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ROTOR

BY

AIRBUS HELICOPTERS

IN THEIR WORDS

**Pilots of the Caribbean:
the H160 in action with
the French Customs
Coast Guard**

PROFILES

**Creating a community
of mentors to support
the next generation
of pilots**

OFF THE BEATEN TRACK

**An explosive
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An explosive mission!

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Bruno Even, CEO of Airbus Helicopters

"Launching new programmes is a key catalyst for innovation."

Necessity is the mother of invention, and the current geopolitical climate proves it. Military innovations are, and will remain, vital for armed forces dedicated to keeping their citizens safe and protecting critical infrastructure. This edition shows how Airbus Helicopters has invested to pioneer and offer optimal, impactful solutions to our operators. Our Head of Programmes, Stefan Thomé, explains how our products benefit from continuous evolution to remain cutting-edge. Our Head of Innovation, Denis Descheemaeker, outlines our approach and priorities as we look to the future. We offer a range of technologically advanced, versatile and upgradeable aircraft. The H145 embodies this versatility; its use by the Lithuanian Border Guard for a range of missions on Europe's eastern frontier is perfect proof.

Launching new programmes is a catalyst for innovation. The H160M—packed full of innovations and benefitting from the operational maturity of the civil version—is set to become a backbone for France's armed forces. You can read firsthand about how the Guépard will be integrated across the branches. Meanwhile, the NH90 continues to benefit from continuous development. Its latest Standard 2 upgrade promises to further enhance operational abilities, ensuring it stays ahead of the pack. Innovation is also about people and courage. Fred North's mentorship programme is a superb initiative, offering crucial support to young pilots and demonstrating leadership beyond the cockpit. We also meet the crew at Savoie Hélicoptères who trigger avalanches to keep mountain communities safe. This edition shows that innovation comes in many forms, from cutting-edge technology to extraordinary people.

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Technological edge: at the forefront of military innovation

Airbus Helicopters ensures its partners and operators can always rely on technology that will make a difference. We examine the best innovations in our current fleet—the tangible upgrades and digital tools—that redefine mission readiness and execution. This is a story of continuous advancement, embedding the state-of-the-art into every delivery today to maximise operator capabilities.

Turning our focus to the future, we offer an exclusive look at the strategic planning for the next innovations that will define the vertical flight landscape. Discover how today's commitment to excellence is paving the way for a safer, more capable tomorrow.

Articles: Emmanuel Huberdeau,
Alexandre Marchand, Belén Morant and Ben Peggie

Essential for survival

In the increasingly challenging geopolitical situation, countries across the world are analysing how to ensure their armed forces remain as strong as possible. Airbus Helicopters' Head of Programmes, Stefan Thomé, explains how the company's policy of continuous development has built a range ready for essential missions.

1: Stefan Thomé, Head of Programmes at Airbus Helicopters.

2: The versatility of the H145M allows it to perform a variety of missions.

3: Drones and unmanned aerial systems such as the VSR700 will act as force multipliers on the connected battlefields of the future.



"Military requirements especially drive innovation... because military products are built for either superiority or survival – or both," says Stefan Thomé. While Airbus offers the largest dual range of civil and military helicopters on the market, Thomé is highlighting the key role that continuous development has in terms of delivering military helicopters that are designed and built to be decisive. Far from being a range of civil helicopters with some basic adaptation for military operations, the company's military products are significantly enhanced by a series of ongoing innovations. For proof, Thomé also points to France's H160M Guépard and the mid-life upgrade to the Tiger as two of Airbus Helicopters' largest ongoing investments. Such improvements will also pave the way for the next generation of military rotorcraft.

CO-CREATING EVOLUTIONS

Continuous development is also becoming something that operator and OEM work on together. Previously, rigidly defined multi-year contracts agreed between OEM and client introduced new technologies, but there has been a shift in doctrine. "Those times are gone," says Thomé. "Instead, militaries co-create and co-develop solutions, industry and militaries together create solutions – that's something new." Thomé talks about Airbus Helicopters products benefitting from an entire ecosystem that supports the development of new technologies. Universities, suppliers, partners and of course, Airbus' own Innovation teams constantly research and test new possibilities. Ongoing capability demonstrations given to military operators then lead to the continuously evolving functionality at the heart of Airbus Helicopters' products. "Modular architectures also provide the customers with the ability to plug in their own changes," states Thomé. An example of this in the current range is the H145M. "The helicopter's versatility means users can take this helicopter and quickly convert it from, let's say, a training helicopter to a reconnaissance helicopter, and from a reconnaissance helicopter to a light attack helicopter," points out Thomé. Continuous development of its connectivity technology puts the H145M firmly on the cutting edge, allowing it almost to act as a flying command post, like a node in a vital data network, dramatically reducing crew workload and enhancing situational awareness in the cockpit. Unsurprisingly,



the company's current pinnacle of continuous development in its military range is the H160M. Special military systems, weapons and FlytX avionics all make it substantially different from the civil version. Thomé also draws attention to how well the helicopter's automation is being received: "Crews around the world are excited about the degree of automation which we have put in the H160M, for example its auto takeoff function, which makes flying this helicopter a whole new experience."

CONNECTED TO THE FUTURE

Airbus' in-service range of military products continues to evolve and Thomé highlights the teaming capability which "significantly extends the horizon of our helicopters. We intend to be drone agnostic, so it does not matter which drone we team with." Of course, a future where teaming and connected battlefields co-exist necessitates further development. "Whenever you connect products, connectivity and sensors, then data is involved," explains Thomé. "Receiving, sending, processing and storing data, as well as data security is, becoming increasingly important. And we cannot think of our products – whether helicopters, drones, ground stations – in isolation. We need to think of them as networks. This digital aspect is really another key strategic and important element for products, especially future military."



