



**STRATEGY  
RESEARCH  
PROJECT**

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**THE DEVELOPMENT OF THE UNITED KINGDOM'S  
AIR MANOEUVRE CAPABILITY**

**BY**

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USAWC STRATEGY RESEARCH PROJECT

**THE DEVELOPMENT OF THE UNITED KINGDOM'S AIR MANOEUVRE CAPABILITY**

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## ABSTRACT

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In September 1999 the British Army formed 16 Air Assault Brigade fusing air assault infantry and army aviation units, for the first, in the same formation. Forty-eight WAH-64 Apache Longbow Attack Helicopters (AH) will be operational within the Brigade by 2004. This paper will consider how best to develop the UK's Air Manoeuvre Capability to fully exploit the third dimension.

The catalyst for the development of an Air Manoeuvre capability has been the introduction of the Attack Helicopters into the British Army's Orbat. However, the paper will argue that to fully develop the capability an integrated approach needs to be taken fusing assets from across the Component Commands. This will significantly improve the operational effectiveness of the capability. The paper will explore the need to examine doctrine and procedures between the Joint Force Land Component Commander and the Joint Force Air Component Commander to ensure the effectiveness of the capability.

The paper will consider how the separate operational roles of air-delivered, airborne, airmobile air assault and air mechanized could be embraced by an Air Manoeuvre Capability.

The development of the Capability will be set in the strategic context of the Information Age and the profound impact of digitization.

This paper will take account of the US Army's considerable experience in operating Attack Helicopters and the conceptual work that is underpinning the US Army's transformation vision.



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## PREFACE

I would like to thank the faculty at the USAWC for giving me the time and research facilities to write a paper on the UK's Air Manoeuvre Capability. The capability is in it's infancy but by the time my military career is at end (circa 2013) I hope the UK has a synergistic and integrated Air Manoeuvre capability that is respected by, and interoperable with, our allies and feared by potential adversaries.

As part of my research I traveled TDY to Fort Hood to discuss Air Manoeuvre and the Deep Battle with several staff officers at III Corps and 1<sup>st</sup> Cavalry Division this proved to be very productive. I would like to thank Colonel Frank Hancock and Professor Pond for their encouragement and sponsorship of this trip and to Ms Dot Overcash for all her hard work on my behalf.

Finally, I would like to thank my long suffering wife who spent many more hours than she might have anticipated, bonding with our delightful children whilst I wrote this paper.



## THE DEVELOPMENT OF THE UNITED KINGDOM'S AIR MANOEUVRE CAPABILITY

In September 1999, 16 Air Assault Brigade was formed fusing, for the first time, air assault infantry and army aviation units in the same formation. Forty-eight Westland Attack Helicopters 64Ds(AH),<sup>1</sup> equipped with the Longbow radar, will be operational within the Brigade by 2004. The AH, as an integral part of the Army's Orbat will represent a significant enhancement to the Land Component Commander's capability. The AH's range, lethality, speed and survivability will enable it to make a significant contribution to ground manoeuvre particularly deep operations. AH will be the first integrated platform on the battlefield in the era of digitization with a significant Information, Surveillance, Target Acquisition and Reconnaissance (ISTAR) capability.

General Sir Charles Guthrie, said as CGS in 1996 "I have no doubt whatsoever that the AH will represent the biggest single enhancement to the [British] Army's capability for many years. It will change the way we go to battle. Now we have taken the decision to buy the Apache, the Army must ensure that doctrine is developed to allow us to make the fullest possible use of its tremendous capability."

The British Army's doctrine envisages operations being conducted using the enduring principles of the Manoeuvrist Approach "in which shattering the enemy's overall cohesion and will to fight is paramount."<sup>2</sup> Air Manoeuvre<sup>3</sup> Forces with their inherent flexibility and ability to generate tempo and to conduct deep manoeuvre have the potential to act decisively against an Enemy's Centre Of Gravity. Whilst deep attack will wear the enemy down "it is deep manoeuvre that will unhinge him."<sup>4</sup> Air Manoeuvre forces tactical successes may have operational or even strategic implications.

The US Army transition from Force XX1 to the Army After Next (AAN) is conceptually underpinned by General Shinseki's vision that "our heavy forces must be more strategically deployable and more agile with a smaller logistical footprint and light forces must be more lethal." Air Manoeuvre forces which offer operational tempo, precision munitions and the ability to operate deep will be at the centre of the transformation process. Additionally, the US Army has considerable experience in operating the Apache helicopter including the 64Ds. The Corps Deep Battle concepts using Air Manoeuvre are well established within the three US Corps. The British Army would do well to take heed of this expertise.

### AIM

The aim of this paper is to examine the United Kingdom's potential to develop an effective Air Manoeuvre Capability.

