

Integrated Logistic Support for a Major Defence Programme

UK Apache Attack Helicopter



The AgustaWestland Helicopters AH Mk1 is considered to be the most significant and deadly weapon system to enter service with the British Army since the Tank in 1916. It is the world's most sophisticated attack helicopter and is capable of operating by day or night and in all weathers using a complex array of passive and active sensors and state-of-the-art radar. The aircraft is a derivative of the Boeing Attack Helicopter that saw service in the Gulf War and Bosnia. LSC Group has been closely involved with the project since 1991, helping to ensure the Army Air Corps has the capability to fly it anywhere and at any time.

In July 1995, after a competition lasting about three years, the UK Government selected the AW AH Mk1 for the UK's first purpose built attack helicopter.

The AH Mk1 programme is a multi-billion pound project. The supply chain is complex, involving many suppliers in both Europe and North America. As part of an offset agreement in the original contract, 50% of the components and ground support systems are built in the UK under license.

The MoD specified a number of different equipments to be incorporated on the AH Mk1. These included Rolls-Royce Turbomeca RTM322 engines; a state-of-the-art

Helicopter Integrated Defensive Aids Suite for which Selex won the contract; CRV7 2.75 inch rockets made by Bristol Aerospace of Canada; and a Health and Usage Monitoring System (HUMS).

HUMS accurately records AH Mk1 flight data (such as engine temperatures and rotor torque) in order that maintenance can be reduced and the availability of the helicopter improved.

LSC Group has provided Integrated Logistic Support (ILS) services to the Attack Helicopter Integrated Project Team (AHIPT) since the selection of AgustaWestland Helicopters as the AH Mk1 Prime contractor in 1995. We first became involved in the project on an advisory basis in 1991.

Our consultants have worked as part of the Attack Helicopter Integrated Logistic Support Team (ILST) based at MoD Abbey Wood near Bristol.

The timescales leading to the in-service date were tight and commercial constraints dictated a pragmatic approach to ILS and Logistic Support Analysis (LSA). LSC Group has been instrumental in tailoring the ILS/LSA programme to the realities of such a demanding commercial project.

The Challenge

To assist the major stakeholders in formulating the support requirements to bring the Apache into service.

To provide the logistic support needed to achieve operational requirements.

Solution

A team of dedicated specialist logistic consultants who worked deeply with both the MoD and Industry to identify the measures needed to support the Apache.

Customer Benefits

A comprehensive Integrated Logistic Support package giving flexible operational capability at minimum cost.

Early work completed by our consulting team made a significant contribution to the determination of the maintenance and support policy for the aircraft. Our work also shaped the roles of the many specialists and engineers, who ensured that logistic support was in place for the first helicopter delivery.

As leading international experts in the field of ILS our mission has been to demonstrate the routes to operational flexibility and sustainability. This has frequently involved the presentation of detailed studies to the most senior figures within the MoD.

Flexibility at Minimum Cost

The many complex and sophisticated systems on board the AH Mk1 require both exhaustive and faultless logistic support. Our task has been to shorten the logistics tail wherever possible, giving flexible operational capability at minimum cost.

We have employed the latest developments in logistic software tools and logistic support analysis methods to identify and describe the operational performance of the helicopter.

Working alongside the MoD and AgustaWestland Helicopters, the LSC Group team initially conducted a Repair Level Analysis to determine the optimal maintenance policy for the systems and equipment of the AH Mk1 weapon system. With the approach of the in-service date, our task turned more towards the implementation of the logistics

infrastructure defined in the earlier study work.

Enhancements to the repair level analysis conducted by LSC Group and the AHILST identified the actions necessary to realise the optimal maintenance policy, ultimately resulting in considerable savings to the estimated through-life costs of the AH Mk1 weapon system.

In addition to the modelling of logistics and supply chain matters, LSC Group provided technical and management support, predicated upon the development and implementation of the Initial Provisioning and Repair and Overhaul Programmes against the agreed AH Mk1 maintenance policy.

LSC Group has also provided support to the financial planning and management processes relating to the implementation of integrated logistics for the AH Mk1 system.

Cross-Sector Applicability

Much of the experience gained on this project can be applied to a wide range of non-defence sectors, for instance Power Generation, Automotive, Rail, Civil Aviation, Oil/Gas Extraction and General Industrial.

The application of a practical ILS/LSA programme can save tens, or even hundreds, of millions of pounds in costs over the life-cycle of a substantial and complex project.

Conclusion

The key capabilities that LSC Group has applied to the Attack Helicopter programme include:

- Definition of the project logistic modelling strategy.
- Derivation and validation of logistic modelling data.
- Validation of industry logistic models.
- Definition and documentation of key

modelling data sources and planning assumptions.

- Linkage of logistic modelling processes to project management and risk management activities.
- Co-ordination with wider project activities to ensure that appropriate levels of maintenance and support funding are in place.
- Linkage to the procurement management functions to ensure that there is consistency between project plans and available resources.

In providing support to the Attack Helicopter Integrated Project Team, the LSC Group consulting team has been able to fully demonstrate an approach to the performance of Integrated Logistic Support that is fully consistent with the MoD's aims of providing the British Armed Forces with equipment 'Cheaper, Faster and Better'.

The LSC Group consulting teams will continue to play a key role in ensuring that the Attack Helicopter—and many other weapons platforms across the three Services—provide the Armed Forces with the capabilities required to deploy swiftly in response to any international crisis or incident.