Champion of innovation

Airbus Helicopters maintains its technological leadership with products offering increased performance, enhanced mission capabilities, and ever higher safety standards.

1: Denis Deschemmaeker, Head of Innovation at Airbus Helicopters.



"Our innovation roadmaps focus on developing the autonomy and interactive capacity of our aircraft, as well as improving performance, particularly in terms of energy efficiency. This enables our military customers to increase the capabilities of their helicopters in ever more challenging environments," emphasises Denis Descheemaeker, Head of Research and Innovation. "In today's operational environment, helicopters are increasingly being integrated with interconnected systems. That's why we are focusing our efforts primarily on technologies that enable collaboration between crewed and uncrewed systems."

A COMPREHENSIVE STRATEGY

Airbus Helicopters' innovation strategy covers short, medium, and long term objectives. Short term objectives include, for example, promoting the automation of helicopters to reduce crew workload and thereby increase flight safety. This objective can be achieved through the development of new flight control laws and next generation avionics. "In the medium term, we will introduce disruptive features to aircraft like the NH90, with more impactful research projects," states Denis Descheemaeker. "For the longer term, we are already working on innovative designs for next generation systems, with a major focus on crewed uncrewed teaming."

INTERNATIONAL TEAMWORK

To highlight this capability, Airbus Helicopters participated in the international MUSER programme last year, which tested the integration of two helicopters and two drones of different categories. "This was a joint project, showing that we can work with partners and even competitors to defend Europe and NATO," Denis Descheemaeker explains. MUSER is just the first step. Increased interaction with drones will eventually lead to the development of a truly collaborative bubble involving players in the air and on the ground. Such teaming could also have dual applications in the civil sector. Denis Descheemaeker points to the potential use of drone helicopter tandems in fighting forest fires. "The quest for autonomy begins with understanding the environment surrounding the helicopter, with the initial goal of automating landings, including

AIRBUS HELICOPTERS' FOUR FLYING TEST BENCHES FOR RAPID RESEARCH AND DEVELOPMENT

- **Flightlab:** a modified H130 that can be used to test new equipment in flight very quickly.
- **DisruptiveLab:** a lightweight aircraft optimised for research into new engines.
- **PioneerLab:** an H145 used for research into advanced hybridisation and environmental awareness.
- **RACER:** an aircraft designed to test a new helicopter configuration with wings and propellers capable of setting speed records.

those on rough terrain, using Lidar," notes Denis Descheemaeker. In the military sector, this environmental monitoring could be used to detect moving objects, thereby protecting helicopters from drones. However, automation also affects cruise control, providing improved navigation capabilities for the crew. This would improve both flight safety and fuel economy. Other work focuses on predictive maintenance, the use of new materials, and research into high speed flight, as seen in the ENGRT* project. This is an area where Airbus Helicopters has already demonstrated its expertise with the RACER demonstrator. "Decarbonisation is another area of focus, particularly in terms of engine hybridisation," concludes Denis Descheemaeker. "Our objectives here are twofold: to increase safety with electric assistance in the event of failure, but also, depending on the flight phase, to make the helicopter quieter. These are two areas where dual use applications are obvious for both civil and military purposes."

*ENGRT: European Next Generation Rotorcraft Technology.

2: The innovative design of the RACER is making it possible to break speed records.

3: Airbus was part of the European project, "MUSER", which is working to enhance teaming between drones and helicopters. Here, Airbus Helicopters' Flightlab teams with the VSR700.

4: Airbus Helicopters uses the PioneerLab to test technology such as hybridisation, an innovation which will help the discretion of military and civil helicopters.



Innovation for today and tomorrow

Modern armed forces rely on innovations for superiority and survivability. In this geopolitical context, emerging technologies are crucial for developing high-performance military helicopters with superior range, speed, payload and with enhanced survivability, autonomy, and interoperability capabilities.



Guépard: smart, silent, connected— the future of French airpower

Rotor met with Louis, Chief Weapons Engineer at Airbus Helicopters and Head of the Joint Light Helicopter (HIL) programme, for which France has chosen the H160M, or Guépard, to equip its three armed forces.



HOW DO THE INNOVATIONS OF THE CIVIL H160 PLATFORM BENEFIT THE ARMED FORCES?

Chief Weapons Engineer Louis: The civil version of the H160 has many innovative features; Airbus Helicopters has filed 68 patents on this aircraft. They are of great interest to us. The major efforts made to reduce fuel consumption and noise emissions (Blue Edge® blades and the tilted Fenestron®) are key examples. Less noise means greater discretion for military operations; lower fuel consumption means longer missions and fewer refuelling constraints. I could also mention the innovations introduced at the design stage to limit corrosion. This is an area of great interest to the armed forces, particularly the French Navy, which operates in a saline environment. All these civilian advances are therefore highly relevant in the military arena.

THE AVIONICS AND MISSION SYSTEM ARE TWO MAJOR NEW FEATURES OF THE H160M. HOW WILL THEY CHANGE THE WAY THE CREW WORKS?

Louis: In terms of avionics, we have developed a new version for the Guépard, which differs from the civilian H160 currently in service, for both technical and operational reasons. This new avionics system allows both the aircraft's flight parameters and mission system information for operational aspects to be displayed on the same screens. Just like a modern car with a phone display on the dashboard, we have large screens for the crew, with an intuitive touchscreen interface. This optimises the display area for essential information during complex military missions. With these screens, the two forward crew members can operate all systems (high-performance radar for the French Navy

and the French Air and Space Force, and data links) without the need for a third operator in the rear, as was the case on older-generation helicopters. This means we can quickly switch between displaying the flight parameters, thereby ensuring safety, and engaging military mode to support the operational mission.