## **SCOPE**

The AH will be at the core of the UK's Air Manoeuvre capability. However, Air Manoeuvre as a concept is far wider ranging than one type of platform. The full potential of air manoeuvre will be realised by developing a combined arms capability which is capable of high tempo operations to support the Joint Force Commander's concept of operations. Air Manoeuvre operations will require responsive links to the Land Component Commander's ISTAR assets including; Land Manoeuvre Reconnaissance, Artillery STA, and EW. Equally responsive links will be required to the Air Component Commander's ISTAR assets including higher-level systems such as ASTOR<sup>5</sup> and E3D. The combat elements will include air assault infantry, and the combat support elements will include Artillery, with integral fire support and precision deep fires. Force protection assets will include air defence.

Far greater potential will be realised by the integration of Air and Maritime Component Systems such as Offensive Air support (OAS) Support Helicopters (SH), Air Transport, (AT) and fixed wing assets and TLAMS. Implicit in this is that Air Manoeuvre is a joint activity requiring doctrine and procedures to be established between the JFLCC and the JFACC and to a lesser extent the JFMCC.

The range of operations currently referred to as Air Delivered, Airborne, Airmobile, Air Assault and Air Mechanized should all be embraced within the overall concept of Air Manoeuvre. These separate operational types, which are based largely on legacy equipments and roles, should be made redundant, as each could be met by an Air Manoeuvre Force Package.<sup>6</sup> The successful exploitation of these currently disparate capabilities will require critical battle space management and digitization and a level of integration that goes beyond the jointery that is currently practised.

## **DOCTRINAL TRENDS**

### **INFORMATION AGE**

The current Revolution in Military Affairs (RMA) seeks to use new and emerging technology to transform the way war is waged. It is this concept that will provide the tools for the US Army's transformation process. The commercial information technologies that are transforming the developed nations have powerful military applications "including advanced computer systems, global communications networks and land, air and space based surveillance."<sup>7</sup> The challenge for Air Manoeuvre will be to harness this emerging technology to increase tempo and lethality. General Scales argues, "warfare has always been a delicate

symbiosis between the ability to kill and the ability to manoeuvre.”<sup>8</sup> He believes the RMA “will seek to exploit the information age in order to increase the velocity of manoeuvre”<sup>9</sup> The Air Manoeuvre capability by harnessing operational tempo and the potential speed of its air platforms<sup>10</sup> are well placed to exploit this trend.

## DIGITIZATION

The Air Manoeuvre concept embraces the shift towards operations in which the gaining, analysing, exploitation and dissemination of information faster than the enemy is fundamental to success. The enabler of this technique is digitization and a key tool will be the combination of a number of new ISTAR platforms and sensors such as ASTOR, TRACER, UAVs FIST and the AH's Fire Control Radar (FCR). These systems should be developed coherently to contribute towards an integrated data flow, the effective exploitation of which will be an important operational enhancement. As the first of the British Army's Information Age weapons systems the AH, within the Air Manoeuvre capability, will provide the Land Component with a key early Force Evaluation and Development step on the path towards digitization. Digitization must include Support Helicopters (SH) and Air Transport (AT) and airborne command platforms to produce a coherent and integrated force that is fully interoperable and able to operate at the same tempo as all the other elements.

## DIRECT FIRE FIGHT

The impact of digitization on the battlefield will lead to far greater situational awareness. Even at infantry company level, ground and airborne sensors with radio and non-jammable fiber-optic links will make it increasingly difficult for a large enemy armoured formation to approach undetected. Heavy mechanized units will be tracked at greater distances and destroyed by indirect precision munitions attacks. Rendering large-scale direct fire fights between massed armour less likely. The emphasis will be on Manoeuvre and stand off attacks rather than attritional direct fire fights. Air Manoeuvre forces will be well placed to exploit this trend.

## WAR FIGHTING

“Force-on-force operations- fighting is the most demanding form of conflict and remains the Future [British] Army's priority for conceptual, doctrinal and force development thinking.”<sup>11</sup> Air Manoeuvre must be developed as a Main Effort Capability focused on war fighting and shaped to deliver decisive effect. To achieve this the capability should be designed to conduct

the deep battle, able to conduct operations several hundred kilometres beyond the Forward Line Of Own Troops (FLOT). If the capability is developed in this way it can be grouped, at the optimum level of command so as to deliver an effective force package for the particular operational circumstances. In this way its ability to achieve effects above the tactical level is preserved whilst still allowing effective integration with smaller Land Manoeuvre force packages particularly for operations other than war.

## **AIR MANOEUVRE CHARACTERISTICS**

### **INCREASE IN THE LAND COMPONENT'S CAPABILITY**

Air Manoeuvre will contribute to the land component's exploitation of the operational airspace. It is likely to become a key lever in alliance and coalition operations. When properly packaged, with the appropriate enablers, AH will give the UK the opportunity, for the first time, to conduct Air Manoeuvre. Air Manoeuvre will give the Land Component Commander the ability to increase his Area of Influence and the Area of Operations assigned to him. Within these areas he will have the ability to force package, to carry out high tempo, high capability operations freed from some of the constraints of terrain. He will have an increased ability to set the conditions for Land Manoeuvre to exploit opportunities. It will become an increasingly important means of attacking the enemy's will, long-range precision-attack assets, ability to sustain operations and key C4I systems.

