy Chief
Italy



LTC III Toshihiro **Ogata**
Deputy Defence Attache
Japan



COL IIII Emad Husni Younes **Jaafar**
Airlift Wing Commander
Jordan



LTC III Andrius **Stuknys**
Head Engineering Service
Lithuania



COL IIII Mohammed Sekou **Sylla**
Deputy Chief of Air Staff
Mali



AVM ** Precious Nnamdi **Amadi**
Defence HQ Director of Operations
Nigeria



ACDR * Said **al-Abdali**
Base Commander
Oman



BG * Lloyd Salcedo **Cabacungan**
Air Force Internal Auditor
Philippines



BG ★ Carlos **Lourenco**
Director of Training
Portugal



BG ★ El Hadji **Niang**
Chief of Air Staff
Senegal



Prof. Peter **Korba**
Dean Air Faculty TUKE
Slovakia



BG ★ William Daniel **Mwaka-longe**
Base Commander
Tanzania



BG ★ David **Gonyi**
Air Force Chief of Staff
Uganda



COL IIII Ikuret Emeru **Moses**
Director Air Defence
Uganda



LTC III Keenan **Boes**
Deputy Division Chief
United States



SRCOL II-II Chung Nam **Le**
Deputy Chief of Staff
Vietnam



BG ★ Mwila Vincent **Chipimo**
Director Army Intelligence
Zambia

Partners

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GENAR ★★★★★ Thierry
Caspar-Lambie-Fille (rtd.)
Executive Vicepresident (FRA)
Babcock Aviation

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AMSL ★★★ Ian **Gale** (rtd.)
Chief Growth Officer (UK)
Draken Europe

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AMSL ★★★ Ian Christopher **Dyer** (rtd.)
Vicepresident Business Development
(UK)
Draken Europe

AVM ★★ Charles Akpochai **Ohwo** (rtd.)
Managing Director (NGA)
Air Operations Consult

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MG ★★ Bohuslav **Dvořák** (rtd.)
Conference Chairman (CZ)
Future Air Force

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BG ★ Albert **Safar** (rtd.)
Consultant (HUN)
Aero Vodochody

**FUTURE
AIR
FORCE**

BG ★ Libor **Štefánik** (rtd.)
Conference Moderator (CZ)
Future Air Force

LOM PRAHA

BG ★ Petr **Lanči** (rtd.)
LOM PRAHA CEO Advisor (CZ)
Flying Training Centre

DRAKEN

Nicholas Charles **Anderson**
Chief Executive Officer (UK)
Draken Europe

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John Bernard „J.R.“ **McDonald**
Vicepresident F-35 Business
Development (USA)
Lockheed Martin

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PARTNERS

DIAMOND PARTNER:

The logo for Aero, featuring the word "Aero" in a large, blue, cursive script font.

GENERAL PARTNERS:

The logo for Babcock, with the word "babcock" in a blue, lowercase, sans-serif font.The logo for Comsuisse, with "com" in brown and "suisse" in red, in a lowercase, sans-serif font.The logo for Lockheed Martin, with "LOCKHEED MARTIN" in blue, uppercase, sans-serif font, followed by a stylized star symbol.

MAIN PARTNERS:

The logo for LOM PRAHA, with "LOM" in blue, uppercase, sans-serif font, followed by a stylized blue and white graphic element and the word "PRAHA" in blue, uppercase, sans-serif font.The logo for Omnipol, featuring the word "OMNIPOL" in blue, uppercase, sans-serif font, enclosed within a blue circular graphic element.The logo for Draken, with the word "DRAKEN" in a bold, black, uppercase, sans-serif font.

PARTNERS:

The logo for Air Team, with "AIR TEAM" in blue, uppercase, sans-serif font, and a stylized red and blue wing graphic above the text.The logo for CLS, with "CLS" in blue, uppercase, sans-serif font, and a stylized blue and white graphic element above the text.The logo for Airtech, with "Airtech" in blue, uppercase, sans-serif font, and "PROFESSIONAL DRONES" in a smaller, blue, uppercase, sans-serif font below it.The logo for DSA Aviation Company, with "DSA" in blue, uppercase, sans-serif font, and "AVIATION COMPANY" in a smaller, blue, uppercase, sans-serif font to its right.The logo for HTP Ostrava CZ Helicopter Training Point, featuring a stylized yellow and blue wing graphic above the text "HTP Ostrava CZ" and "HELICOPTER TRAINING POINT" in blue, uppercase, sans-serif font.The logo for PBS Group, featuring a blue circular graphic element with a white "B" inside, followed by "PBS GROUP" in blue, uppercase, sans-serif font.The logo for vrg. vrgineers, featuring a purple circular graphic element with "vrg." inside, followed by "vrgineers" in purple, lowercase, sans-serif font.The logo for Eldis Radar Systems, with "ELDIS" in blue, uppercase, sans-serif font, and "RADAR SYSTEMS" in a smaller, blue, uppercase, sans-serif font below it, accompanied by a blue curved line graphic.The logo for Quantum Systems, with "QUANTUM SYSTEMS" in blue, uppercase, sans-serif font.The logo for Primoco UAV, with "PRIMOCO UAV" in black, uppercase, sans-serif font.

MEDIA PARTNERS:

The logo for CZ Defence, with "CZ" in a large, white, uppercase, sans-serif font inside a black square, and "DEFENCE" in a smaller, black, uppercase, sans-serif font below it, with "CZECH ARMY AND DEFENCE MAGAZINE" in a very small font at the bottom.The logo for ACE Aerospace Central Europe, with "ACE" in a large, bold, black, uppercase, sans-serif font, and "AEROSPACE CENTRAL EUROPE" in a smaller, black, uppercase, sans-serif font to its right.

*We extend our sincere gratitude to all participants, partners, and organizers for their invaluable contributions.
Together, we will soar to new heights of achievement and innovation.*

FUTURE AIR FORCE



TUESDAY, OCTOBER 15

INNOVATIONS IN MILITARY FLIGHT TRAINING

All Air Forces are preparing to overhaul their fighter pilot training enterprise. The system is not broken, but new technology present opportunities to develop even better fighter pilots in less time and potentially at a lower cost. Military pilot training world is changing rapidly. New-generation aircraft are much easier to fly than their predecessors in terms of their handling but require more focus on system management. Pilot training for the fifth and sixth generation aircraft focuses on developing decision-making skills in highly complex combat environments. Innovative approach tries to adapt to both operational needs and budgetary constraints.



Aspects of military pilot flight training for the new generation of aircraft, to be introduced in the next 10 years, are very complex and involve numerous technological and tactical innovations. These aircraft will bring revolutionary changes to military aviation, including advanced stealth technologies, shape-shifting capabilities, and, most notably, high levels of computer connectivity and situational awareness through sensitive sensors and smart surface technology. Pilot training must evolve to reflect these new features and prepare pilots for the challenges of flying these aircraft.

Main Areas for Discussion

- Pilot training for the future security environment
- Live virtual training
- Use of new simulation technologies
- Advanced simulation techniques
- Efficiency of military flight training programmes

AGENDA

09:00	KEYNOTE PRESENTATION: BRAZILIAN AIR FORCE: "How Defence Priorities Shape Aircrew Training Amid Modern Challenges: Brazilian Air Force Experience" – General Maurício Augusto Silveira de MEDEIROS
09:20	EXPERT VIEW PRESENTATION: "Operational Readiness Training for a New Age of Threat and Opportunity" – Air Marshal (ret.) Ian David GALE
09:40	INDONESIAN AIR FORCE PRESENTATION: "Artificial Intelligence Implementation on Flight Safety Management System" – Air Commodore Abdul HARRIS
10:00	AUSTRALIAN AIR FORCE PRESENTATION: "Evolution to 5th Gen" – Group Captain Michael SLEEMAN
10:40	CZECH AIR FORCE PRESENTATION: "Czech Air Force Presentation F-35 Path to Success – Major Aleš SVOBODA
11:00	INDUSTRY PRESENTATION: AERO VODOCHODY AEROSPACE
11:20	BLOCK 1 PANEL DISCUSSION: "Pilot Training Innovations – Different Approaches"

Moderator: Brigadier General (ret.) **Libor ŠTEFÁNIK**, Former Czech Air Force Commander

Panellists: GEN. **Medeiros**, AM. **Gale**, GCapt. **Sleeman**, ACDRE. **Harris**

SPEAKERS



GENERAL MAURÍCIO AUGUSTO SILVEIRA DE MEDEIROS.