THE H160M WILL BE THE FIRST AIRBUS AIRCRAFT TO BE EQUIPPED WITH NATIVE DRONE COOPERATION CAPABILITIES. WHAT WILL THIS TECHNOLOGY BRING TO THE TABLE?

Louis: Crewed-uncrewed teaming is a new and essential capability given the international context. The French armed forces have identified this need for the H160M. The Guépard will be equipped with everything it needs, including a communication system capable of interacting with drones and ...

1&2: Lift-off for the H160M. 68 patents were filed for the civil version of the helicopter, and the military variant benefits from these innovations—and more.



3: France will operate the H160M across the three branches of its armed forces. Pictured here in the livery of the French Army.

... controlling them for the crew. The mission system will display what the drone sees directly on the avionics. Natively capable of operating with drones, it will then be a simple matter of deploying the specific software for the models selected by the Ministry of the Armed Forces.

WHAT WILL THE MAIN BREAKTHROUGHS IN CONNECTIVITY BE COMPARED TO PREVIOUS GENERATIONS?

Louis: Connectivity is natively enhanced in the Guépard. We have conventional military radios, but also satellite connectivity (Satcom) for long-distance communications, such as to mainland France for aircraft deployed overseas. Above all, there are tactical data links specific to each branch of the armed forces:

- **French Army:** Communication with the air-land bubble (notably Scorpion via SIC-S).
- **French Navy:** Based on the L22 link.
- **French Air and Space Force:** Based on NATO's L16.

These elements enable data exchange and the sharing of tactical situations, making the mission much more efficient. All information is shown directly to the crew without the need for additional personnel, ensuring both the mission and connectivity with only two people.

WHAT ROLE DOES MAINTENANCE PLAY IN THE GUÉPARD PROGRAMME?

Louis: Maintenance is a key focus area. Airbus had very high ambitions for the civil H160: greater helicopter availability, longer time periods between maintenance stages and a reduced logistical footprint. The French armed forces share these objectives, aiming to reduce the number of mechanics deployed on missions - such as the Navy on ships or the Army in theatres of operation - and cut costs. The armed forces have supported Airbus in developing the simplified maintenance plan. Feedback on the H160s in the interim fleet (already operated by the Navy) is very encouraging.

WHY STUDY THE INTEGRATION OF THE MHT MISSILE (AKERON LP) ON THE H160M GUÉPARD?

Louis: Given the geopolitical context, we need to make sure the Guépard has anti-tank capabilities that complement the Tiger's. We therefore decided to launch this integration study to ensure we have the necessary readiness, and also to offer additional capabilities more quickly. The MHT missile offers different military effects to rockets and machine guns, with a longer range. It is also useful for certain anti-ship missions.

ARE THERE ALREADY PLANS TO UPGRADE THE H160M GUÉPARD AFTER IT ENTERS SERVICE?

Louis: We are, of course, considering potential upgrades. These include upgrading its weapons (notably to integrate anti-drone capabilities), studying ways to enhance its radar capabilities (again, for anti-drone purposes), incorporating a command kit for the Army and improving its armour and protection solutions. These ideas are likely to be implemented in the coming years.

It is worth noting that the H160 is already proving its worth in the paramilitary segment. The French Navy's interim fleet uses it for marine rescue in very rough conditions, with great success. It is an excellent compromise between effectiveness, safety and efficiency for these missions.

MILITARY HELICOPTERS ARE OFTEN USED FOR NON-MILITARY MISSIONS (NATURAL DISASTERS, SECURITY CRISES). ARE THESE MISSIONS INCLUDED IN THE GUÉPARD'S MISSION SCOPE?

Louis: Yes, of course. These types of missions are considered by all three branches of the armed forces. We look at both the ability to intervene and rescue people in distress and the ability to evacuate the wounded. This has been factored into the H160 interim fleet and is something we are developing and strengthening with the Guépard.

4: The five Blue Edge rotor blades reduce the H160M's sound, increasing discretion for vital missions.

5: The H160M cockpit. The helicopter will use FlytX avionics.

6: The Guépard will serve the French Navy.



NH90: greater innovation

With even greater digitalisation and enhanced operational capabilities, the NH90 Standard 2 remains a generation ahead of the competition.



At the end of the 1980s, NATO identified the need for an all-weather, versatile and powerful helicopter. Four nations – France, Germany, the Netherlands and Italy – joined forces to develop an innovative aircraft. Today, the NH90 is a huge commercial, technical and operational success. Building on this success is the challenge facing Standard 2, currently under development at the initiative of the French special forces.

A TECHNICAL AMBITION

“Standard 2 represents a major evolution of the NH90,” explains a member of the 4th Special Forces Helicopter Regiment of the French Army Light Aviation (ALAT) unit. “It gives the aircraft new operational capabilities in terms of the deployment and recovery of commandos, and even fire support in complex environments. The increased digitalisation of its avionics also provides greater flight safety in degraded conditions and improved communication capabilities.” The cornerstone of these new capabilities is the Euroflir 410 optronic turret fitted to the Standard 2, which integrates several sensors at different wavelengths. These include a laser rangefinder, an infrared laser pointer

1: By relocating defensive weapons to open hatches at the back, the doors are completely unobstructed for soldiers, or for aerial rope operations.

2: A full HD screen displays images from the NH90 Standard 2's Euroflir 410 optronic turret.