### **TEMPO**

An increase in operational tempo is the core enhancement that Air Manoeuvre will bring to Land Manoeuvre.<sup>12</sup> Tempo is the rhythm or rate of activity on operations relative to the enemy<sup>13</sup> it is not simply speed. It is the ability to change the rate of activity in order to get inside the enemy's decision cycle. Air Manoeuvre has the potential to generate continuing surprises for the enemy whilst maximising the effects of firepower, simultaneously throughout the battlespace, in order to pre-empt, dislocate and disrupt. This requires both mental and physical agility of thought processes, command systems and equipment structures.<sup>14</sup> Air Manoeuvre has the potential to significantly enhance operational tempo. To capitalise on this responsive C4I systems and infrastructure need to be established.

## MANOEUVRE

The enduring effect of Air Manoeuvre will be enhanced, not only by the development of a combined arms formation but also by being able to fight that formation as an entity with its own mission and Manoeuvre battlespace. This will enable the commander's scheme of manoeuvre to employ appropriate Air Manoeuvre units to maintain continuous effect on an enemy. Development is required to close current quality gaps in C4I, Firepower, Protection and Mobility between AH and other force elements.

A force with such enhancements will possess the ability not just to strike but to decisively manoeuvre to achieve not only tactical success, but possibly the unhinging of an enemy, usually achieved by decisively attacking his centre of gravity. This elevates the potential influence of the Air Manoeuvre capability to the operational and possibly strategic dimension. The combination of Air Manoeuvre and Ground Manoeuvre enables a commander to devise bolder and more expansive schemes of manoeuvre simultaneously across a much wider and deeper battlespace.

## TYPES OF OPERATION

The Air Manoeuvre formation is structured primarily for offensive operations and has the combat power and flexible task organisation to conduct operations across the offensive spectrum. In particular the disruption or seizure of key enemy assets are ideal tasks for an Air Manoeuvre Force. Air Manoeuvre forces are capable of conducting autonomous defensive operations but their value in such operations lies in their ability to exploit their offensive capability. Air Manoeuvre forces have considerable utility in transitional phases to provide support to other formations particularly those phases that are dependent upon Manoeuvre, Firepower and Information for success. Air Manoeuvre forces "optimised for warfighting have characteristics that also give them utility in Other Operations."<sup>15</sup> These operations are characterised by uncertainty as to the capabilities and intentions of asymmetric belligerent forces. An Air Manoeuvre force offers the advantages of being able to expand into and influence large areas with helicopters and light forces whilst still retaining the ability to focus force at the appropriate level.

## **AREAS REQUIRING AN INTEGRATED APPROACH**

### **FORCE PREPARATION**

The Land Component employs a Force Preparation process which works within a framework of activity levels, readiness and preparation times. 16 Air Assault Brigade must develop a complimentary system. Capabilities and enablers provided by the other components will have to be analysed for their ability to match these parameters as well as those for regeneration and reconstitution. Mismatches may need to be reconciled by the imposing of operational constraints or by the restructuring of resource allocation. SH and AT should be considered strategic assets and the programmes of these essential platforms should be adjusted to provide appropriate readiness and training opportunities for the Air Manoeuvre Force.

### **TRAINING**

The integrated nature of Air Manoeuvre demands an integrated approach to training. Whilst the individual component commands should continue to be responsible for the training standards of their capabilities joint training opportunities must be fully exploited. Strike Command has regular COMAO<sup>16</sup> exercises and these should be integrated with 16 Air Assault Brigade FTX. Additionally, the STRIKE NITEX should include AT, SH, AH and Air Assault Infantry. Special Forces should be included in this training whenever possible. CJFORT should be responsible for the exploitation of joint training opportunities.

### **DEPLOYABILITY**

The ability of the Air Manoeuvre formation to deploy and recover by sea and air will require careful analysis. Strategic sea and airlift platforms such as C-17<sup>17</sup> and the Future Large Aircraft are key factors in this equation, and are critical to Rapid Reaction Force concepts. The capability embedded within US Transportation Command (USCINCTrans) should be investigated for coalition operations involving the US. AH and SH have a self-ferry capability which needs to be examined. Regular deployment exercises into bare based Forward Mounting Bases should be practiced.

### **ISTAR**

The Air Manoeuvre Commander will be required to fuse the product from sources as diverse as Airborne Early Warning (AEW) EW from fixed and rotary wing, ELINT from NIMROD

R, and naval platforms, data from ASTOR and JSTARS. The interfaces between and level of integration of these systems will need careful analysis.