DG SCIENCE AND TECHNOLOGY DEPARTMENT

General MAURÍCIO AUGUSTO SILVEIRA DE MEDEIROS is the Head of the Department of Aerospace Science and Technology within the Brazilian Air Force structure. He is an accomplished military leader with extensive experience in defense science and technology, specializing in innovative solutions to enhance national security and military capabilities. He is also a strong advocate for integrating technology and research into operational military strategies. General Medeiros is a maritime air patrol and reconnaissance pilot with over 4,500 flight hours. Throughout his distinguished career, he has held several prominent positions, including: Commander of the First Regional Air Command, Chief of the Joint Staff Office of the Armed Forces, Head of Institutional Relations of the Air Force Commander, Military Advisor to the Air Force in the Vice Presidency of the Republic, and Vice President of the Amazon Region Airports Commission.



AIR MARSHAL (RET) IAN GALE CB MBE MBA MA FCMI

DRAKEN - CHIEF GROWTH OFFICER

Ian Gale is the Chief Growth Officer for Draken, a global company providing Operational Readiness Training and other services to militaries and national security agencies worldwide. He recently completed a 35-year career as a Royal Air Force officer. With over 350 combat missions as a Tornado and Typhoon pilot and weapons instructor, Ian commanded at various levels, ran major procurement programmes, and was the Assistant Chief of the Royal Air Force before his final role as the 3-Star commander of future warfighting plans, concepts, techniques, and the professional military education of all UK military and national security personnel. He was a board member of the UK Civil Aviation Authority, among other roles, and in his spare time, he remains an active pilot. While he previously performed competition aerobatics at national level, he now prefers teaching tailwheel and advanced coaching.



AFM ABDUL HARIS

COMMANDER AIR OPERATIONS IDN COMMAND

Air Force Marshal Abdul Haris has a distinguished military career in the Indonesian Air Force, marked by a series of significant achievements and leadership roles. His journey began in 1998 at the Indonesian Air Force Academy, where he laid the foundation for his future in aviation and military strategy. By 2002, he had become an F-5 E/F Tiger pilot, showcasing his skills in one of the most advanced fighter jets of the time. His expertise and dedication led him to Australia in 2007, where he completed the Flying Instructors' Course, further honing his abilities to train the next generation of pilots. In 2008, he attended the Squadron Officers School in Alabama, US, preparing him for higher responsibilities. His career continued to ascend with his enrollment in the Joint Fighter Weapons School

(TNI AU-RSAF) in 2011, followed by the US Air Command and Staff College (ACSC) in Alabama in 2013. That same year, he took on the role of Safety Officer at Iswahjudi Air Base. His leadership capabilities were recognized with his appointment as the 14th Squadron Commander in 2015, and later, in 2017, as Syamsudin Noor Air Base Commander. In 2022, he graduated from the Joint Command Staff College and was appointed as the Sulaiman Air Base Commander. Most recently, in 2023, he assumed the role of IKN Air Defense Sector Command Commander, continuing his legacy of service and leadership in the Indonesian Air Force.



GROUP CAPTAIN MICHAEL SLEEMAN

Director Air and Space Power Centre

Group Captain Michael Sleeman joined the Royal Australian Air Force in 1999 and attended the Australian Defence Force Academy. Colonel Sleeman is a pilot and qualified flying instructor with over 4,300 flying hours. As of July 2023, Group Captain Sleeman is the Director Air and Space Power Centre. In 2020, he assumed command of 11 Squadron, an operational P-8A Poseidon Squadron with 12 aircraft and over 300 people. Group Captain Sleeman has deployed on numerous operations and exercises in the Middle East, Horn of Africa, Southeast Asia, Southwest Pacific, the Indian Ocean, and the United States. He has held staff positions at

both the operational and strategic levels, focusing on whole-of-government responses to emerging issues.

Group Captain Sleeman holds a Harvard University National Security Fellowship, a Master of Philosophy (Strategy) from the United States Air Force School of Advanced Air and Space Studies (SAASS), a Master of Arts from the United States Air Force Air Command and Staff College, and a Bachelor of Science (Chemistry) from the University of New South Wales.



MAJOR ALEŠ SVOBODA

21ST WING ČÁSLAV

Major Aleš Svoboda is a Czech combat pilot and a Major in the Czech Army. He serves at the 21st Tactical Air Force Base in Čáslav. Born in 1986, he has been a member of the Czech Armed Forces since 2005. In 2022, he was selected as a member of the European Space Agency's reserve astronaut team. He has accumulated over 1,300 flying hours on the JAS-39 Gripen and the older L-159 aircraft. Aleš Svoboda has a doctorate in aircraft and rocket technology from the University of Defence in Brno.

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PRESENTATION

How Defense Priorities Shape Aircrew Training Amid Modern Challenges: Brazilian Air Force Experience

Group Captain Michael Sleeman joined the Royal Australian Air Force in 1999 and attended the Australian Defence Force Academy. Colonel Sleeman is a pilot and qualified flying instructor with over 4,300 flying hours. As of July 2023, Group Captain Sleeman is the Director Air and Space Power Centre. In 2020, he assumed command of 11 Squadron, an operational P-8A Poseidon Squadron with 12 aircraft and over 300 people. Group Captain Sleeman has deployed on numerous operations and exercises in the Middle East, Horn of Africa, Southeast Asia, Southwest Pacific, the Indian Ocean, and the United States. He has held staff positions at both the operational and strategic levels, focusing on whole-of-government responses to emerging issues.

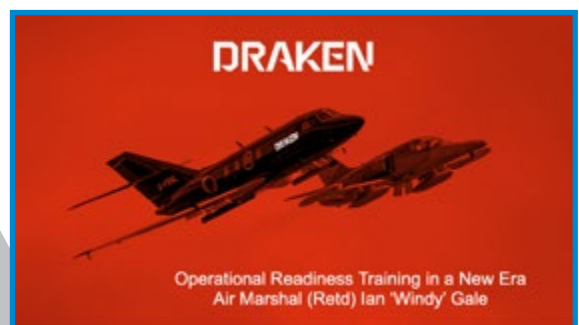
Group Captain Sleeman holds a Harvard University National Security Fellowship, a Master of Philosophy (Strategy) from the United States Air Force School of Advanced Air and Space Studies (SAASS), a Master of Arts from the United States Air Force Air Command and Staff College, and a Bachelor of Science (Chemistry) from the University of New South Wales.



Operational Readiness Training for a New Age of Threat and Opportunity

In a world of fast-moving technology and an increasingly aggressive Russia, Air Forces need to ensure more than ever that their people are not only trained but genuinely prepared for combat. Getting the right blend of live, constructive and virtual training is difficult, especially when newer aircraft are more expensive to operate and packed with networked sensors that aren't easily deceived. The requirement for adversary air and a more integrated adversary force is increasing everywhere, but at the same time, the budget needs to be reduced.

Draken's extensive experience in providing these services to global Air Forces, Navies, Armies, and other national security agencies will provide a base for exploring scalable, highly affordable, yet more demanding solutions than ever before. In an increasingly complex world, these solutions need to be multi-domain, not limited to air-to-air engagements.



The Implementation of Artificial Intelligence

The presentation explores the integration of Artificial Intelligence (AI) into the Indonesian Air Force's (AF) operational risk management, highlighting its potential to enhance safety and efficiency. The Indonesian Air Force has been continuously evolving its strategies to manage operational risks effectively. While traditional methods have been effective, they have limitations when handling the complexity and volume of modern data.



Indonesian Hurt Table is a critical tool used by the Indonesian AF to assess and manage risks associated with various operations. It categorizes potential hazards and their impacts, providing a structured approach to risk assessment.

The introduction of AI into operational risk management is set to revolutionize the way risks are identified, assessed, and mitigated. AI technologies can analyze vast amounts of data in real-time, predict potential risks with greater accuracy, and suggest proactive measures to prevent incidents. By integrating AI into the Indonesian AF's operational risk management framework, the Air Force expects significant improvements in safety and operational efficiency. This advancement not only enhances decision-making processes but also ensures a more resilient and adaptive Air Force.

Czech Air Force Presentation F-35 Path to Success

Major Svoboda, the leader of the F-35 integration team, described the main steps towards the successful introduction of the F-35 aircraft. The integration of the F-35, a fifth-generation aircraft, is as much a challenge for Air Force leadership as the purchase and introduction of the JAS 39, the first Western aircraft, nearly twenty years ago. The presentation not only outlined the various steps that the integration team must address from an organizational, technical, and personnel training perspective but also covered aspects of working with both the contractor and the domestic defense industry.