3: The NH90 Standard 2's innovations optimise its ability to carry out special forces operations and a range of other missions.

for target designation to guide cooperative fire, and a laser illuminator with a wide beam, also in infrared frequencies, which can illuminate dark areas at night for the pilots. Flight engineers seated between the two pilots have their own full HD screen and direct control of the turret for optimal use. This control can also be shared with the flight commander during different phases of the mission. The flight commander also has a digital tablet, equipped with a tactical information system, enabling them to control not only the Euroflir 410 but also all radio stations. Fitted in the nose of the aircraft above the Euroflir 410, the Distributed Aperture System (DAS) multispectral and panoramic sensors will provide the crew with better visibility in poor flying conditions (snow, dust, fog), day or night. This capability will be integrated into Standard 2 in a second phase. The integration of the Euroflir 410 and DAS is supported by the introduction of a new generation of TopOwl headsets, which can combine the displays of both sensors on their fully digitalised visors.

SERVING THE TROOPS

Innovation extends far beyond the cockpit to the cargo hold. Initial focus is on the installation

of a ‘KAMORA’ (removable radio kit) bay to enhance interoperability with other battlefield participants. “Integrating a new communications system is a complex and costly process,” explains an officer from the 4th Special Forces Helicopter Regiment. “The NH90 Standard 2 comes pre-equipped with antennas and cabling to accommodate any type of new radio installation. Voice, data, satellite transmission – everything can be installed quickly and easily in the helicopter, which also has the capacity to control drones. It’s revolutionary.” The cargo hold itself has been modified by relocating defensive weapons to open hatches at the back of the fuselage. This leaves the doors completely clear to soldiers, or for aerial rope operations, which can also be managed from the rear ramp. The aircraft can, of course, still use external fuel tanks, giving it a range of over 1,000 km. Manufacturers were advised of the contracts for Standard 2 in October 2020. Flight testing for the initial prototype started in June 2024, and production of the first aircraft began in early 2025. The 18 aircraft ordered by France will be delivered between 2026 and 2029.

Spain takes off in the age of teaming

Imagine crewed helicopters that obtain information from drones without having to put themselves at risk, or uncrewed drones that transport supplies to troops deployed across wide areas without endangering the helicopter. The reality is that CUC-T (crewed-uncrewed teaming) is transforming aerial operations and Spain is ready to play a key role in this revolution.

1: A Spanish pilot prepares for takeoff. Spain has been testing a range of teaming solutions.

2: The Flexrotor in front of the Spanish H135 'Nival'.



Collaboration between crewed and uncrewed aircraft not only minimises risk for military personnel but also optimises data collection, surveillance and attack capabilities. The Spanish armed forces have shown a keen interest in learning how to exploit these new capabilities. As part of this, last May saw the first demonstration of CUC-T collaboration between a Flexrotor unmanned aircraft and a Spanish Navy H135 'Nival' helicopter. For this test, Airbus Helicopters in Spain was responsible for the design and integration of the systems in the H135, such as the antennas and modem, in flights in which the crew of the H135 received information from the Flexrotor directly from the drone itself.

FORCE MULTIPLIER

The tests, carried out at the Coronel Maté Spanish Army airbase in Colmenar Viejo (Madrid), successfully demonstrated how a crewed helicopter can follow and receive information from a drone, extending visual range and mission safety exponentially. According to Luis Martín Díaz, Head of Customers and Programmes at Airbus Helicopters in Spain: "The association with the Flexrotor converts the helicopter into a force multiplier, enabling rapid collection and distribution of data in real time to allow for informed decision-making, and also reduces the crew's exposure to dangerous and no-go areas."

IMPROVING STRIKE PRECISION

Another project putting Spain on the map for CUC-T has been the integration of intelligent loitering systems into the Spanish Army's NH90 helicopter. Tests, carried out at the end of September in Chinchilla and set to continue over the coming months, have looked at the integration of the Spanish company Arquimea's Q-SLAM-40 loitering system into the NH90. The integration flights showed that this system, equipped with artificial intelligence, can be launched from the helicopter via the cargo hook hatch and controlled using a mission system integrated into an onboard tablet. This capability allows for controlled, surgical strikes, minimising the risk of collateral damage. The Q-SLAM-40 has a flight endurance of 25 minutes and a range of 25 km; its ability to form drone swarms opens up a new array of possibilities for the NH90's classic attack missions but also for scenarios of emerging importance, such as coordinated strikes against other drones.

JOINING FORCES

"The commitment of the Spanish Ministry of Defence to projects of this type is of fundamental importance," explains Belén García Molano, Head of Engineering at Airbus Helicopters in Spain. "These advances are not only a response to the increasing demand for more sophisticated and efficient defence systems, but are also a reflection of the country's investment in talent and technology." Collaboration between the public and private sectors, which are working together to develop a strong technological environment, is enabling Spain to keep up with military developments and to be a driving force for change. As García Molano explains: "The work on CUC-T is a clear example of how the ability to innovate and to adapt dual-use technologies, applicable to both military and civilian environments, is laying the foundations for a more secure, intelligent and effective defence. Ultimately, Spain is not only demonstrating the future of defence but is actually shaping it."

3: Tests are being conducted looking at integrating Arquimea's Q-SLAM-40 loitering system into the NH90.

4: A close-up of the Q-SLAM-40 loitering system.

5: A flight crew member uses a tablet to control the drone.



Lithuanian Border Guard: Europe's watchmen

As one of the eastern-most countries in the European Union, Lithuania occupies an important strategic position. With the Lithuanian Border Guard receiving its first three five-bladed H145s, Pilot and Technical Engineer Lt. Col. Audrius Vaicekauskas explains the impact of the new helicopter on their range of vital operations.



1: Lt. Col. Audrius Vaicekauskas.

2: A maintenance crew hard at work on the Lithuanian Border Guard fleet. Flying such an array of missions means their helicopters have to be quickly configurable for a range of missions.

3: Keeping a watchful eye. The Lithuanian Border Guard uses their helicopters for border patrols, law enforcement, search and rescue, VIP transport and even radiation monitoring.