## OFFENSIVE SUPPORT

Offensive support for Air Manoeuvre will be provided by many sources. The Land Component Commander will have deep precision fires provided by MLRS and tube artillery. The JFACC will provide fixed wing aircraft for CAS and Air Interdiction and the JFMCC will provide naval gun fire support and TLAMS. The use of non organic OS to shape, manoeuvre and to fix as well as to strike are essential capabilities that will require a fully integrated approach with joint planning and execution.

## BATTLE SPACE EXPLOITATION

Future Land Manoeuvre will demand the flexible yet efficient orchestration of complex operations in a three dimensional battlespace. The aim of Battlespace Exploitation will be to give the commander the freedom of action in the air, on the surface, in the EMS and ultimately in space. This is more than simple airspace and real estate management and control. This demand for manoeuvre space will require an innovative approach to the exploitation of the Joint Battlespace in order that a lack of responsiveness and flexibility do not prejudice operational tempo.<sup>18</sup>

## COMMAND AND CONTROL

Command and Control over disparate forces that operate deep must be both integrated and controlled at the appropriate level. The current doctrine and procedures for command and control will need to be refined to take account of the increased capability that Air Manoeuvre will give the Land Component Commander. Until now command and control of forces in deep areas was clear cut, since only the Air Component Commander had the situational awareness and owned forces that could strike deep targets. With an Air Manoeuvre Capability the Land Component Commander also has the ability to strike deep targets. The Land Component Commanders C2 arrangements have traditionally been based on the geographical area of operations these will no longer be appropriate in the Air Manoeuvre Age. It could be argued that as the "commander of the preponderance of forces physically operating beyond the Fire Support Co-ordination line (FSCL), JFACC is best equipped to integrate all capabilities to fight deep".<sup>19</sup> However, since the core Air Manoeuvre assets belong to the Land Component and they will be employed to fight close and rear as well as deep then command should reside with

the JFLCC. Additionally the response time to Army requests for close air support has risen consistently since the end of World War II, and there is no evidence to suggest that this will change in the near future.<sup>20</sup> What is clear is that responsive measures must be put in place so that neither the FSCL or the integration of the Air Tasking Order (ATO) inhibits the tempo of offensive operations. The Land Component should continue to develop organic weapons systems that will eventually negate the need for close air support from fixed wing aircraft.

## FORCE PROTECTION

With the development of an Air Manoeuvre capability a holistic approach to Force Protection that focuses on the concept of protecting the complete capability rather than individual platforms will be required. Access to the Recognised and Local Air Picture as part of the complete Army AD development, will allow alerting update and coordination with the Integrated AD System (IADs) and will make a key contribution to Force Protection. These linkages can also provide valuable information to support the Commander's continuous risk assessment process. AD systems must be organic to an Air Manoeuvre Force.

## SURPRESSION OF ENEMY AIR DEFENCE (SEAD)

The provision of coordinated SEAD capability is a vital enabler to ensure the success of an Air Manoeuvre Operation. A comprehensive SEAD capability will reduce risk to Air Manoeuvre and will be a key consideration in the Air Manoeuvre Commander's risk assessment. Many of the SEAD assets will be owned by the JFACC and thus an integrated approach will be required. US Block 1 ATACMS fired from a UK MLRS are particularly effective as part of a SEAD package.<sup>21</sup>

## SUSTAINMENT

Responsive and flexible CSS is important for high tempo Land Manoeuvre and critical for Air Manoeuvre. The development of fully effective sustainability for Air Manoeuvre will be enhanced by integration into the overall national and multinational Land Component logistic structure and co-ordination with Air and Maritime logistics. This will be particularly important in the Joint sustainment of all helicopters including AH, SH and Light Utility Helicopters (LUH). This will be a major area for development by the Joint Helicopter Command.

## FORCE PACKAGE

An Air Manoeuvre Force Package should consist of a core land capability of a Joint Divisional Headquarters with integral ISTAR capability, AH Regiments, and Air Assault Infantry Battalions. An OSG<sup>22</sup> capability will be required including UAVs and MLRS. A dedicated Engineer Regiment responsible for combat engineering will support the formation. Organic Air Defence is critical. A Force NBC Collective Protection capability is required and a responsive Combat Service Support Capability. These core land components will be supported by key enablers and both AT and SH.

## THE AIR MANOEUVRE POTENTIAL ASSESSED AGAINST THE FUNCTIONS IN COMBAT

### COMMAND

#### Corps Level

To realise the potential of a UK Air Manoeuvre capability it should be developed for command at the Corps or Land Component level. Only at Corps level will it be possible to ensure the allocation of key enabling capabilities for it to carry out the operationally decisive tasks for which it is designed. The focus for this development should be the ARRC but since we "expect to operate in a multi national environment"<sup>23</sup> the Air Manoeuvre formation should be fully interoperable with the EU Corps and a US Corps. Within the current organisational framework a Divisional Headquarters is likely to be the lowest level capable of coordinating and controlling an Air Manoeuvre Brigade formation, to provide the critical connectivity with Joint and Corps Land Component operations. 16 Air Assault Brigade will play a key role in the development of the capability but to maximize its potential a divisional headquarters should be created.