International Cooperation and Industry Engagement – A Way to Increase Quality at Lower Cost

On one hand, the development of new fifth- and sixth-generation aircraft, enabling them to perform a much wider range of tasks, allows the Air Force to acquire fewer aircraft. On the other hand, there is a need to train fewer pilots, which logically leads to higher per-pilot cost of flight training. This paradox is being tried to solve, with more or less success, by virtually

all air force commands. One effective solution is the involvement of the private sector in the defense industry. This is not only about the possibility of developing better simulation and training technologies. The private sector

"It really was an excellent conference and I really hope DRAKEN will become a regular feature"

Ian Gale
Chief Growth Officer

can also offer aviation training centres that provide the same quality of training as military installations and training units. The second integral part of the rally and greater efficiency is bringing together national capabilities internationally to create international training centres.

Main areas for discussion:

- Exchange of experience and best practices
- Benefits of joint training programmes and international training centres
- Use of simulation and training technologies
- Standardisation of training procedures
- Development and sharing training materials
- Benefits of joint exercises

AGENDA

13:10	KEYNOTE PRESENTATION: Babcock International – “International Flying Training – Corporate View”
13:30	NATO FLIGHT TRAINING EUROPE PRESENTATION: “International Flying Training in Military Alliance” – Wing Commander (ret.) Jason HAWKER
13:50	ITALIAN AIR FORCE PRESENTATION: “IFTS, Italian excellence. A virtuous example of collaboration between Leonardo and the Italian Air Force” Colonel Giovanni Maria PASQUALUCCI
14:10	PHILIPPINE AIR FORCE PRESENTATION: “Accelerating with excellence through stakeholder engagements” – Brigadier General Lloyd Salcedo CABACUÑGAN
14:30	ROYAL CANADIAN AIR FORCE PRESENTATION: “Training Tomorrow’s Air Force Today: Modernizing RCAF Training for the Next Millenium” – Brigadier General John ALEXANDER
15:10	ETHIOPIAN AIR FORCE PRESENTATION: “Ethiopian Air Force International Cooperation” – Colonel Me-seret Getachew YESUNEH
15:30	EUROPEAN DEFENCE AGENCY PRESENTATION: “EDA New Initiatives within Military Flight Training” – Major (ret.) José Pablo ROMERA
15:50	INDUSTRY PRESENTATION: “Mixed Reality Simulators in Modern Pilot Training” – Mr. Marek POLČÁK , CEO Vrgineers
16:10	INDUSTRY PRESENTATION: Lockheed Martin
16:30	INDUSTRY PRESENTATION: LOM PRAHA – “Flying Training Centre” – Lieutenant Colonel (ret.) Jaroslav ŠPAČEK , CLV Director
16:50	BLOCK 2 PANEL DISCUSSION: “International Centres and Government – Industry Cooperation”

Moderator: Mr. **Daniel KOŠTOVAL**, Former First Deputy Minister of Defence of the Czech Republic

Panellists: GARA. **Caspar-Fille-Lambie**, BGEN. **Alexander**, COL. **Pasqualucci**, COL. **Yesuneh**, LTC. (ret.) **Špaček**

SPEAKERS



GENERAL THIERRY CASPAR-FILLE-LAMBIE EXECUTIVE VICEPRESIDENT BABCOCK AVIATION

General Thierry Caspar-Fille-Lambie has had a distinguished career in the French Air Force. He began his journey at the École de l'air on September 1, 1980, and went on to become a transport pilot, primarily flying the C160 “Transall” in the “Anjou” and “Béarn” squadrons¹².

Throughout his career, he participated in numerous international operations, including missions in the Balkans, Sarajevo, Bangui, Chad, Sinai, and the Persian Gulf¹². His operational expertise led him to various staff positions, such as the Air Force Inspection, the Permanent Council for Air Safety, and the Planning and Operations Center at the Armed Forces Headquarters.

Promoted to general in 2007, he played a key role in establishing the Air Force Command and later commanded French forces in Djibouti in 2009. In 2012, he became the Commander of Air Defense and Air Operations (CDAOA), overseeing operations during the launch of Operation Serval in Mali and coordinating air assets in the Central African Republic and Poland.

After retiring from active service in 2015, he continued contributing to defense as the Director General of Babcock International France and the Director of Publication for the Revue de la Défense Nationale. He also serves on the National Council of the Order of the Legion of Honor.

General Caspar-Fille-Lambie is a Commandeur of the Legion of Honor and the National Order of Merit, and he holds the Aeronautics Medal and the Military Valor Cross with a silver star. He has logged over 6,500 flight hours and completed 124 combat missions.



JAS HAWKER
PRINCIPAL OFFICER NFTE

Jas Hawker is the Principal Officer for NATO Flight Training Europe at the NATO Support and Procurement Agency. He spent 28 years in the Royal Air Force, accumulating over 5,000 hours on fast jet aircraft (Tornado GR4 and Hawk), and has instructed at Basic, Advanced and Post-Graduate levels. He commanded the RAF Red Arrows Team and has worked in the UK Ministry of Defence, the UK Directorate of Flying Training, and within multiple NATO HQs, advising on the employment of Air Power. He is also a graduate of the Australian Command and Staff College. In 2023, Jas joined the NATO Supply and Procurement Agency as the Principal Officer for NATO Flight Training Europe.



COL. GIOVANNI MARIA PASQUALUCCI
TRAINING BRANCH DEPUTY CHIEF

Col Pasqualucci was born in Castel di Sangro on 19th March 1980. He joined the Air Force Academy in 1998, where he earned a degree in Political Science in 2002. After completing his degree, he underwent pilot training at Sheppard AFB (USA), graduating in 2004.

From 2004 to 2009, he was assigned to the 15th SAR Wing in Rimini, flying different types of helicopters in Rescue Operations. From 2009 to 2010, he served as Instructor at the Air Force Academy, and in 2011, he became Phase I and II Instructor Pilot (IP) at the 70th Training

Wing in Latina. Between 2014 and 2018, he was assigned as an IP at Sheppard AFB (USA), where he flew alongside international students at the ENJJPT, instructing on SF-260, MB- 339 and T-6 as IP.

In 2021, he attended the Italian Warfare College, where he got the master's degree in strategic studies. Following this, he moved to the "pilot training policy" branch at the Aerospace Planning Department of the ItAF Air Staff.

Since July 2023, he is the Deputy Chief of the Training & Exercise Branch at the Aerospace Planning Department of the ItAF Air Staff. He is an Instructor Pilot with more than 3,500 flying hours.



BRIGADIER GENERAL LLOYD S. CABACUÑGAN
AIR FORCE INTERNAL AUDITOR

Brigadier General Lloyd S. Cabacuñgan currently serves as the Air Force Internal Auditor, where he ensures the efficiency and effectiveness of the Air Force's operations through comprehensive internal audits. His responsibilities include conducting management audits, identifying areas for improvement, and providing strategic recommendations to enhance operational performance.

Throughout his career, BGEN Cabacuñgan has demonstrated a commitment to excellence and integrity. His leadership and expertise have been instrumental in upholding the Air Force's mission readiness and operational success.

Brigadier General Lloyd S. Cabacuñgan has held several key positions throughout his career in the Philippine Air Force (PAF). Notably, he served as the Deputy Chief of Staff for Personnel, J1, where he was responsible for overseeing personnel management and administrative functions within the Air Force.

Additionally, BGEN Cabacuñgan has been involved in numerous strategic and operational roles, contributing significantly to the PAF's mission readiness and operational success. His extensive experience and dedication have made him a respected leader within the Air Force, continually striving to uphold the highest standards of efficiency and effectiveness in all his assignments.



BRIGADIER-GENERAL JOHN ALEXANDER

COMMANDER 2 CANADIAN AIR DIVISION

Brigadier-General John Alexander enlisted in the Canadian Armed Forces in 1989 and qualified as a tactical helicopter pilot. He has held a number of command and staff positions, ranging from the tactical to the strategic level. In addition to commanding Canada's Special Operations Aviation Squadron, he had the privilege of serving on exchange with 33 Squadron Royal Air Force. He is qualified on the CH135 Twin Huey, the CH146 Griffon, and the HC Mk 1 Puma helicopters. BGen Alexander holds a Bachelor of Arts in History from Western University in London, Ontario, a Master of Defence Studies from the Royal Military College in Kingston, Ontario, and the NATO Defence College in Rome, Italy.

Among the various recognitions he has received are the Order of Military Merit (Officer), Meritorious Service Medal, the Operation TELIC (UK), and the Special Service Medal – Northern Ireland (UK).

Since 2022, he has served as the Commander of 2nd Canadian Air Division of the Royal Canadian Air Force as the Training Authority for all RCAF Training.