4: The five-bladed H145's lifting capability was a key factor in the Lithuanian Border Guard's decision.

WHAT WAS THE DRIVING FACTOR BEHIND CHOOSING THE FIVE-BLADED H145?

Audrius Vaicekauskas: We assessed and evaluated our daily tasks (border patrols, migration control, law enforcement tasks, SAR, etc.) and, based on the current limitations we faced (lifting power, mission equipment interchangeability), it was obvious that we needed extra power and capabilities, and that made us think about upgrading our fleet. The main goal was multi-mission and increased payload capabilities, which are still real game changers. The five-bladed H145 is the best helicopter in its class and with its higher lifting capability, only this helicopter could fulfill our tasks and missions.

HOW DOES LITHUANIA'S SIZE AND LOCATION INFLUENCE YOUR CHOICE OF HELICOPTER?

A.V.: We are a really small country. In Lithuania, only two state institutions have helicopters: the Lithuania Air Force and the State Border Guard Service. The spectrum of missions we have carried out is really wide. We do everything from our daily law enforcement tasks such as border control, SAR, down to VIP transport or tasks involving special forces. Being a small country, we unfortunately cannot have a fleet of 10, 15, or 20 helicopters, so the modularity of the five-bladed H145 and interchangeability of mission equipment is a game changer. Any mission equipment arrangement can be done in 10 to 30 minutes, for any unforeseen mission.

COULD YOU HIGHLIGHT SOME OF THE UNIQUE MISSIONS THAT DEMONSTRATE THE H145'S NECESSITY IN YOUR OPERATIONS?

A.V.: Amongst the many missions we fly, we have a specially designated task of following the Russian Federation trains crossing Lithuanian territory from Belarus to Kaliningrad. The only way to monitor this train movement within the inner territory of the country, as well as being able to provide rapid response, if required, is with helicopters. Also, as a Border Guard Service, we have a unique and special task to monitor possible radioactive fallout and contamination areas using special gamma-spectrometry monitoring systems installed onboard the helicopters in the unlikely event of a radiological incident at Astravets



nuclear power plant (in the Republic of Belarus), which is located in alarmingly close proximity to Vilnius – our highly-populated capital.

THE FIVE-BLADED H145 FEATURES HELIONIX AVIONICS AND A FOUR-AXIS AUTOPILOT. WHAT HAS BEEN THE IMPACT OF THIS NEW TECHNOLOGY?

A.V.: The new avionics equipment is amazing... it's like the helicopter is supercharged with new functions and especially safety functions, that will think two steps ahead of the pilot and, if it is really necessary, will react proactively... I am very impressed with this new system. Compared to older cockpits, it is something new and magical. Even if it sounds quite difficult, it was a really quick and smooth transition from the H135, H145 to the five-bladed H145... we basically only needed very minor differences in our training. I think all of my colleagues felt quite comfortable with the new machines within about a week or two of training.

HOW DO HELICOPTERS STRENGTHEN YOUR CRITICAL ROLE AS A GATEKEEPER OF THE EU'S EXTERNAL BORDER?

A.V.: It is true, we are acting as gatekeepers. Given the difficult geopolitical situation we currently have in the EU and especially at our borders, this role is more vital today than ever before. The capabilities of these helicopters make them beneficial not only for Lithuania, but for the whole of the EU as the missions we do ensure EU safety and security. The arrival of the five-bladed H145 in our fleet is a long-awaited, pivotal moment for us, for our law enforcement and defence community and our country. We feel confident, safer and ready to carry out a wider mission profile than ever before.



H225M French Special Forces



SWEDEN'S DYNAMIC DUO

A spirit of 'anything is possible' motivates Storm Heliworks, whose H125 and H145 helicopters carry diverse cargo in Scandinavian backcountry.

Article: Heather Couthaud

When a customer asked Stefan Larsson and Dennis Sundqvist, co-founders of Storm Heliworks, whether the company did human external cargo (HEC) for power lines, the duo immediately took up the challenge. "We exploded at the chance," remembers Larsson, the operator's CEO and NP-GO. "It took us nearly two years of planning to set up this service." It is clear that from their beginnings in 2012 renting helicopters from other operators, the pair has found a formula for pioneering difficult services in Scandinavia's rugged landscape. "If you work courteously, you can ask anybody for help," says Larsson. "But the early days showed us we needed to own our own helicopters." That spirit led to renting an H145 from a fellow heavy-lift specialist to trial the HEC mission before purchasing their own,

and it's led to Storm's growth into a year-round operation that employs 25 pilots and 9 helicopters, for an average of 4,500 flight hours annually. "If a customer asks us to do a specialised job, we'll always consider if it's possible," says Larsson. And then they'll set to work making it happen.

MOBILE AND AT MAX CAPACITY

Storm's helicopter services include utility work, construction, power grid maintenance, materials spreading, mosquito control, fire fighting, photography, topographical assessments, passenger flights and even reindeer herding. Larsson says: "During the pandemic, when others reduced capacity, we grew because we had so many legs to stand on." The seasons dictate the work. Summer and 24 hours of daylight mean

the fleet is never idle. A pilot, a one- to three-person ground crew, and a mobile fuel truck are all that's needed to keep a helicopter at an isolated worksite for days at a time. In winter, by contrast, with just four hours of daylight in December, Storm's activity switches to cutting back branches and clearing snow and ice from power lines and communication towers.