#### Composition of An Air Manoeuvre Headquarters

Command of the Air Manoeuvre formation will present unique challenges and will require a different and more complex Headquarters than an equivalent Ground Manoeuvre formation. The ranges and tempo at which operations will be conducted, the broad spectrum of operational options, the requirement for integration, and the complexity of battle space coordination are particular characteristics. The Divisional Headquarters will need robust connectivity with Corps headquarters and the Component Commands. Although based on a Divisional Headquarters the staff must be truly joint. The headquarters must be established with several Liaison Officers to provide key connectivity with other divisions, other components and key ISTAR platforms such as AWACS. These requirements seem to dictate a large Joint Headquarters with

complex C2 connectivity and a fully established alternate Headquarters to enable tactical mobility. The need for agility to meet the demands of high tempo operations however, conventionally dictates a smaller Headquarters. The solution may be to create a Main Headquarters located to the rear with excellent connectivity and the ability to handle complex control issues and a smaller Tactical Headquarters for command and control.

### **Command Of An Air Manoeuvre Operation.**

The location of the Commander for a deep Air Manoeuvre operation will require careful consideration. To exercise command effectively he will need connectivity with the assault force, the SEAD package, the OSG and his Divisional Headquarters. He may elect to exercise command from an ABCCC based on a Lynx although this has limitations and vulnerabilities. He may elect to command from his Divisional TAC. These both need robust, high volume, long range C3I links. These C3I links between both the Air Manoeuvre Formation and its superior headquarters and within the Air manoeuvre formation elements must permit a flow of information to enable the inherently high tempo of Air Manoeuvre. These links will enable the timely passage of ISTAR, co-ordinating information and C2 both into within and out from the Air Manoeuvre formation whilst still enabling commanders to position themselves as dictated by the operational situation so that they are to exploit opportunity and success.

Air platforms such as an enhanced E3-D offer the potential of enhanced C3I for Air Manoeuvre Operations. This may require a Land Component Element within the platform to assist in Air Manoeuvre C2. Such platforms could also overcome some of the problems of long-range VHF communications and allow easier access to non –organic information systems.

## **MANOEUVRE**

### **AH**

The flexibility and range of the AH is central to the formation's capacity to manoeuvre. It has the ability to generate tempo and rapidly concentrate combat power They also possess the combat power and the flexibility to seize the opportunity to exploit tactical success.

### **SH and AT**

SH will play a key role in manoeuvre support for Air Manoeuvre Operations. The key platform is the CH47. It is important that this platform is interoperable with the AH. AT will also play a key role in manoeuvre by the delivery of air assault infantry by Airborne or TALO and critical CSS.

## **Air Assault Infantry**

Infantry will provide manoeuvre and manoeuvre support for the formation. In the manoeuvre role they can conduct close, deep and rear operations. The infantry will still need to close with the enemy and to take and hold ground. This is likely to be in the most demanding environments requiring ground forces to provide endurance and presence in all climates and weathers around the clock. "We must never lose sight of the fact that at the point of a deep arrow on a map someone is having a close battle."<sup>24</sup> In the manoeuvre support role they provide essential close protection for high value Air Manoeuvre assets and also conduct operations to fix the enemy for subsequent attack by AH or air or artillery. Air Assault Infantry enjoy strategic and tactical mobility from SH and AT but their limited ground tactical mobility needs to be addressed.

## **FIREPOWER ORGANIC TO AN AIR MANOEUVRE FORMATION**

### **AH**

The weapon systems of the AH give the formation the ability to deliver a high concentration of fire at long ranges, which can be matched to the target set and ROE. This flexibility is tied to the comprehensive STA suite. This enables the firepower to be delivered with precision so reducing fratricide and collateral damage. Important areas for further development will be the integration of Combat Identification Systems (CID).

### **Artillery**

Artillery can be used in a variety of roles within the Air Manoeuvre Operations: the provision of fire support to Air Assault Operations, including SEAD, force protection of deployed elements such as FOBs, assistance in the delivery and extraction of infantry and for artillery raids. A balance has to be struck however, between the advantages of flying artillery forward the limitations of range high logistic costs and restrictions on AH manoeuvre. New systems such as the light weight rocket launchers, guns and STA in the LIMAWS<sup>25</sup> programme will make increased precision and lethality of artillery available to Air Manoeuvre formations in area dislocated from and hence beyond the range of the artillery in Air Manoeuvre formation.

### **Air Assault Infantry**

The firepower available to the current air assault infantry is inadequate and does not compliment that available to the AH squadrons. This gap needs to be closed and the development of the current FIST programme should go some way towards this. The FIST

programme like the US Land Warrior programme seeks to improve the capabilities of an infantry soldier to call for fires including CAS. Additionally the infantry require mobile protected weapons platforms which are air manoeuvrable. The WIESEL is a good example of such a platform. With this enhanced capability it should be possible to reduce the numbers of deployed infantry and therefore reduce the logistic footprint. With these enhancements air assault infantry will have a marked impact on the effect of Air Manoeuvre operations.