COLONEL MESERET GETACHEW

COMMANDER HEAVY ENGINEERING CENTRE

Colonel Meseret Getachew began his career in the Army following his promotion on January 9, 1998. Over the years, he has held various significant positions, including Mi-35 Helicopter Co-pilot, Mi-24/35 Helicopter Squadron Commander, and Chief of the Helicopter Engineering Group. Currently, Colonel Meseret serves as the Deputy Air Force Commander for the Aviation Depot Maintenance Center, a role he has held since September 17, 2022. His educational background is equally impressive, with degrees in Mechanical Engineering and Economics, a Master's degree in Project Planning and Management, and diplomas in Flying. He has also completed certificates from Staff College (Air Power) and War College.

Throughout their career, he has been recognized for his dedication and service, receiving numerous military decorations, including medals and ribbons for five, ten, fifteen, and twenty years of service, as well as the United Nations Peacekeeping Operation Medal (UNAMID). His extensive working experience includes roles such as Chief, Planning and Budget Program and Pilot, Group Leader of the Air Force Technology Research and Development Directorate, and General Director of the Aviation Depot Maintenance Center. Colonel Meseret's peacekeeping mission experience as Chief Pilot and Head of the Tactical Aviation Unit Safety Department in UNAMID further highlights his commitment to excellence and leadership in the military.



JOSÉ PABLO ROMERA

PROJECT OFFICER ROTARY WING

José Pablo Romera began his career in 1998, graduating from the Spanish Army Academy as a military field engineer. He completed his Army helicopter pilot course in 2000 and was assigned to the 3rd Manoeuvre Helicopter Battalion for five years, deploying to Kosovo and Kyrgyzstan in 2000 and 2002.

Between 2005 and 2010, he worked for the Organisation for Joint Armament Cooperation (OCCAR) in Bonn, Germany, as Technical Manager for the French/Spanish Tiger HAD helicopter, being responsible for all technical activities related to its development.

He returned to OCCAR from 2013 to 2017 as HAD Type Manager, assuming overall responsibility for the through-life management of the Tiger HAD programme, overseeing the qualification of the Tiger HAD helicopter and the delivery of over 30 helicopters to the French and Spanish Armed Forces.

Since 2017, he has worked at the European Defence Agency (EDA) as Project Officer Rotary Wing, managing EDA helicopter programmes, leading the creation of the Multinational Helicopter Training Centre (MHTC) in 2023, and engaging in new EDA initiatives related to education, training, exercises and support to operations. He graduated from the Spanish Defence College and is a certified Project Management Professional (PMP).



MAREK POLCAK, VRGINEERS
CEO

Under the leadership of CEO Marek Polcak, the company offers high-quality and effective military pilot training using advanced XTAL Virtual and Mixed Reality headsets and aviation simulators. Vrgineers is at the forefront of cutting-edge simulation technologies, with a team of experts in virtual and mixed reality dedicated to creating immersive tools for both professionals and military clients. The company is involved in extensive research, development, manufacturing, and the integration of advanced virtual and mixed simulators.



JONATHAN "MERLIN" LALOR
BUSINESS DEVELOPMENT TRAINING MANAGER

Jonathan "Merlin" Lalor is a dedicated professional at Lockheed Martin, specializing in Training and Strategic Requirements. With a robust background in military operations and defense technology, he brings a wealth of experience to his role, focusing on the integration and development of training solutions that meet the evolving needs of modern warfare.

Jonathan's career is distinguished by his commitment to enhancing operational readiness through innovative training methodologies and strategic planning. He collaborates closely with stakeholders to ensure that training programmes align with mission objectives and leverage cutting-edge technologies. His expertise spans wide a range of disciplines, including systems integration, operational analysis, and the implementation of multidomain operational strategies.

Driven by a passion for fostering effective learning environments, Jonathan plays a pivotal role in equipping military personnel with the skills needed to navigate complex combat scenarios and maximize the capabilities of advanced systems. His insights into strategic requirements contribute significantly to the development of training initiatives that support Lockheed Martin's mission to deliver superior defense solutions.



LTC. (RET) JAROSLAV ŠPAČEK
CLV DIRECTOR

Jaroslav Špaček, the director of the Centre of Flight Training (CLV) in Pardubice, has built a distinguished career in aviation, marked by his recent achievement of surpassing 5,000 flight hours across various helicopter types. His tenure at CLV Pardubice has been characterized by a steadfast commitment to nurturing the next generation of Czech aviators. LTC. Špaček's extensive flight experience includes piloting a range of helicopters, notably the Mi-24. His leadership was instrumental in integrating the 331st Helicopter Squadron into the NATO Tiger Association, a testament to the high standards of training and operational excellence at CLV Pardubice. Under his direction since 2017, the centre has celebrated its 20th anniversary and

continues to evolve, introducing modern training equipment and preparing pilots for advanced aircraft, such as the F-35 and H-1 helicopters. His achievements, including the prestigious Silver Tiger Trophy, underscore the global recognition of the expertise cultivated at CLV Pardubice.

PRESENTATION

Industry Presentation – Babcock International Group

Babcock is an international defense, aerospace, and security company providing support and product solutions across the UK, Australasia, Canada, France, and South Africa – our core countries.

The company offers frontline and equipment support, training, product design, manufacturing and integration, as well as technology and systems to the defense, security, and civil markets. Babcock delivers effective and adaptable solutions to enhance our customers' defense capabilities and critical assets across four sectors: Marine, Nuclear, Land and Aviation.



NATO FLIGHT TRAINING EUROPE – A FRAMEWORK TO DEVELOP FUTURE TRAINING SYSTEMS

NATO Flight Training Europe (NFTE) is a NATO High Visibility Project aimed at establishing

a framework to create, connect, and operate a network of individual Training Campuses to meet the full range of Air Crew training requirements. NFTE is an ambitious project that is currently coordinating the placement of student pilots across the Alliance and using the NFTE framework to develop multinational partnerships in other areas such as Advanced Tactical Training. During his keynote presentation, Jas discussed both the challenges NFTE has faced in achieving Full Operating Capability and the opportunities Allies are pursuing to design and build the aircrew training requirements and facilities of the future. A key aspect of developing these future training facilities is Industry engagement, which is why NFTE has involved representatives from industry via the NATO Industry Advisory Group mechanism from the outset.



IFTS, Italian Excellence. A Virtuous Example of Collaboration Between Leonardo and the Italian Air Force

The Industry Engagement is a way to increase the quality and efficiency of the training at a lower cost.

When ItAF decided to revamp the Phase IV flying training segment, it initiated a strong and fruitful conversation with Leonardo to think outside of the box some years ago. These discussions ultimately led to the creation of the new International Flight Training School, one of the clearest examples of successful collaboration between the Air Force and the Industry in the world.

The establishment of this international centre of excellence in Military Pilots training services was made possible through the synergies between two Italian National Excellences. The ItAF decided to bring its longstanding expertise in flight training, while Leonardo put its proven M-346 advanced jet trainer, and in collaboration with CAE, the Ground Based Training System was also integrated.



Accelerating Excellence through Stakeholder Engagements

BGEN LLOYD S CABACUÑGAN PAF briefed conference delegates on how international cooperation affects the effectiveness of the training of Philippine Air Force personnel. The current international situation, marked by tensions in the Chinese South Sea region, an unpredictable situation in North Korea, as well as international crime, demands a well-prepared air force. Strengthening international collaboration allows the Philippines Air Force to enhance training quality, ensuring that its personnel are well-prepared to address these challenges. In general, defense cooperation and security are central pillars of air force training. Cooperation with the defense and security industry also plays an important role, as it can offer very effective tools for pilot training, making it more cost-effective while maintaining the required quality.



We were delighted and honored to take part in this second edition, which gave us an insight into our areas of expertise! The Gabonese Air Force would like to express its gratitude for the special opportunity provided by its Czech counterpart to learn from others and to question all the issues to be resolved within its ranks. What's more, it was a perfect opportunity for us to get answers to some of the specialized equipment needs we have. We hope to see you again at the 3rd edition in mid-September 2025, and we'll be delighted and honored to be there!

Training Tomorrow's Air Force Today: Modernizing RCAF Training for the Next Millenium

The Canadian Air Force, like many modern air forces around the world, faces several challenges in introducing new generation aircraft. Here are some of the key challenges.