A 'VICTORINOX KNIFE' FOR EVERY JOB

This volume of activity is made possible in large part by the H125. At Storm, whose fleet of H125s now numbers three aircraft, "the H125 is like a Victorinox knife," says Larsson. "It can do whatever you want." Flick a lever and the helicopter is hovering with a vertical saw; pull a tab and there's a long-line hook and basket. Its maximum cargo sling load of 1,400 kg means the H125 is the team's workhorse for precision lifting of pylons, concrete baskets, construction materials, etc. And the H125's high-altitude performance (it holds the record for highest takeoff from Mount Everest and highest long-line rescue in the Himalayas) is especially valued in the mountainous terrain of northern Scandinavia. Not to mention the region's island-dotted southern archipelago, where the H125's manoeuvrability is another asset.

BEST CHOICE FOR HEC

Larsson's and Sundqvist's appetite for pioneering markets brought the company its first five-bladed H145. For now, the aircraft's sole mission is HEC, during which technicians are suspended below the helicopter in harnesses to perform maintenance on live power lines—a practice that is used to limit the disruption and cost of having to cut power to customers and industry. The H145 proved to be the helicopter most able to meet the mission's requirements, says Larsson. Initially, they chose the H145 for its power, an asset in windy mountain areas, where it meant more stability and safety for the technician. Add to that its best-in-class status for one-engine inoperative performance. "Before, we lowered technicians to the outside lines but now we've begun putting them in the centre," says Larsson. "If we lose an engine, we need to be able to climb 30 metres and carry the helicopter and people to safety, and that only works with the H145." With a full workload performing HEC, the helicopter flies up to eight months of the year on HEC missions, and the other four see the crew and helicopter prepared to go on emergency situations on power lines.

1: Storm Heliworks' H145 flying alongside some of Sweden's electrical powerlines.

2: The Storm Heliworks crew. Stefan Larsson and Dennis Sundqvist co-founded Storm Heliworks in 2012.

3: Storm Heliworks crew working on the cables whilst on a long hoist from the five-bladed H145.

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3

PILOTS OF THE CARIBBEAN:

THE H160 IN ACTION WITH THE FRENCH CUSTOMS COAST GUARD IN THE WEST INDIES

A year into service, the Airbus H160 is already meeting expectations for the Douanes Françaises (the French Customs agency). The helicopter's technological advancements are enhancing its operational performance and safety—opening doors to new mission profiles.

Article: Ben Peggie

Deployed to the French West Indies for just over a year, the Airbus H160 has significantly enhanced the Douanes Françaises' operational reach across the Lesser Antilles arc, with the potential for future missions extending to French Guiana. This new helicopter's impressive autonomy allows for direct coverage of distant points like Saint Martin in the north and Grenada in the south, as well as sustained presence over key surveillance zones near the French islands. This extended range and endurance, demonstrated by flights exceeding three to three and a half hours, are unlocking new mission possibilities and bolstering the Douane's capacity to tackle illegal trafficking

and ensure regulatory compliance throughout this extensive territory, often while venturing significant distances offshore.

AVIONICS THAT PILOTS TRULY TREASURE

For the Douanes' Multi Regional Base Manager* flying the H160 is beyond anything he had imagined: "It's really an amazing helicopter." The teams are effusive in their praise for the aircraft, citing its improved operational performance and safety, which, according to them means that "you never find yourself in a difficult situation, thanks to the avionics." The teams also appreciate the enhanced safety offered through the helicopter's ability to manage



technical failures, stating "everything is done to relieve the pilot of a whole range of tasks when it comes to managing emergencies, and with that the aircraft really adds value in terms of safety." As one of the most modern helicopters available on the market, it's not surprising that the H160's performance offers a range of new operational options. Since the H160 is larger than the Douane's other previous helicopter, it offers increased payload and carries more fuel. "This helicopter has the longest range currently available in the Lesser Antilles and its increased range and payload open up new operational possibilities," confirms the Multi Regional Base Manager. He also highlights the huge advantage provided by the 4-axis autopilot: "It enables diverse missions like maritime rescues and stable hovering for winching." Another game changing avionics feature is the H160's computerised rotorcraft flight manual (c-RFM). As well as providing vital information such as weather conditions and required flight profile, it also further boosts performance by automating the crew's calculation tasks, even allowing them to finish one mission and go straight to another in-flight—and with the H160's enviable top speed, they can be on the scene quickly.

A MATURITY BEYOND ITS YEARS

The modernity of the helicopter also facilitates easier maintenance, which translates to greater availability—which is particularly noteworthy considering there are only two technicians supporting the helicopter daily (with more available during large inspections). In such a remote region, this suggests an already impressive level



of maturity for the H160 programme. Geoffrey, one of the technicians from Sabena technics who is responsible for the helicopter's maintenance, feels that the efficiency of the helicopter's maintenance process offers huge advantages. "The availability of this aircraft is really good because the maintenance has been streamlined, compared to other aircraft I've worked on. In the year or so that we've been working on it we haven't had any major problems, so I think that it's performing like a really mature helicopter." The H160 promised a lot and is now delivering, a fact which is emphasised by the Multi Regional Base Manager, who says "we dreamed of having it and now it's here. The H160 is a product that really meets our expectations in terms of what we hoped for as field operators."

1: The H160 hovers above a ship. Performing a variety of missions for the French Customs Agency, the helicopter's increased range has opened up new operational possibilities.

2: A Caribbean cruise. The H160 flies low over beautiful blue water.

3: A crew member gets ready to winch.

4: The H160 is ready to deal with any kind of trouble in paradise.



*In accordance with the French Customs agency's protocol, the interviewees remain anonymous.

THE AIRBUS H145 IS TAKING SÉCURITÉ CIVILE MISSIONS TO ANOTHER LEVEL

France's Sécurité Civile, the national civil security agency, is experiencing a substantial increase in its aerial rescue capabilities, thanks to the integration of Airbus' H145 helicopter. When it comes to saving lives, the acquisition is a clear step forward, enabling more efficient and safer operations across the varied and challenging geographies of France.

