Alpha MALE: inside Europe’s next-generation UAV programme

Airforce-Technology

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Airbus, Dassault Aviation and Finmeccanica are collaborating on a project to build a next-generation European medium altitude, long endurance (MALE) drone. Julian Turner talks budgets, weaponry and the importance of operational sovereignty with Thomas Reinartz of Airbus Defence and Space

In recent years the Afghanistan conflict has shaped European unmanned aerial vehicle (UAV) policy. Economic and political expediency initially pushed France and Germany to seek an Israeli solution, while the UK, Italy and the Netherlands partnered with the US on the General Atomics MQ-9 Reaper.

Frustrated with this dependency on non-European weaponry and with demand for new unmanned aerial systems (UAS) at an all-time high, ministers from France, Germany and Italy finally signed a two-year definition study for a European-built medium-altitude, long-endurance (MALE) UAV in May.

For Thomas Reinartz, head of sales for unmanned aerial systems and MALE 2020 at programme lead Airbus Defence and Space, the announcement from Brussels was a major milestone on a journey that began a decade ago.

"For the last ten years, Airbus Defence and Space has deployed very substantial development efforts in order to acquire an independent industrial and technological capacity in Europe in the field of unmanned aerial vehicles - one capable of rivalling the world's major

players," he says. Fulfilling operational requirements for decades and providing complete operational sovereignty, the Airbus Defence and Space proposal for a MALE unmanned aircraft system is offered to the governments of Germany and France, with wide scope for industrial collaboration within Europe.

"European nations clearly expressed their need for a new UAS, including for intelligence, surveillance and reconnaissance (ISR). Our job is to provide the right product on time and to the agreed costs. None of the unmanned systems on the market can provide the full variance of the spectrum of ISR missions such as communications intelligence (COMINT) and electronic signals (ELINT). Only with a sovereign and independent development will the full certification requirements be achievable."

Joint enterprise: the MALE 2020 programme explained

Besides satisfying European armed forces' specifications, the MALE 2020 project will look to mitigate the impact of swingeing cuts to military budgets by pooling research and development funding.

France, Germany and Italy will each invest €20m in the definition study to tailor the drone development to customer nation, armed forces, procurement agency and industry requirements.

The development phase, scheduled for 2017, will address customer issues in terms of sovereignty, competitiveness, growth potential, compliance with joint requirements and certification.

"The current approach is a tri-national development lead by Germany, France and Italy," explains Reinartz. "The work-sharing for the definition phase of MALE 2020 is absolutely balanced, aligned and agreed between the three aeronautical companies - Dassault Aviation, Finmeccanica Alenia Aermacchi and Airbus Defence and Space - all of whom have an equal 33% share."

"The total cost for the definition phase is a mid-sized two-digit million volume, to be equally shared between the three launching customers, Germany, France and Italy; the development phase will later be shared between customers according to their individual investments in the programme. The development phase could take between five and six years and the industrial leadership would then be selected depending on the respective share of procurement per customer country.

"MALE 2020 is not limited to the three current launching customer nations, of course. It is by definition open to all of Europe, and will obviously be open to export to non-European countries, provided they are part of the 35-strong the Missile Technology Control Regime (MTCR)," he adds.

Reinhartz is pragmatic on the question of why European states have become dependent on global defence technology, and the issue of sovereignty in military reconnaissance and unmanned aviation.

"The fact of the matter is that, over the past 30 or so years, European states have actually gradually promoted European-made defence equipment through cooperation, collaboration or partnerships such as the Eurofighter Typhoon programme and Airbus DS DRAC Tracker tactical UAVs," he says. "The aim behind this strategy was and remains to maintain a sovereign high-tech know-how, protect the industrial structures and employment capacities, and support a European research capability.

"However," he adds. "The scope of European defence equipment and technology is, of course, not always sufficient to cover all needs and buying non-European equipment - mainly from the US and Israel - often remains a reality, particularly when international structures and activities such as those involving NATO or the Afghanistan Alliance promote an intermixing of equipment and technologies."

Next-generation UAV: European drone to offer advanced capabilities

Reinartz will not be drawn on the question of whether or not the new UAS will be weaponised; however, he does confirm that the MALE 2020 drone will be equipped to conduct flight operations in European airspace, allowing it to be used for both security and civil protection missions.

"The MALE 2020 will be the first UAS designed for safe passage and operation in non-segregated airspace," he confirms. "European sovereignty and independence in managing information and intelligence through systems that are resilient against cyber-attacks will also be guaranteed.

"The project would furthermore be orientated to foster development of International Traffic in Arms (ITAR) free high technologies and contribute to sustaining key competencies and jobs in Europe. Regarding weaponisation, be assured that the MALE 2020 system can be offered with all possible variants pre-integrated in the basic design, depending on the customer nation's requirements."

Airbus Defence and Space will leverage its experience from the Talarion and Barracuda development programmes to ensure the new UAS matches the ubiquitous MQ-9 Reaper in terms of functionality.

"The MALE 2020 drone will feature mission modularity that is adaptable to the operational scenario, including comprehensive intelligence missions," says Reinartz. "Operational superiority will provide extensive coverage for long distances, short transit flights and high-airspeed manoeuvres, including quick changing of altitudes, and for surveillance and reconnaissance in wide areas and in-theatre.

"The propulsion system will not only supply ample on-board energy for the sensors, payload and communication, but also safeguard high reliability in the densely populated air traffic over Europe."

Euro vision: the future of collaborative R&D defence projects

Contracts for the two-year definition study may be finalised by year-end, with a decision on whether to green-light development made by the end of 2017, and service entry in the early to mid-2020s.

Aviation Week estimates that the full drone development is likely to cost €1bn, but some of that figure could be offset by other European countries. Spain and Poland, both looking to create a MALE UAV capability for their armed forces, are seen as potentially interested in joining the project.

In light of the fact that several European bilateral UAV projects have failed in recent years, what doesReinartz see as the risks and rewards of collaborative, multinational defence initiatives?

"The main reward is that such programmes offer wider potential from a financial or technological standpoint," he says. "The risks may relate to difficulties in the decision-making process or the definition of collaborative structures, yet usually, and particularly in Europe, multinational projects have proved to be efficient - the Airbus Group being a good example.

"In the case of MALE 2020, relying on a foreign source may engage a question of trust and reliability of the information, leading to delays and hesitations. Of course, in the case of combined operations, the intermixing of equipment is the rule; yet all military activities are not systematically cooperative. In a number of cases, operations are led by a single nation that relies mainly on its own equipment.

"Therefore, such a decision by leading European nations can be seen in the same light as the decision to develop the European satellite navigation system Galileo as opposed to US GPS technology or, say, Airbus vs Boeing. Sovereignty on the various missions and on non-limited use of the new UAS can only be obtained as a result of our own development in Europe.

"Non-dependence on foreign equipment is second to none in terms of diplomacy, foreign relations and a nation's independence; likewise, sovereignty is, by principle, a basic need affecting military reconnaissance and unmanned air systems," he adds. "During military operations, the uncensored, rapid transmission of unabridged, immediately understandable and complete data is essential."