New aircraft must often operate seamlessly with legacy systems and platforms. Integrating new technologies with existing infrastructure, including command and control systems, logistics, and support equipment, can be complex and may require substantial upgrades or modifications to current systems. Transitioning to new aircraft necessitates comprehensive training programmes. Pilots and ground crews must acquire new skills, and recruiting qualified personnel can be a challenge. Developing effective training tools and modules, including simulators for new aircraft, requires time and resources. Since October 2015, CAE has been the prime contractor responsible for the NATO Flying Training in Canada (NFTC) programme that produces qualified military pilots for defense customers. The NFTC programme significantly enhances CAE's core capabilities as a global training systems integrator (TSI) and expands its offering into support for live flying training of future military pilots, including next-generation fighter pilots, for the Royal Canadian Air Force and its allies.

The NFTC programme located at 15 Wing Moose Jaw and 4 Wing Cold Lake is owned by the government of Canada and operated in cooperation with CAE. The programme combines basic, advanced, and lead-in fighter training as part of a comprehensive pilot training programme. CAE operates the NFTC base facilities, delivers the ground-school classroom, computer-based, and simulator training, and provides support services for the live flying training that comprises this world-class, turnkey training program.

Canada has gained numerous valuable lessons from the NATO Flying Training Contract (NFTC) and the Contracted Flying Training School (CFTS). While NFTC was a straightforward, locked-in contract for services from a contractor, CFTS,



developed after NFTC, included greater incentives for the contractor to continue to modernize through the lifespan of the contract.

Addressing these challenges requires strategic planning, effective resource management, and a clear understanding of both current needs and future threats to ensure that the Canadian Air Force remains capable and effective in its missions.

Role of Aviation Industry to the Interoperability of the Air Force: The Need for International Cooperation for enhancing the Role of the Sub-Saharan Aviation Industries

Most of the sub-Saharan Air Force's seek to obtain maintenance, overhauls, new platforms, and quality aviation training at a comparatively lower cost from the aviation industries. However, private industries find it difficult to provide these services due to the high investment and highly skilled manpower requirements.

Few sub-Saharan aviation industries have the motivation to meet the growing demands from the air forces. For example, Ethiopia's aviation industry has extensive experience in training international students from Yemen, Libya, Rwanda, Uganda, Chad, Djibouti, Tanzania, and others. However, there is a lack of resources to excel in this area.

This presentation concludes that if sub-Saharan aviation industries work together with other similar international institutions, they will be able to meet the needs of the air forces in terms of alternative technologies and pilots training. Such cooperation will not only make the industry and the international partner profitable, but it will also enable Air Forces to closely monitor training, reducing the need to send pilots overseas.



EDA New Initiatives within Military Flight Training

The presentation "EDA Collaborative Training and Exercises" by Mr. José Pablo Romera from the European Defence Agency (EDA) explored the strategic importance of collaboration in military training and exercises across Europe. Mr. Romera discussed the EDA's initiatives aimed at fostering interoperability among member states, emphasizing the role of joint training activities in enhancing collective defense capabilities. The presentation also highlighted the challenges in implementing effective training exercises and the EDA's commitment to overcoming these obstacles to ensure readiness in an increasingly complex security environment.



EDA New Initiatives within Military Flight Training

Virtual and Mixed Reality technologies have significantly improved over the last few years. Their advantages now outweigh the limitations, and they are being widely adopted by advanced Air Forces for pilot training around the world. One of the main aspects discussed regarding their usage is human eye acuity and the impact of fixed focal distance optics introduced by head-mounted displays (HMDs).



This presentation describes the connection between average pilot fidelity and the most commonly used HMDs, comparing their capabilities with training requirements. It emphasizes the importance of matching the technological capabilities with the visual acuity requirements for specific training, focusing on concepts such as Minimum Recognizable Acuity (MRA) and Pixel Per Degree (PPD). The presentation also highlights the complex relationship between MRA and PPD in creating effective VR/MR training systems. It points out that the visual acuity of pilots is tested for mission success and safety, and that VR headset design must align with these requirements. The study summarized in the paper compares various VR/MR headsets used by U.S. Air Force and U.S. Navy for immersive training, explaining technical factors influencing visual acuity like real pixel distribution, rendering pipelines, warping algorithms, and other elements that directly impact visual quality. The paper further describes the role of cameras embedded in HMDs and their specification requirements for immersive mixed reality training with physical cockpit simulator.

It classifies different training scenarios based on fidelity needs and outlines a process for selecting suitable VR/MR devices for specific training, emphasizing the importance of conducting side-by-side comparisons.

In conclusion, the paper acknowledges the progress in VR/MR headset technology and recognizes existence of training scenarios fully suitable for immersive training, but notes the need for higher-resolution displays, advanced optics, and better-performing cameras to fully simulate realistic visual environments required for a variety of pilot training scenarios. The study aims to assist in defining technical requirements for VR/MR pilot training, taking into account the main factors influencing the visual fidelity.

Industry Presentation Lockheed Martin – Multi-Domain Concept Centres

The presentation by Lockheed Martin delves into the complexities and strategic advantages of Multidomain Operations (MDO) within contemporary military frameworks. Highlighting the business value proposition, the discussion encompasses various critical facets essential for enhancing operational efficacy and readiness.



Key topics included:

- Operations Analysis: An examination of current operational dynamics, identifying performance gaps and opportunities for enhancement across various domains.
- Assess and Validate Impact of New Platforms and Technologies: A methodology for evaluating how new technologies affect mission outcomes and overall force effectiveness.
- Conduct Gap Analysis: Systematic identification of existing capability gaps to inform strategic decision-making and operational planning.
- Guide Future Investment: Direction on investment strategies that prioritize the development of capabilities vital for enhancing multidomain resilience.

The presentation also addressed the challenges inherent in fielding new technologies—including the need for robust communications infrastructure, security considerations across multi-level and cross-domain environments, and the limitations posed by costly live experimentation scenarios. Emphasis was placed on the necessity of ensuring interoperability among disparate systems, addressing fair-fight concerns, and achieving effective multi-facility integration.

Ultimately, this session aims to provide key insights and actionable recommendations for harnessing the power of Multidomain Operations, ensuring that military forces can adapt swiftly and effectively to the demands of modern warfare while maintaining operational superiority.

Industry presentation – LOM Prague

LOM Prague, a state-owned enterprise, stands as a leading provider of Maintenance, Repair, and Overhaul (MRO) services and training solutions within both the European Union and NATO environments. With over a century of tradition in the Aerospace and Defense industry, LOM Prague has established itself as a strategic partner of the Czech Ministry of Defense, delivering fully certified products and services that meet the highest standards of quality and reliability.



The presentation highlighted LOM Prague's extensive portfolio and its commitment to supporting defense capabilities through innovative training and MRO solutions. The company's unique expertise and experience in the industry position it as a key player in fostering collaboration across defense operations at both national and international levels.





WEDNESDAY, OCTOBER 16

FUTURE FORCES EXHIBITION AND FORUM 2024

09:00 **OFFICIAL OPENING CEREMONY:**
President of the Czech Republic, General (ret.) **Petr PAVEL**; and other officials.



FUTURE FORCES CONFERENCE: MULTI-DOMAIN OPERATIONS, FUTURE CONFLICTS AND OPERATIONAL ENVIRONMENT – FUTURE WARFARE CONCEPT

The current and future security threats, along with the dynamic development of new (disruptive) technologies, require an adaptation of force development planning. Our adversaries have already adapted to the new situation and developed effective counterstrategies, often based on the study of Western-style warfare. New technologies such as artificial intelligence, hypersonic weapons, machine learning, nanotechnology, or autonomous systems and robotics are fundamentally changing the nature of war. As these technologies mature and their military applications become clearer, they have the potential to revolutionise the battlefield in a way we have not seen since the integration of machine guns, tanks, and air power, which ushered in the era of combined arms.