Article: Isis Franceschetti

MADE TO SERVE IN EVERY ENVIRONMENT

The integration of the H145 into the Sécurité Civile's fleet was seamless and the new helicopter quickly demonstrated its superior performance and versatility. Olivier Gonelle, a Sécurité Civile flight mechanic, explains: "We work on all types of missions: in the mountains, the plains, but also the sea." Such a variety of operating environments requires a helicopter that is not only powerful but adaptable, equipped with the right tools to match the conditions of each mission scenario. The H145 meets this criteria, enabling Sécurité Civile to go further in saving lives.

NEW HELICOPTER TECHNOLOGY AT THE SERVICE OF FIRST RESPONDERS

"The arrival of the H145 is like a generational leap," says Sécurité Civile pilot instructor, Michaël Lenfant, when describing the impact of this new addition to the service's fleet. "The vector in terms of size is absolutely identical, however inside, everything was really different." This evolution has significantly extended the mission capabilities of the Sécurité Civile. The complexity of the crew members' role before, during and after the flight, further emphasises the need for a reliable rotorcraft, whose equipment can effectively

reduce the crew's workload in the most difficult situations. Gonelle explains: "During the flight, when we're setting up the mission, I am the pilot's assistant. I help them with navigation and radio frequency changes. Once we get to the scene, my role is to help with the winch, to bring us as close as possible to the victim, and get everyone back on board to evacuate them towards the hospital as soon as possible." The H145's increased range and fuel efficiency improves response time, directly contributing to a higher operational output for crews. Gonelle recounts a recent example, where while the Sécurité Civile was called to perform a mission near Cannes, in the south of France, transporting a patient to hospital, an urgent second mission was dispatched. "Thanks to the H145 and its improved performance, we still had fuel. We could go and do the second mission so the person was rescued quickly, and arrived at the hospital with no delay," explains Gonelle.

ENHANCED SAFETY TO SAVE MORE LIVES

Lenfant further underscores a critical advantage: the H145's enhanced safety features, which are paramount in high-stakes operations. "In case of severe degradation, whether meteorological or aerological, the machine can react much better, much more safely, so it can return to base." This resilience ensures that when faced with rapidly deteriorating conditions, the crew can maintain control and bring vital missions to a safe conclusion. Gonelle adds: "Thanks to the H145, today we have an autopilot that is much more effective than in previous-generation rotorcraft, because it is 4-axis." The 4-axis autopilot offers a strong operational advantage for emergency medical services missions; its significant positive impact on flight behaviour in degraded conditions helps rotorcraft regularly navigate extreme weather or land in almost unreachable areas to rescue endangered civilians. Lenfant adds: "We now benefit from equipment that's equivalent to that of the H160. The two engines perform better and offer an improved security margin compared to previous-generation helicopters." This capability to successfully complete challenging missions directly translates to more lives saved and a wider reach for Sécurité Civile's life-saving operations. Gonelle concludes: "Thanks to that, we can carry out missions that perhaps previously we could not."

1: The sun shines on the Sécurité Civile's five-bladed H145.

2: To the rescue: a crew member holds on to a winch, ready for action.

3: River deep...

4: ...Mountain high – the five-bladed H145 has proven itself across all of France's most challenging geography.



CREATING A COMMUNITY OF MENTORS TO SUPPORT THE NEXT GENERATION OF PILOTS

As a pilot for the film and television industry, Fred North has made a career of flying in the most challenging situations, whilst never compromising on safety. His new worldwide mentoring programme aims to help young pilots benefit from the wisdom of more experienced peers.

Article: Ben Peggie



"We've done so much 'mechanically' in the past 40 years that I think, today, helicopters are really reliable, if you do the maintenance correctly. Now, the weak part is us, as pilots, as human beings," says Fred North. He wants to ensure aviators in the early phases of their career can connect with veterans so they have someone to whom they can pose all kinds of questions in a trusted and confidential environment.

SOMEBODY TO TURN TO

Increasing pressure on helicopter pilots, according to North, is the fact that the majority of them are alone in the cockpit. "I would say 80% fly alone. Only 20% fly with a crew, and only in large helicopters do you have someone else in the cockpit with whom you can ask questions, share emotions, or discuss doubts." North wants to ensure that younger fliers don't feel alone away from the helicopter and believes that mentoring can enhance safety. "I get many emails every day from young pilots," he continues. "It's difficult to give everyone the time they deserve. I started the mentorship programme so someone can be there for these pilots when they need them."



The approach is already making a difference. North recalls a moment at the 2025 Verticon aviation trade show, where a mentee spoke on a panel stating how life-changing the programme had been for her. She draws confidence from knowing she has someone with whom she can discuss anything from career guidance to advice on flying. North also emphasises the importance of finding good matches, taking into account the location of the participants and type of missions they are flying. "Each mentee has a dream or an aspiration to be a certain type of pilot," says North. "The aim is to try to find a mentor that supports that, who is going to be a good fit with a mentee. Being a mentor is not a full-time job, it literally takes 5 to 10 minutes every other month to mentor someone, which is not so much time considering the huge benefits it brings to a young pilot. It makes an enormous difference for that person."

A HOLISTIC APPROACH

As Head of Aviation Safety and Quality at Airbus Helicopters, Florence Verlut agrees with North that safety extends well beyond the product: "Airbus' strategy is holistic, to not only look at the product, but to look at everything that can enhance safety." Sponsoring the Fred North Helicopter Safety Mentorship Program is one part of the company's quest to reach zero accidents. Verlut sees North's mentors as helpful guides to transfer vital knowledge to a new generation of pilots.



