

End-to-End UAV Capability

Unmanned Air Vehicles (UAVs) are becoming an increasingly important enabler in the fields of surveillance, security and defence.



- Innovative concepts
- Mission-orientated design
- Rapid prototyping
- Bespoke solutions
- Integrated test and evaluation
- One stop shop

QinetiQ has broad expertise in unmanned systems, including design and operation of UAVs, development of airframe and materials, propulsion, leading edge sensors, communications, autonomy, conflict and mission management and systems integration.

In addition, we provide high quality independent test and evaluation services and advice on airworthiness, safety, specification compliance and fitness for purpose relating to UAVs and aerial targets.

QinetiQ's capability covers design, technology, performance and cost-of-ownership aspects of platform systems.

We use our technical knowledge combined with advanced facilities and state-of-the-art computer-based modelling tools, which are among the best in the world.

Our technical skills and experience have been used to provide technical evaluation, risk assessment and monitoring of both air vehicle and propulsion system development programmes. We have over 20 years experience in UAV research and development, ranging from design and development of systems and sub-systems to operation of UAVs.



Observer UAV

Requirements Capture

Requirements engineering is the critical activity that underpins all other UAV project tasks. The defined and emerging needs of the customer are elicited and captured using interviewing and other techniques. DOORS® and other proprietary tools are used to manage the requirements and provide traceability through all stages of development. Verification and validation test methods are defined for each requirement and provide the basis for acceptance.

Integrated Systems

For UAVs to achieve their mission aims successfully they require onboard systems to sense the environment, determine a course of action and execute it in a timely and co-ordinated fashion. We provide the sensor, control and decision-making technology to implement this safely and effectively in accordance with regulatory requirements.

Our sensors cover the full spectrum from low frequency radar, through infra-red to ultraviolet and are integrated to meet specific system requirements.

QinetiQ understands the key drivers associated with producing highly integrated solutions with particular experience of systems with exacting volume, weight and power budgets.

Examples of our integration expertise with both bespoke and COTS sub-systems include:

- Observer and MinO Tactical UAVs.
- Extendor - Predator Comms Relay demonstrator.

QinetiQ are expert in the design and development of launch and recovery systems, including airbag modelling and parachute design and the development of control interfaces designed to minimise operator workload.

Airframe and Propulsion

From requirements analysis to detailed design, QinetiQ applies a multi-disciplinary approach to the design assessment and integration of UAV airframe and propulsion systems. We offer a wealth of experience in areas such as aerodynamics of unconventional UAV configurations and the integration of propulsion systems incorporating convoluted ducts and low-observable nozzles, whilst research into composites and nano-materials in particular, is ensuring that the airframe is the most efficient and reliable as possible. The novel configuration of UAVs often requires alternative structural and manufacturing solutions. To meet this QinetiQ offers the capability for design of structural layouts, rapid prototyping, and manufacturing of complex metallic and composite structures.

Trials, Testing and Certification

QinetiQ has extensive experience of 'safety' and 'fitness for use' evaluation of UAVs. Our highly experienced engineers and scientists provide expert technical advice on the safety and suitability of complex integrated systems. We operate restricted airspace ranges throughout the UK which are suitable for testing UAV platforms prior to formal certification. Our staff have also conducted trials on behalf of customers at overseas locations.

QinetiQ has an in-depth understanding of the UK, US and European UAV operational guidance documentation, including the application of aircraft safety targets and civil airspace integration requirements.

One Stop Shop

QinetiQ provides the full range of services to support your UAV projects, from concept to reality.

The future for UAVs is really exciting. If you want to be a key player in this important field, please talk to us about your needs.



Thermal Imaging Payload



Pulse detonation engine



FS 73052

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