10:00 **Opening Remarks:**
Lieutenant General **Karel ŘEHKA**, Chief of the General Staff of the Czech Armed Forces

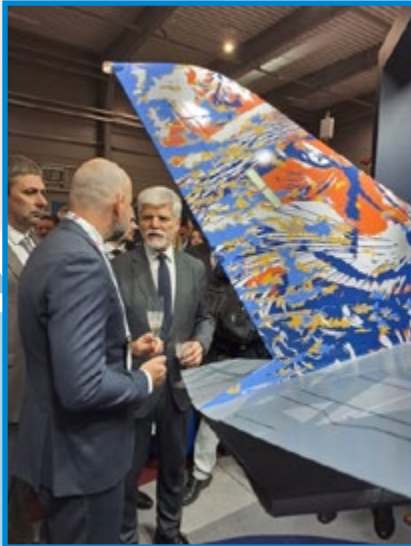
10:10 **Keynote Speaker:**
General (ret.) **Philippe LAVIGNE**, former NATO Supreme Allied Commander Transformation

Panellists:

LTG **Karel ŘEHKA** – Chief of the General Staff of the Czech Armed Forces
GEN (ret.) **Philippe LAVIGNE** – former NATO Supreme Allied Commander Transformation
AMSHL (ret.) **Ian David GALE** – former Commander of U.K. Strategic Command
MG **Andrus MERILO** – Commander of the Estonian Defence Forces
GEN (ret.) **Jiří ŠEDIVÝ** – former Chief of the General Staff of Czech Armed Forces
JR **Mc DONALD** – Lockheed Martin Vice President F-35 Business Development

10:30 AERO L-39NG NEW ERA CEREMONY,

The new L-39 trainer aircraft produced by Aero has been officially named Skyfox. It follows in the footsteps of its predecessors, Alca, Albatros, and Dolphin. With this step, the L-39 enters a new era, gaining its own identity. The aircraft's name was unveiled by Aero at the Future Forces Forum 2024 international exhibition and conference in Prague, an event attended by President Petr Pavel.



13:30 EXHIBITION TOUR, NETWORKING, BILATERAL MEETINGS



THURSDAY, OCTOBER 17

AGENDA

09:00	OPENING REMARKS: Major General (ret.) Bohuslav DVOŘÁK – Future Air Force Conference Chairman
09:10	INDUSTRY PRESENTATION: OMNIPOL Group
09:30	PANEL DISCUSSION: "Commanders' View – New Challenges and Opportunities for Air Force Leadership" Moderator: Major General (ret.) Bohuslav DVOŘÁK , Former Deputy Chief of the General Staff FAF Chairman Panellists: BG Tománek , GCapt. Sleeman , BGEN. Alexander , AIR CDRE. Harris , COL. Yesuneh
10:40	KEYNOTE PRESENTATION: "Challenges and Best Practices in Procuring, Equipping and Employing Large Unmanned Aerial Vehicles (UAVs) in Competition and Conflict" – Lieutenant Colonel Keenan BOES , USAF
11:00	ERA PRESENTATION: "UAV Detection, Tracking & ATM by Passive Multilateration Systems" Mr. Vojtěch Stejskal
11:50	INDUSTRY PRESENTATION: AIR-tech, manufacturer of small Reconnaissance UAVs and Loitering Munition, Mr. Ondřej Stehlik – Strategic Development Director
12:10	UNIVERSITY OF DEFENCE PRESENTATION: "New Training Program for UAV Operators" – Prof. Vladimír SMRŽ
12:30	German UAV Operator Training Program – Lieutenant Colonel Peter BERNEWASSER , German Air Force
12:50	INDUSTRY PRESENTATION: Primoco, manufacturer of Reconnaissance UAV, Dr. Jakub FOJTÍK
13:10	PRACTICAL USE OF UAVs: "The use of UAVs and counter UAVs measures" – Colonel Ikuret Emeru MOSES
13:30	LUNCH BREAK - Conference Hall Lounges and Foyers (2nd Floor)
14:30	BLOCK 3 PANEL DISCUSSION: "Different Use of the UAVs in Contemporary Conflicts" Moderator: Dr. Jakub FOJTÍK , Industrialist and UAV Warfare Expert Panellists: LTC. Boes , Prof. Smrž , COL. Bernewasser , COL. Emeru
15:00	CHAIRMAN'S CLOSING REMARKS OF THE 2nd FUTURE AIR FORCE CONFERENCE: Major General (ret.) Bohuslav DVOŘÁK
15:10	WORD OF APPRECIATION, FAREWELL AND INVITATION TO THE 3rd FUTURE AIR FORCE CONFERENCE by Major General Petr ČEPELKA , Czech Air Force Commander

Industry Presentation OMNIPOL – Marek Jechumtál

Marek Jechumtál is a graduate of the University of Transportation and Economics of Air Transport, where he obtained his pilot's license. From 1989 to 2012, he worked at CSA, spending 11 years in Network Planning and Route Development, and 12 years as the Director of Foreign Representative Offices in Bulgaria, Lebanon, Syria, Jordan, Norway, and Finland. He then served as the Commercial Director of CATC (Czech Aviation Training Centre) and, since this year, has been the Training Manager at AI, focusing on pilot training for the L410.



PANEL DISCUSSION: “Commanders’ View – New Challenges and Opportunities for Air Force Leadership”

One of the main objectives of the conference is to facilitate the exchange of experience between the commanders and senior officials of the commands of the participating countries. It has therefore become a tradition to include an informal panel discussion among the commanders on the future challenges of Air Force leadership in the programme.

During the discussion, the leadership of air forces highlighted several key challenges in air force personnel preparation, which impact the effectiveness, efficiency, and overall readiness of their aviation forces. Here are the main challenges:



- **Integration of Advanced Technologies:** As aircraft become increasingly complex, featuring advanced technologies such as avionics, automation, and artificial intelligence, the training curriculum must evolve to incorporate these elements. Leaders must ensure that pilots are proficient not only in operating these advanced systems but also in understanding their implications in various operational scenarios.
- **Resource Allocation:** Balancing the budget for pilot training with other operational needs remains a significant challenge. This includes ensuring adequate funding for simulators, aircraft, training facilities, and instructor personnel. Leaders must prioritize resources while maintaining both training quality and quantity.
- **Retention of Skilled Personnel:** With competitive opportunities available in the civilian aviation sector and other military branches, retaining skilled instructors and pilots is a challenge. Air force leadership must address issues related to career progression, work-life balance, and job satisfaction to keep talented personnel within their ranks.
- **Adapting to Changing Threats:** The evolving nature of warfare, including irregular and asymmetric threats, necessitates pilot training programmes to adapt quickly. Leaders need to incorporate new doctrines and operational concepts into the training syllabi to ensure pilots are prepared for a wide range of conflict scenarios.

It was a privilege to attend the conference and to be able to share the views from an Australian perspective. I found the conference to be very informative, and I certainly gained valuable insights and new perspectives on the shared challenges and opportunities we all face; I am in the process of sharing these insights with my organisation.

Group Captain Michael Sleeman Director Air&Space Power Center

- **Interoperability and Joint Training:** In modern military operations, air forces often work alongside other branches of the military and allied nations. Developing training programmes that emphasize joint operations, interoperability, and effective communication among different forces can be complex and requires careful planning.
- **Training Effectiveness Assessment:** Measuring the effectiveness of training programmes can be difficult. Air force leadership must develop robust metrics and evaluation frameworks to assess pilot performance and ensure that training objectives are being met.
- **Transition to New Airframes:** As air forces upgrade to new aircraft, training programmes must adapt to these changes. Leaders must manage the transition period effectively to ensure pilots gain proficiency on new platforms without compromising operational readiness.

Addressing these challenges requires strong leadership, innovative strategies, and a commitment to continuous improvement in military pilot training programmes.

UAVS: THE NEW PHENOMENON OF AIR WARFARE

Dronisation is now a phenomenon apparent in all physical operational environments. Western air forces have been showing renewed interest in drones since the war on terrorism, but the confrontations in Syria, Libya, Nagorno-Karabakh, and now in Ukraine have shown that UAVs play a major role, regardless of the nature of the conflict.

Unmanned Aerial Vehicles (UAVs) have revolutionized military operations. These autonomous or remotely piloted aircraft offer precision strikes, persistent surveillance, and reduced risk to human lives. Their adaptability, cost-effectiveness, and strategic flexibility make them indispensable assets in contemporary conflicts. As we explore the intersection of technology and warfare, UAVs continue to evolve, shaping the future of defense strategies. As technology advances, UAVs are likely to play an even more significant role in future warfare, especially with the increasing integration of artificial intelligence.

In current military conflicts, the use of Unmanned Aerial Vehicles (UAVs), commonly offers several significant advantages:

- **Precision Strikes:** UAVs can precisely target and eliminate threats, minimizing collateral damage. Their ability to carry out surgical strikes has been crucial in various conflicts.
- **Reduced Risk to Human Lives:** By deploying drones, military forces can avoid putting human pilots or soldiers in harm's way, enhancing safety and reducing casualties.
- **Persistent Surveillance:** UAVs provide continuous surveillance over large areas, monitoring enemy movements, supply routes, and activities. This persistent eye in the sky aids in intelligence gathering and situational awareness.
- **Cost-Effectiveness:** Compared to manned aircraft, drones are more cost-effective. They require fewer resources, maintenance, and operational expenses.
- **Adaptability:** Drones can be rapidly deployed and repositioned. They adapt well to changing scenarios and can respond swiftly to emerging threats.