### **Sustainability**

The key limitation is delivering organic firepower will be sustainability. This is especially true during air assault and protracted manoeuvre operations. Information management will also be a key developmental area if effective firepower is to match high tempo operations

## **PROTECTION**

### **Vulnerabilities**

An Air Manoeuvre Force because of its capabilities is likely to be a high pay off target for the enemy. The force is likely to be particularly vulnerable during RSOI at APODS or SPODS since "ports and airfields are the ambush sites of the 21<sup>st</sup> Century."<sup>26</sup> To counter this threat the Air Manoeuvre force may have to use widely dispersed points of entry.

### **Air Defence**

An Air Manoeuvre Force in an assembly area, a Forward Operating Base (FOB) or a FARP is particularly vulnerable to attack by air. Air Defence is therefore a critical function providing both point and area coverage. The air defence assets should be organic to the organisation and linked to other Component Command systems. The Ground Based Air Defence needs the Recognised Air Picture.

### **Suppression of Enemy Air Defence**

The significance of Enemy Air Defence to an air manoeuvre force is self-evident. Effective SEAD measures will need to be implemented across the air package. SEAD procedures and tactics will need to be developed and tailored for each mission. Helicopters have a significant signature in all parts of the Electronic Magnetic Spectrum and are susceptible to a range of threats across the spectrum. All Air Manoeuvre Aircraft will need effective EWOS and DAS.

## **NBC**

The threat from Biological and Chemical systems could be the most effective way for an enemy to negate the high tempo nature of an Air Manoeuvre formation. As a result an Air Manoeuvre Formation will need to be allocated a high priority for Force NBC Collective Protection.

## **INFORMATION AND INTELLIGENCE (I2)**

Critical to the effectiveness of Air Manoeuvre operations will be the provision and coordination of timely and accurate Information and Intelligence. An air manoeuvre formation must therefore have the linkages; both human and technical, to optimise the I2 flow during the planning and execution of any operation. Digitization will be a key enabling mechanism. An Air Manoeuvre Formation will normally operate within the higher I2 framework of a Corps or a Land Component, especially during the planning phase.

### **ISTAR Framework**

There should be one operational picture which is contributed to all and shared by all. Air Manoeuvre formation assets should be capable of contributing to the Force picture which will require the appropriate CIS. The majority of Force ISTAR will be airborne or stand-off so the Air Manoeuvre formation will require the ability to task these assets and to influence the tasking of multi-national assets. Long-range reconnaissance is required to provide highly skilled reconnaissance and targeting to the commander. Operations will be focused on the collection of specific, high value information. All elements would require to be mobile and based on light manoeuvrable platforms. They would be restricted to the reconnaissance /targeting role and would not normally undertake offensive operations. ISTAR assets should be synchronised in both time and area covered. The Area of Intelligence Responsibility of the Superior HQ must cover the AO of the Air Manoeuvre formation and the routes to and from it. The Air Manoeuvre formation will require timely access to specific 3D information such as the Recognized and Local Air Picture.

### **Planning Process**

Surveillance assets will support the Air Manoeuvre planning process and will need to be earmarked for the operation 72 hours before execution. Matching the level of command of the Air Manoeuvre formation to Corps level would do this most effectively. The Air Manoeuvre planning process will need a balance of coarse grained and timely fine-grained information for targeting and to support the SEAD plan. Once a decision to commit the Air Manoeuvre

formation has been taken the Force will continue to require higher-level intelligence and information to support its own planning and until its allocated assets can take over.

### **ISTAR Assets**

The Air Manoeuvre formation requires a combination of ISTAR assets to cover its Area of Intelligence Interest and to cue other ISTAR assets in real time. This may well take the form of the ability to receive an ASTOR picture. The STA capability should contain an appropriate mix of light STA assets. The unit would provide real time cueing for Fine grain assets, or when ROE permit may also be used for direct targeting. The Light EW Element will provide the commander with immediate threat warning, electronic reconnaissance and local EW advice over the possible range of Air Manoeuvre operations. It will also be capable of ESM and ECM against both communications and non-communications targets. The command element of the EW assets will have full access to the wider EW and SIGINT matrix, when EMVON permits. Additionally the SOOTHSAYER programme aims to provide suitably deployable ECM assets capable of dedicated local SEAD.

All elements would need to be fully equipped with robust ISTAR C2, the Formation Battle Management System and be fully compatible with the Force C3 System. Air Manoeuvre Formation has the option of creating surveillance and reconnaissance groupings. It may occasionally have to consider rear and forward surveillance elements. Or it could be run as a single entity. The choice should always depend on the best way of supporting the Commander's intent for a given mission.

