TEAMWORK OF THE FUTURE

News / Manufacturer

Manned Unmanned Teaming (MUM-T) multiplies the capabilities of helicopters and unmanned aerial systems. By controlling drones from the air, military and parapublic crews can explore tough-to-access areas and significantly expand observational capacities.

A sailor is missing at sea. Search and rescue has been scrambled, but details on the sailor's location are thin. The clock is ticking and every second could count.

Fortunately, the helicopter team has assistance: accompanying them is a fleet of five unmanned aerial systems (UAS), controlled from within the helicopter. As the crew observes the water below, they can enlarge the search area considerably, using the drones as extra eyes to locate the sailor. Once he's found, the helicopter will know immediately where to be.

This is just one of the potential uses for Manned Unmanned Teaming. "It multiplies the capabilities of both systems," says Mark Henning, H145 Programme Manager at Airbus Helicopters. "UAS can not only enlarge search areas but also access areas a helicopter might find difficult. They are able to explore unknown territory and deliver information to the helicopter crew, which can then step in with the helicopter's superior effects."

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Airbus Helicopters and Schiebel tested the new technology on an H145. The drone was controlled and piloted by an operator in the helicopter.

Potential for a range of sectors

In April 2018, Airbus Helicopters and Austrian UAS manufacturer Schiebel successfully tested this new technology onboard an H145. The drone was controlled and piloted by an operator in the helicopter, while control was also temporarily handed over to a ground station to simulate the return of the helicopter for refuelling. Airbus is the first European helicopter manufacturer to demonstrate this technology with the highest level of interoperability.

Testing and certification is currently focused on military uses, but as Henning explains, MUM-T has the potential to benefit a wide range of sectors and enable faster and more cost-effective mission completion.

“In addition to search and rescue over land and water, it could be used for firefighting. Helicopters are often used to observe wildfires across remote terrain. With MUM-T, it could cover a much wider area and transmit information to the firefighting team. You could even park the helicopter and fly the UAS further. Police forces could also use MUM-T for observing large crowds or for pursuit missions through built up areas.”

The technology can be implemented in any kind of helicopter and interact with all types of unmanned systems – the potential is considerable.”

- Mark Henning, H145 Programme Manager at Airbus Helicopters

Refinement and optimisation

Operating a UAS from a helicopter presents several additional obstacles compared to operation from the ground. A robust data link in the helicopter is paramount. This aspect was successfully managed during the recent tests in Austria, as was the integration of a complete UAS mission planning and control system in the helicopter’s architecture.

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According to Henning, one of the biggest challenges lies in the human machine interface used to operate the UAS. “It has to be as straightforward as possible. The UAS can carry out certain tasks autonomously, but there is still a lot for the operator to handle – in addition to the other duties onboard they might have.” For parapublic missions, the drones would be operated by a third crew member, but for military missions there would still only be two crew onboard. “We are currently in the process of optimising this after analysing the results of the flight tests in April,” he says.

In addition to these technical refinements, Airbus is also involved in wider efforts to help overcome the hurdles of approval and certification for parapublic use of UAS. “There’s still a lot of work to be done in this area,” says Henning. “But it would ultimately open up a range of applications for MUM-T. The technology can be implemented in any kind of helicopter and interact with all types of unmanned systems – the potential is considerable.”

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