- **Strategic Flexibility:** UAVs can operate in diverse environments, from urban settings to remote regions. Their versatility allows for strategic flexibility in combat operations.
- **Disruption of Enemy Tactics:** The mere presence of drones can disrupt adversary tactics, forcing them to alter their behavior and revealing vulnerabilities.
- **Psychological Impact:** The psychological impact of drone strikes can demoralize opponents and weaken their resolve.

Striking a balance between manned and remotely controlled airborne craft will be essential for maximizing military options while avoiding over-regulation.

MAIN AREAS FOR DISCUSSION

- UAV system operation
- Mission planning and execution
- Adapting to evolving technology
- Technical complexity of UAV pilot training
- Mission realism
- Integration with manned operation

SPEAKERS



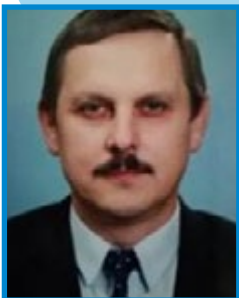
LTCOL. KEENAN M. BOES DEPUTY DIVISION CHIEF

Lieutenant Colonel Keenan M. Boes is the Deputy Division Chief, AF/A3UQ, at the Pentagon, Virginia. He supports policy, oversight, and guidance for USAF Remotely Piloted Aircraft (RPA) community and provides specialist advice, input, and support to senior leaders on the RPA and wider ISR enterprise. Lieutenant Colonel Boes enlisted in the Air Force in May 2005 and graduated the Aircraft Maintenance Technician course in in 2006. He earned his commission through the Air Force Reserve Officer Training Corps after graduating from the University of Maryland in 2009. Lieutenant Colonel Boes has over 19 years of service, both on active duty and in the Air National Guard. He earned aeronautical ratings as a graduate of Undergraduate Combat Systems Officer (CSO) Training in 2010 and Undergraduate Remotely Piloted Aircraft Training in 2016. Lieutenant Colonel Boes first served as an Aircraft Maintenance Technician in the Maryland Air National Guard, later held variety of training and operational assignments as a B-52 Weapons Systems Officer in Barksdale AFB, La. and Minot AFB, N.D. After transitioning to the RPA Pilot career field, Lieutenant Colonel Boes served in various positions at the squadron and wing level at Creech AFB, Nev. He also completed an Air University Fellowship at Maxwell AFB, Ala. Prior to his current assignment, Lieutenant Colonel Boes was Branch Chief, MQ-9 Operations, AF/A3UQ, Pentagon, Va. He has flown over 2,000 hours in multiple aircraft, including over 900 combat hours in support of overseas contingency operations.



MSC ONDŘEJ STEHLÍK

Msc. Ondřej Stehlík is working on the position of Strategic Development Director at Air Tech company



VLADIMIR SMRZ, ASSOC. PROF., PH.D.

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LTC PETER BERNEWASSER

HEAD OF UAV DEPARTMENT

LTC Petr Bernewasser is currently serving as the Head of RPAS/UAV Operation and ISR Exploitation Division. With a distinguished military career spanning over three decades, Peter has demonstrated exceptional leadership and expertise in various roles. Peter's journey began with an MBA from the University of Hamburg, Germany, followed by rigorous training at the Euro NATO Joint Jet Pilot Training (ENJJPT) in Wichita Falls, Texas, USA. He then served as a TORNADO Pilot and Director of Operations at Tactical Fighter Wing 33 in Büchel, Germany. Later, he progressed to the role of Director of Operation at ENJJPT and Instructor/Evaluator Pilot in Wichita Falls, Texas, USA.

Peter's leadership capabilities were further recognized with his appointment as Commander of the GAF Undergraduate Pilot School at the GAF Officers School in Fürstenfeldbruck, Germany. He continued to excel as Commander of the GAF Initial Flight Training in Phoenix, Arizona, USA, and later as Commander/Instructor Pilot at the GAF Competence Training in Bremen, Germany. Since 2016, Peter has been leading the RPAS/UAV Division GAF in Berlin/Cologne, Germany, and has also served as Commander of the GAF RPAS Squadron in Afghanistan and Mali. His extensive experience and dedication to military service have made Peter a highly respected figure in the field of aviation and defense. Petr flown more than 5,000 flight hours as Instructor and 1,000 flight hours HERON 1 and German HERON TP.



Colonel Moses Ikuret Emeru

Colonel Moses is an accomplished military leader with extensive experience in air defense operations and command. He has successfully led various peacekeeping missions and completed multiple advanced military training courses to enhance his strategic capabilities. As a Brigade Commander, Colonel Emeru is dedicated to strengthening the tactical and operational readiness of the Ground Based Air Defense Unit of the Uganda Peoples Defence Forces (UPDF). His academic achievements, including his designation as a Fellow of the National Defense College of the Arab Republic of Egypt, further bolster his extensive practical experience in military leadership.

Throughout his career, Colonel Emeru has held several key positions, including Chairman of the Division Court Martial. He has actively participated in peace support operations in Somalia and also been involved in counter-insurgency operations in Northern Uganda, showcasing his commitment to maintaining national security and stability.



PRESENTATION

Challenges and Best Practices in Procuring, Equipping and Employing Large Unmanned Aerial Vehicles (UAVs) in Competition and Conflict

Lieutenant Colonel Keenan Boes provided a comprehensive overview of the challenges and best practices in procuring, equipping, and employing large Unmanned Aerial Vehicles (UAVs) in competition and conflict. This overview emphasized the importance of human-centric design in UAV human-machine interfaces, the benefits of open architecture and commercial off-the-shelf systems, and the need for effective crew integration. Additional best practices covered the role of command & control links, autonomous collaboration, and deconfliction, highlighting the potential of artificial intelligence and automation in these areas. These factors should encourage discussion regarding procuring and employing UAVs, emphasizing the need for careful consideration and adaptability in modern combat scenarios.



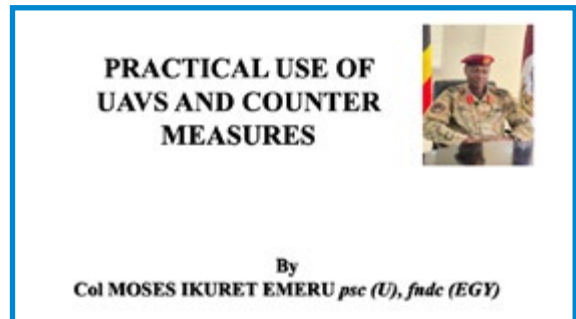
Musing on the Future of Warfare in the Air Domain

The presentation by Air Tech explored the transformative landscape of aerial warfare over the past 30 months, with a particular focus on the rapid advancements in Unmanned Aerial Vehicles (UAVs). Initially defined by traditional manned combat aircraft, aerial combat is now experiencing significant shifts driven by emerging technologies and changing operational realities. The presentation outlined key technological advances that have reshaped UAV capabilities, including enhanced autonomy, improved sensors, and better communication systems. It also explored anticipated future developments in UAV technology, highlighting the types of UAVs likely to define the evolving landscape of aerial combat. By examining these emerging trends, Air Tech aimed to provide a comprehensive understanding of the ongoing revolution in aerial warfare and the strategic implications for defense operations on a global scale.



PRACTICAL USE OF UAVS AND COUNTER MEASURES

Col. Moses described in his presentation the development of UAVs (Unmanned Aerial Vehicles) in Africa that began with military applications in the early 2000s, primarily for border security and surveillance, with countries like South Africa and Egypt leading the way. South Africa's Denel Dynamics developed tactical drones, while nations such as Nigeria and Uganda used UAVs to monitor insurgencies and conflict zones. Over time, the use of UAVs expanded beyond military operations to civilian roles, including wildlife conservation, anti-poaching efforts, disaster management, and infrastructure monitoring. Today, UAVs are key tools for modern defense, counterterrorism, and environmental protection across Africa, addressing both security challenges and developmental needs.



Col. Moses came to the conclusion that the use of Unmanned Aerial Vehicles (UAVs) has become increasingly widespread in various fields, including military operations, surveillance, agriculture, and logistics, due to their ability to provide real-time data, precision, and efficiency. However, this rapid proliferation of UAV technology has also raised concerns about security and privacy, prompting the development of counter-UAV measures. These measures, which include detection systems, signal jamming, and drone capture technologies, are designed to mitigate risks such as unauthorized surveillance, smuggling, or potential attacks. The balance between leveraging UAV capabilities and deploying effective countermeasures is critical to ensuring both the utility and safety of these technologies in diverse applications.

