Industrial Focus

Roke - Quickly Creating Military Advantage

Roke Manor Research covers a great variety of defence work, from research to production, and is well placed to manage large research programmes for the UKMOD, currently its main customer, as well as offering very nearly the full range of capabilities and expertise to governments and industrial partners beyond the national market.

Working for the UK MOD's Defence Technology and Innovation Centre (DTIC), under a major research programme called Network Enabled Capability (NEC) for Close Combat, awarded in 2006, the company assembled a strong consortium of partners to study how networking can enhance its military capability including peacekeeping. The company is committed to delivering competitive advantage to its clients through its technologies, services, products, flexibility and speed of response.

Bob Dalgleish, Roke's Capability Research Business Sector Manager.

Capability Research

With its extensive experience in communications systems, networks and electronic sensors in both the civil and military domains, Roke helps its partners to understand and solve complex issues using innovative systems engineering techniques. Working with an established range of partner companies in their "TeamREACH" consortium Roke provides advice and consultancy across all lines of development, including:

NEC and C4ISTAR benefits analysis - Identification and quantification of the benefits of introducing Network Enabled Capability and new C4ISTAR capabilities.

Soldier systems research - Communications and electronic counter measures performance modelling, IPv6 network advice, information exchange requirements analysis, operational analysis.

Capability planning and technology roadmapping - Informed and independent support to MoDs in capability planning and technology roadmapping.

Through life capability management - Innovative system modelling solutions to support MoD TLCM requirements.

On-site technical support - Provision of on-site technical expertise to support MoD decision making and research activity.

TeamReach

The TeamReach Consortium, lead by Roke, was initially created to assist the UKMoD in a research programme to develop their understanding of the impact of NEC on military effectiveness in the close-combat / urban domains. The multi-skilled team contains expertise across all lines of development from operational and cost benefit analysis, human factors, logistics, training and communications and networking technology.

TeamREACH members include:

- Roke: Programme manager, research directorate member, lead on communications and information systems.
- SCS: Military consultants, research directorate member, lead on OA and HFI.
- Atkins/Advantage: Support on OA and GII domain knowledge.
- EADS: System security and above battlegroup communications expertise.
- Persides: Logistics expertise and FIST knowledge.
- SciSys: Military CIS (MAKE-FAST, NBC BISA, JETTS).
- Ultra: Battlegroup C2, FRES knowledge.
- Diem Consulting: System Dynamics Analysis Frameworks and Capability Profiling
- Cranfield: supporting OA
- Frazer Nash Consultancy: decision-making expertise within complex spaces
- HFE Solutions: usability and user centred design
- Southampton University (ECS): pervasive computingThrough bringing the team together, the individual excellence of each of its 13 organisations is brought to bear on niche areas across the entire issue, and with its background in managing research projects that transition to operational use, Roke is ideally suited to lead the team.

Defence Information Systems and Services

Complex military operations in challenging environments bring risks to personnel, assets and facilities. Roke offers innovation and experience in sensor technology, communications and information systems, combined with defence understanding, to deliver real military benefit. In terms of services Roke offers first-class engineering of sensor, communications and information system solutions for military markets, geared amongst others to provide detailed solutions giving real-time situational awareness in complex military environments. These engineered solutions combine innovation and pedigree from an R&D organisation with proven through life capability.

Sensors

The Hostile Artillery Locator system - HALO - is Roke's acoustic weapon location system for the British Army, that has been a key enabler of successful peace keeping operations overseas for more than 10 years. Developed in conjunction with Selex Sensors and Airborne Systems, HALO is a flexible, adaptive system for determining the position of guns, mortars and shell bursts on the battlefield.

As a passive system, HALO listens for sounds made by opposing forces without giving away its position - a significant benefit over radar-based systems. This also means the opposing forces cannot detect that they are being monitored, which is advantageous in politically sensitive situations. HALO also has benefits over conventional Gun Sound Ranging (GSR) systems in that it offers continuous, all-weather monitoring, 360° coverage, fast deployment and high accuracy over a 30km range.

The Low-Visibility Landing programme - LVL - is a phased programme from the UK MOD to rapidly develop a solution to the different aspects of the "Brown-Out" problem encountered by aircraft landing vertically into a dust or sand storm of their own making. Helicopter pilots rely heavily on visual cues when landing, but when landing in dry, dusty areas, these visual cues can rapidly disappear as a dense dust cloud surrounds the aircraft. The problem has caused significant helicopter losses among coalition forces operating in Iraq and Afghanistan.

The Miniature Radar Altimeter (MRA) Type 2 has been offered by Roke into the UK MOD Low Visibility Landing (LVL) Programme. It can provide accurate and reliable height measurements over various terrain surfaces. The MRA has been evaluated in ground tests (2008) where its dust penetration capabilities were demonstrated, and it is now being evaluated through a series of flight trials.

An engineer integrates Roke's highly accurate and lightweight radar altimeter into their Autonomous Rotary Wing UAV demonstration platform.