### **Reconnaissance**

Formation Reconnaissance assets could provide flexibility to the Air Manoeuvre Commander to fill gaps in the ISTAR matrix. Their tasks might include surveillance of air manoeuvre corridors, potential FARP sites and Landing Sites. They would require manned protected vehicles for mobility.

### **UAV**

The purpose of an Air Manoeuvre formation UAV unit would be to bridge the tactical gap between surveillance and formation reconnaissance and to support the clearance of air corridors. It would provide a rapid means of reaching and identifying targets, which had been cued by other capabilities but lay outside the immediate reach of pathfinders and posed a

potential risk to AH. Once there it would be able to track the target. The UAV element would probably consist of the WATCHKEEPER system.

## COMBAT SERVICE SUPPORT

### **Responsive.**

Responsive CSS is critical for Air Manoeuvre operations. To keep pace with the high tempo of operations CSS will have to utilise directed distribution systems to provide mission sufficiency. Systems will need to be agile and responsive, utilising information management systems and improved communications to reduce stockpiles and direct critical resources to where they are needed. Light self contained systems, especially for fuel and ammunition will need to be employed imaginatively. These changes emphasise the requirement for a new approach to CSS which could be termed "logistic manoeuvre support"

### **Distance**

Air Manoeuvre operations will be carried out at long ranges and distance creates a disproportionate increase in demand as well as increasing the difficulty of support to dislocated forces. Maintaining a manoeuvre presence in an AO will generate a demand, which will be a key factor in the commander's estimate that is the size of the manoeuvre force versus the CSS effort to sustain it. The ability to project and sustain formation elements will reduce with increasing range. Imaginative solutions involving air delivered fuel and AAR will need to be applied. Greater use of refuel systems mounted in SH or AT may not only solve some logistic problems but also improve on the security limitations of ground equipment based Forward Arming And Refuel Points (FARPS).

### **Destination**

A wide variety of potential operating environments will present particular challenges. Extremes of temperature or difficult terrain may affect maintenance requirements or hamper the ability to provide ground support. Flexible systems will depend on access to a variety of distribution means, coupled with information management systems. Support systems and equipment should be designed to withstand harsh operating environments whilst being light rapidly deployable and easily maintained.<sup>27</sup>

### **Demand**

Fuel and ammunition usage rates will be extremely high during Air Manoeuvre and an Air manoeuvre Brigade is likely to use fuel at twice the rate of an Armoured Brigade. When the AH

are fully operational within 16 Air Assault Brigade the Brigade's daily AVTUR expenditure will increase to 322,200 litres per day.<sup>28</sup> In addition the wide variety and value of ammunition natures illustrates the need for visibility and asset tracking of critical items to ensure that scarce assets are effectively managed. Casualty and Medical Evacuation and the provision of ES to an Air manoeuvre operation will also have unique characteristics and problems. The implication is that CSS management will be required to be robustly postured to meet high planned demands whilst retaining flexibility to alleviate an adverse situation or to support the exploitation of opportunity. All logistic operations are likely to place a high demand upon SH and resources are unlikely to meet demands at all times.

### **Duration.**

Duration poses many of the same problems as distance and as both increase the requirement to use external lines of communication becomes more apparent. If combat power of the formation is focused on a single short large-scale operation the effect is likely to mean a relatively high demand but over a short time scale. If the power is diluted over a long period then the overall demand may be greater because of the requirement to self sustain. Each analysis would seem to suggest that the short decisive high tempo operation is likely to result in the lowest overall CSS effort.

### **CONCLUSION**

The introduction of the AH to the British Army's orbat provides a unique opportunity to develop an integrated Air Manoeuvre capability. This capability should be optimised for war fighting and offensive operations but be able to conduct operations across the spectrum of conflict. The development of the capability should take account of the emerging doctrine of the informational age and will need to be fully interoperable with close Allies. It will provide the Land Component with a key early Force Evaluation and Development step on the path towards digitization.

The composition of the Air Manoeuvre Force should be based on a joint Divisional Headquarters with an integral ISTAR capability and critically robust connectivity with the other component assets. The formation will require AH Regiments and Air Assault Infantry Battalions. An OSG capability will be required. Organic Air Defence and Collective NBC protection will be critical. The firepower, tactical mobility and protection of the air assault infantry needs to be enhanced to be interoperable with the AH.

Air Manoeuvre will increase the Area Of Influence and Area of Operations assigned to the Land Component. The control of battlespace given the increasing capability of the JFLCC to operate deep will need careful consideration. The doctrine supporting the FSCL and the ATO will need revision. To be successful a truly integrated approach to interoperability, training and readiness is required. Existing training opportunities need to be harnessed so that the third dimension can be fully practiced. The Air Manoeuvre Force will need to be exercised in the expeditionary nature of modern warfare including operating out of a bare based Forward Mounting Base.

The successful development of a fully digitized, integrated Air Manoeuvre Formation capable of warfighting in unilateral, alliance and coalition operations will significantly enhance the UK's defence capability.