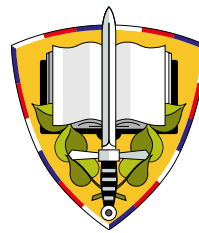
Assessing the Current Status of Military UAV Operations

The presentation provided an in-depth analysis of the challenges and limitations currently facing Unmanned Aerial Vehicle (UAV) operations within EU and NATO countries. The discussion highlighted the unsustainable nature of current military UAV operations, which are predominantly tailored for expeditionary missions and often constrained to operate only within secured perimeters. Key issues were addressed, including the limited deployability of UAVs under home conditions, reliance on varying operational standards set by major Original Equipment Manufacturers (OEMs) from the US and Israel, and the lack of certification, which leads to inconsistencies in operational flying capabilities. The presentation also explored the impact of airspace restrictions, insufficient ground risk assessments, and the complexities posed by joint exercises with air force components. Furthermore, the absence of dedicated training standards for UAV pilots was discussed. By addressing these critical issues, the presentation aimed to spur discussion on potential pathways for enhancing the sustainability and effectiveness of military UAV operations in the contemporary operational environment.



Assessing the Current Status of Military UAV Operations

The need of organization of training for UAV operators is an important topic within the Czech Armed Forces as well. Currently, the greatest demand is for operators of (un)certified military UAVs that normally do not exceed a weight of 15 kg. However, the training of pilot-operators for certified military UAVs, including those requiring an airport for their operations, is significantly more demanding. At present, three training organizations participate in the training of military UAVs operators: Military University as a provider of theoretical training for all categories, Military Academy which offers part of the practical training, and a special military unit that operates UAVs for the remaining parts of the training. The presentation includes a description of the new bachelor's degree programme at the Military University (University of Defence in Brno). The programme is focused on the training of aviation expertise of Military Aviation Personnel and Military Air Traffic Controllers. As part of this study programme, there will be both theoretical education and practical training to produce certified UAV operators. These officers will be part of the military aviation personnel (license holders according to the relevant military regulations).



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SOCIAL EVENTS

The aim of our conference is not only to introduce participants interesting lectures but also to create a pleasant and informal environment for exchanging experiences and establishing new contacts within the broad aviation family.

This year, the organizers have prepared an introductory Icebreaker at the Diplomat Hotel on the eve of the conference. As the name of the event suggests, the goal was for delegates to meet and get to know one another, ultimately enhancing the quality of discussions during the conference itself. Based on the number of questions asked during the conference, we can conclude that the objective of this initial informal gathering was successfully achieved.



In the evening following the first day of the conference, an Air Force Gala Event was prepared for the delegates and held at the National Technical Museum. The delegates not only had the opportunity to sample Czech specialties and Moravian wine, but, more importantly, to tour the museum's historical exhibits. We were really pleased with the positive reactions to this event. The organizers have promised that next year, they will arrange an informal meeting for the conference participants in an interesting premises where the history and the future of aviation are combined.



The National Technical Museum is the successor and heir to the collections of the State Engineering School of 1717, the Polytechnic Institute of 1806, and the Czech Industrial Museum, founded by patriot and technocrat Vojtěch Náprstek in 1862. The National Technical Museum in Prague itself was founded in 1908 and collects and displays products of the Czech science, industry, and academia from the past 116 years.



The Industrialization of Czech Lands (Czechia, Moravia, and Silesia) began at the beginning of 19th century in large industrial cities like Praha, Brno, Plzen, and Liberec, as well as some border areas.

The unprecedented industrial development, especially in heavy engineering and military production from 1860s to 1910s, led to the creation of not only a robust research and manufacturing base but also hundreds of thousands engineers and highly qualified technicians and workers. Before the dismantling of Austro-Hungarian Empire (which included present-day Austria, Hungary, Czechia, Slovakia, South Poland, West Ukraine, Northern Romania, Slovenia, Croatia, Bosnia Herzegovina, Northern Serbia, and some districts in Northern Italy) in 1918, the Czech Lands accounted for **70% of Empire's industrial production**. Engineering giants such as Škoda and Česká Kolben-Daněk, and the Poldi steel mill were producing special materials, used mainly in military and transportation industries. Famous Bata shoemaker, Moser and Bohemia Crystal glass manufacturers, foodstuff industry (sugar factories, flour mills), and textile industries are another famous brands and sectors Czech industry has been famous for.

Czechoslovakia, and later the Czech Republic after 1918, were paying a special attention, as landlocked countries without access to the sea, to the **development of the aviation industry**. In 1920s, Czechoslovakia had 5 aircraft manufacturers—Aero, Avia, ČKD, Letov, and Praga—along with several aircraft engines producers. This tradition has continued with the successful development of jet, turboprop, and piston aircrafts and engines after the Second World War. Today, the Czech Republic has the 7th largest aviation industry worldwide.





SOCIAL EVENTS

All Air Forces are preparing to overhaul their fighter pilot training enterprise. While the current system is functional, new technologies offer opportunities to develop even better fighter pilots in less time and at potentially lower costs. The world of military pilot training is changing rapidly. New-generation aircraft are much easier to fly in terms of handling but require more advanced system management. Training for fifth- and sixth-generation aircraft focuses on developing decision-making capabilities in highly complex combat environments.

The innovative approach aims to adapt to new operational and budgetary requirements. The aspects of military pilot flight training for the new generation of aircraft to be introduced in the next 10 years, are very complex and include numerous technological and tactical innovations. These aircraft bring revolutionary changes to military aviation, such as advanced stealth technologies, shape-shifting capabilities, high levels of computer connectivity, and situational awareness through sensitive sensors and smart surface technology. Pilot training must reflect these new features and prepare pilots for the challenges of flying these aircraft.



RECOMMENDATIONS

Based on the findings presented by subject matter experts and subsequent panel discussions, the conference led to the following conclusions and recommendations for the area of training of aviation personnel. The basic ones can be classified as follows:

- **Adopt Advanced Simulation Techniques:** Utilize cutting-edge simulation technologies to create realistic training environments that mimic the complexities of modern combat scenarios.
- **Focus on Decision-Making Skills:** Emphasize training programs that develop pilots' decision-making capabilities in highly complex and dynamic combat environments.
- **Leverage International Cooperation:** Engage in international cooperation to share best practices, standardize training procedures, and develop joint training programmes.
- **Integrate New Technologies:** Incorporate advanced technologies such as AI, UAVs, and smart surface technology into training programmes to ensure pilots are well-prepared for the future security environment.
- **Optimize Cost-Effectiveness:** Explore partnerships with the private sector to develop better simulation and training technologies, and consider establishing international training centres to reduce costs.

CHAIRMAN'S CLOSING REMARKS



As we conclude the Future Air Force Conference 2024, I want to take a moment to reflect on the remarkable insights and discussions we have shared over the past few days. This gathering has brought together industry leaders, innovators, policymakers, and military strategists, all united by a common goal: to shape the future of military aviation.

Throughout the conference, we have delved into critical topics, from the integration of advanced technologies such as artificial intelligence and unmanned systems into our air forces, to the importance of international collaboration and resilience in the face of evolving threats. Each presentation and breakout session has highlighted not only the challenges we face but also the vast opportunities that lie ahead.

One of the key takeaways from our discussions is the imperative for agile thinking and adaptability in our approach towards future warfare. It is clear that the landscape of military aviation is changing rapidly, and we must remain at the forefront of technological advancements to maintain our strategic advantage. The ideas and initiatives shared here will serve as a foundation for fostering innovation and collaboration within our communities.

Furthermore, the networking opportunities that emerged during the conference demonstrate the power of connecting diverse minds who share a passion for progress in air force capabilities. I encourage all of you to continue these conversations beyond these walls, to forge partnerships, and to support one another in bringing these visionary ideas to fruition.

I would like to extend my deepest gratitude to our speakers, panellists, and sponsors for their invaluable contributions, as well as to each participant for making this conference a resounding success. Together, we have set the stage for a groundbreaking future in military aviation. Let us carry this momentum forward, challenging the status quo, and paving the way for the air forces of tomorrow. Thank you for your engagement, your passion, and your commitment to excellence. Safe travels, and we look forward to reconvening next year!



FUTURE AIR FORCE

17 - 18 SEPTEMBER 2025
PRAGUE, CZECH REPUBLIC

2-DAY CONFERENCE PROGRAM

- Social Ice Breaker
- G2G and B2G Meetings
- Hosted Dinner & Networking Evening
- Optional program on 19 and 20 September - Industry Day and Czech Air Force Day Air Show

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