Experience gained through conducting major aerospace programmes

Thales is prime contractor and/or subsystem supplier for many military and civil programmes in the following areas:

- UAVs,
- C4ISTAR systems for early warning and air defence (ACCS programmes),
- Mission aircraft and helicopters (AEW, ground surveillance, maritime patrol, maritime surveillance, ESM/ SIGINT, Combat SAR),
- Communications, navigation and identification (CNI) for combat aircraft, transport aircraft and military helicopters,
- Air traffic control systems,
- Onboard sensor systems (including radars, optronics, electronic intelligence and self-protection),
- Integrated weapon systems for land and naval forces.
**UAV SYSTEMS NETWORKED C4ISTAR CAPABILITIES**

UAV systems combine air vehicles, sensor suites and ground-based exploitation segments as part of a network enabled capability.

Thales UAV systems are multi-sensor, multi-mission and multi-platform solutions designed to meet a broad range of security needs. Thales places great emphasis on the key features that define a successful UAV system, including interoperability, survivability, persistence, endurance and flight operations in military and civil airspace.

**A broad spectrum of missions**

- Surveillance, early warning and target acquisition for offensive operations.
- Support for operations other than war (OOTW) in unsecured areas.
- Monitoring of peace agreements from stand-off ranges.
- Surveillance of borders and maritime approaches.
- Civil defence and environment protection missions.
- Provision of data for geographic databases.

**Network architecture approach**

UAV systems contribute to the value chain, from initial sensor data acquisition through to shared situation awareness, enabling decision-makers to conduct manoeuvres in real time, anticipate changing threats and respond in a timely manner.

Thales regards UAV systems as a shared information and action capability offering a broad range of options in response to the changing tactical situation.

With its high-level expertise in data-processing tools, Thales brings operators and decision-makers together into the same operational process.
With high-level expertise in the payloads required for all types of missions and their networked operation, Thales supplies complete UAV systems with the full range of intelligence, surveillance and early warning functions that will be at the centre of a network enabled capability for all airborne and ground-based missions within the ISTAR process:

**UAV SYSTEMS FOR INTELLIGENCE, SURVEILLANCE, TARGET ACQUISITION AND RECONNAISSANCE (ISTAR)**

**Airborne missions**
- Signals and communications intelligence (SIGINT/ELINT & COMINT ESM).
- Electro-optical imagery (infrared, thermal, daytime optical) with countermeasure resistance.
- Radar imagery and airborne ground surveillance (High Resolution SAR/MTI).
- Missile launch detection.
- High-speed communication relays.

**Ground-based operations**
- Optimisation of sensor operations (cross-cuing).
- Exploitation and secure real-time distribution of fused intelligence data.
- Post/subscribe mechanisms via tactical internet.
- Satellite communication and very-high-speed, line of sight directional communications.

**Integrated multi-platform approach**
Thales’ multi-platform approach takes full advantage of the benefits of operational co-operation with ground surveillance aircraft (Joint-STARs, Horizon, ASTOR, Global Hawk, future NATO AGS programme, other mission aircraft such as SIGINT and maritime patrol aircraft) within broader network architectures.

**WATCHKEEPER: A TACTICAL ISTAR SYSTEM**
In 2004, Thales was selected as preferred bidder for the WATCHKEEPER Tactical UAV system for the British Armed Forces. WATCHKEEPER is the largest UAV programme in Europe and will provide a tactical ISTAR solution to the UK MoD for the next 30 years.

Thales UAV systems will contribute to the flexibility of air and/or joint operations, greatly increasing their ability to reallocate resources and reconfigure offensive air assets as missions progress. Thales UAV systems are designed to extend the range of capabilities available to time sensitive targeting cells within command and control centres.

"WATCHKEEPER UAVs will be an invaluable addition to our military capability. They will play a vital role in providing our armed forces with timely intelligence to identify the threat, enabling us to strike faster and more decisively."

Lord Bach,
UK Minister for Defence Procurement
UAVs: a new air power component

- Target acquisition and designation for other armed platforms.
- Precision guidance of air-to-ground armaments.
- Pre-mission planning and post-mission analysis.
- Communication, navigation and identification (CNI).
- Electronic warfare.
- Protection of unmanned combat air vehicles (UCAVs) against anti-aircraft threats.

Full-spectrum electronic warfare

- Communication and radar jammers.
- Electromagnetic pulse devices.
- Self-protection systems and equipment.

Self-protection: guaranteeing the success of offensive missions

With their inherent ability to conduct successive missions, and particularly to loiter over heavily defended areas, UCAVs, like conventional combat aircraft, must carry onboard self-protection systems to ensure survivability against anti-aircraft threats.

Combat missions

- Carrying guided and unguided missiles.
- Laser target designation.

Precision strikes

Air engagements are increasingly organised around the deployment of precision air-to-ground weapons, including laser and GPS guided weapons. For this mode of engagement, based on the use of network architectures, Thales supplies weapon guidance systems that make it possible to conduct operations directly from UCAVs, manned aircraft or from the ground.

In addition, Thales develops and produces the mission planning systems needed for these offensive operations, as well as the full range of sensors and exploitation systems for target research, 3D modelling, location and identification.

UAV systems are a force in their own right, capable of playing a key role in offensive missions. With its extensive experience in avionics for combat aircraft, Thales has a thorough understanding of the requirements and constraints associated with air engagements. Offering innovative solutions tailored to the needs of military users, Thales has the full range of expertise needed to develop offensive functions for UAV systems.

THE BATTLESPACE TRANSFORMATION CENTRE: COLLABORATIVE DEVELOPMENT OF FUTURE CAPABILITIES

The Battlespace Transformation Centre (BTC) is a crosscutting collaborative structure bringing together all the relevant capabilities from across the Thales Group. Specialising in operational analysis, complex systems engineering and architecture studies, the BTC draws on the networked demonstration and testing facilities of the Group’s various divisions and countries of operation, as well as the Thales Integration Centre (TIC).

By sharing use of the TIC and associated technical and operational laboratories, government representatives and operational users are able to join forces with Thales to build the future through a common approach to concept development and testing.

From the initial design concept of new UAV systems, the BTC combines a top-down approach (validation of multi-platform architecture for network-centric forces) with a bottom-up approach (capabilities gained by integrating new equipment with the system), with particular focus on analysing relevant criteria and measuring them using metrics based on the exploitation of test results.