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## ENDNOTES

<sup>1</sup> The aircraft is based on the Boeing Apache Longbow designated AH-64D. The UK version is being delivered by the prime contractor, GKN Westland Helicopters Ltd (GWHL) and is designated as the WAH-64. In this paper the abbreviation AH will mean WAH-64.

<sup>2</sup> Design for Military Operations - The British Military Doctrine, Prepared under the direction of the Chief of the General Staff, 1996, p.4-21.

<sup>3</sup> The current British Army definition of Air Manoeuvre as published in DGD&D Doctrinal Note 00/2 in issue 1.0: Jul 00.

Operations within the Land Component Scheme of Manoeuvre, seeking decisive advantage by the exploitation of the third dimension; primarily by combined-arms forces centred around and integrated with rotary wing aircraft, supported by other component elements, within a joint framework- nationally and multi-nationally

<sup>4</sup> COMARRC's Concept of Operations 27 Oct 98 – "the deep battle.... is far more than the delivery of high explosives into the enemy's depth, deep attack ...will wear the enemy down, but it is deep manoeuvre that will unhinge him."

<sup>5</sup> ASTOR is a multi-spectral air ISTAR system with near real time responsiveness with an in service date of 2005. Operating altitude 51000 feet. Range 6700 nautical miles. Radar range 250 km. Unfuelled endurance 14 hours.

<sup>6</sup> DGD&D paper on, Future Land Manoeuvre-Development Of The Air Manoeuvre Capability. D/DGD&D/1/109/12 dated 30 Nov 99, p12.

<sup>7</sup> William Owens and Edward Offley, Lifting The Fog Of War (New York: Farrar, Straus and Giroux, 2000), 10.

<sup>8</sup> Major General Robert H. Scales, "Cycles Of War", Armed Forces Journal, Vol. 137, no. 12. (August 1999):

<sup>9</sup> Ibid.

<sup>10</sup> The combat mission speed of the AH is 167mph.

<sup>11</sup> A Paper by DGD&D, The Future Army Concept Paper. D/DGD&D/1/124 dated 8 Sep 99.

<sup>12</sup> DGD&D paper on, Future Land Manoeuvre-Development Of The Air Manoeuvre Capability. D/DGD&D/1/109/12 dated 30 Nov 99, p9.

<sup>13</sup> ADPI Operations. p2-9.

<sup>14</sup> Boyd, Lieutenant Colonel S F. Force 2020(+). The British Army Review Number 122, p 10.

<sup>15</sup> Army Doctrine Handbook, Doctrinal Note 00/2 Air Manoeuvre Operations Issue 1.0: Jul 00, p 00/2 – 24.

<sup>16</sup> Composite Air Operations.

<sup>17</sup> The UK has finalised the contract to lease four C-17 aircraft from the USAF. The four aircraft are expected to be delivered by September 2001.

<sup>18</sup> DGD&D paper on, Future Land Manoeuvre-Development Of The Air Manoeuvre Capability. D/DGD&D/1/109/12 dated 30 Nov 99, p11.

<sup>19</sup> Douglas E Utley. "The Area Of Operations – Fighting One Campaign." Joint Force Quarterly, Autumn98/Winter99 Issue 20, p37.

<sup>20</sup> Macgregor, Douglas A. Breaking The Phalynx A New Design For Landpower In The 21<sup>st</sup> Century. Westport, CT: Praeger Publishers, 1997, p125.

<sup>21</sup> UK MLRS are capable of firing US Block 1 ATACMS. They would however require software upgrades and some detachment training. Block 1 ATACMS has a range of 25-165 kms and delivers 950 Anti-Personnel/Anti-Materiel (APAM) sub munitions. These are optimised against soft targets and are particularly effective as part of a SEAD package. Block 1A ATACMS delivers 300 APAM munitions in the range bracket 70-300kms.

<sup>22</sup> Artillery and other OS assets allocated to a division are collectively known as the Offensive Support Group (OSGs).

<sup>23</sup> A Paper by DGD&D, International Command and Control Interoperability Paper. D/DGD&D/2/112/13/Comd Sp dated 20 Feb 01, p 1.

<sup>24</sup> Boyd, Lieutenant Colonel S F. Force 2020(+). The British Army Review Number 122, p12.

<sup>25</sup> The Lightweight Mobile Artillery System has 2 elements. The 155mm lightweight gun with an ISD of 2006 and the rocket launcher with an ISD of 2008.

<sup>26</sup> The ideas in this paragraph are based on remarks made by a speaker participating in the Commandant's Lecture Series.

<sup>27</sup> DGD&D paper on, Future Land Manoeuvre-Development Of The Air Manoeuvre Capability. D/DGD&D/1/109/12 dated 30 Nov 99, p18.

<sup>28</sup> A Paper by 16 Air Assault Brigade, Sustaining Air Assault Operations (Airmobile and Airborne) Aviation Fuel Capabilities and Equipment. G4011 dated Dec 99.

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