"90% of accidents are operational and with Fred's personality and experience, he can reach a lot of people, so his mentors can reach all types of pilots. His willingness to think about the future by upskilling the new generation aligns with Airbus' safety roadmap and can make a big difference."

FRED NORTH NEEDS YOU!

Today, over 350 people are being mentored worldwide, with a further 40 on a waiting list from places like North America and Europe, but also Bangladesh, Brazil, Panama, Pakistan, Mexico, New Zealand and the Dominican Republic. To satisfy such global demand, North is determined to recruit even more mentors to enable further support for pilots. He regularly uses his social channels for recruitment and also has a network of highly experienced pilots on the lookout for profiles who can offer mentees support. "I would love every young pilot doing his commercial license to be part of the programme," states North. "I believe that this can help create a safer environment for that young pilot because they can ask questions now and not make that mistake eight years later."

TO SIGN UP AS A MENTOR OR MENTEE VISIT

www.thefrednorthhelicoptersafetymentorshipprogram.com

1: Fred North (left) and Airbus Helicopters test pilot Olivier Gensse (right). Gensse is one of the programme's mentors sharing his vast experience with younger pilots.

2: Florence Verlut, Head of Aviation Safety and Quality at Airbus Helicopters.

3: Fred North's H125 trailed by an H160.



AN EXPLOSIVE MISSION!

Triggering avalanches is one of the most exciting and demanding missions carried out by the H125. Join *Rotor* as we visit Savoie Hélicoptères, in the northern Haute-Savoie region of France, to find out more.

Article: Alexandre Marchand

It's a noisy but discreet activity, dangerous but life-saving... In ski areas or near mountain roads, triggering avalanches helps to control the risk that comes with heavy snowfall, which can destabilise packed snow. This preventative work is mainly done by helicopter, which is both fast and safe for those involved.

THOROUGH PLANNING

"Skiers sometimes think they are in an amusement park, but the mountains remain a dangerous natural environment," emphasises Pierre Alexis, a ski patroller and avalanche control specialist in the Haute-Savoie region since 1987. "After heavy snowfall, it is vital to act quickly so we can anticipate risks and prevent accidents."

Each mission begins with a detailed briefing the day before the flight. The firing points are clearly identified, the number of explosive charges is determined and the fuses are prepared. "Dynamite has now been replaced by explosive emulsions packed in 2 kg batches," explains Pierre Alexis. "The charge is detonated using a slow fuse connected to a detonator. Without the detonator, the explosive charge is completely harmless, which means it can be transported safely by helicopter. Even so, transporting several dozen kilos of explosives in a helicopter is never entirely without risk." Snowfall can affect several valleys or ski areas at once, so it's important to act quickly to get as many slopes and roads reopened as soon as possible.

SAVOIE HÉLICOPTÈRES

Savoie Hélicoptères is a family-sized company and intends to stay that way. "We only have about 15 employees, which makes it easier to work together in a friendly environment," says Régis Teissonnière, Chief Operating Officer. With its fleet of five H125s in France (three other aircraft are used in Spain for fire fighting missions), Savoie Hélicoptères can handle any request for passenger transport or aerial work. The company operates from its base in Marnaz, in the Haute-Savoie region, with a secondary base in Saint Crépin.



2: Ready to start. The H125 gets ready to take off.

3: Snowfall can affect several valleys and areas at once, so speed is paramount to ensure the safety of local communities.



EARLY RISE

"We leave early in the morning," Pierre Alexis explains. "There are three of us on board the helicopter: the pilot, the blaster and the blaster's assistant. Both the blaster and the assistant are qualified to handle and use explosives. They are trained first on the ground, in a quarry, before moving up to the mountains." An area scheduled for blasting is, of course, secured; access to the area on the ground is prohibited, and the helicopter's first task when arriving on site is to confirm that the area is clear of people. Once this initial step has been completed, blasting can begin. For Régis Teissonnière, Chief Operating Officer of Savoie Hélicoptères, blasting is "a job that requires coordination and patience; nothing is done in a hurry. As a pilot, you constantly have to think about the helicopter's room for manoeuvre, especially when working in a valley. You also need to know how to position yourself to make the blaster's job easier."

THE FUSE IS LIT

In the cabin, both blaster and assistant prepare their equipment and guide the pilot to the target point. The door is opened. The assistant passes ...

1: Getting ready to blow its (mountain) top: Savoie Hélicoptères's H125 en route to trigger an avalanche in the French Alps.

... the charge to the blaster; the charge has a double fuse to prevent misfires. The slow fuse is lit, and the charge is immediately thrown towards the ground. Throughout the process, the blaster keeps the pilot informed: "door open... charge lit... charge thrown..." With 2 minutes and 30 seconds left before detonation, the helicopter moves away, and the explosion is monitored from a distance. It then moves on to the next position. "With its versatility, power and reliability, the H125 has revolutionised mountain operations," says Maxime Gaillard, a pilot with 22 years of experience. "The H125 is a very agile aircraft. It is a benchmark for aerial work, and we are totally confident in its ability to handle this mission, which, despite everything, remains very delicate. It's so easy to fly that we can focus on the mission, which is essential when working with explosives!"

4: Savoie Hélicoptères's H125 carries a basket of equipment on its mission. Savoie Hélicoptères can handle any request for passenger transport or aerial work.

5: An aerial view of the H125.



THE BELL-SHAPED DEVICE

The DaisyBell is an alternative to using explosives. The bell-shaped device is filled with hydrogen and oxygen and slung under a helicopter. The explosion of the gas mixture two or three metres below the surface of the snowpack is sufficient to trigger an avalanche. The Megève ski resort uses this equipment, which is becoming increasingly common in the northern Alps.

6: Boom! The H125 surveys the explosion that has just been triggered.

7: The DaisyBell explosives.



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