ARMY FIELD MANUAL VOLUME 1 COMBINED ARMS OPERATIONS

PART 3

INTELLIGENCE, SURVEILLANCE, TARGET ACQUISITION AND RECONNAISSANCE (ISTAR)

2002

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"We have knowledge that they dream not of"

William Shakespeare – Henry V

PREFACE

- 1. This publication addresses the all embracing features of Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) that are so vital in an early stage of operations to set the framework for subsequent defeat of an enemy. All four attributes of ISTAR are separate and distinct disciplines in their own right. Nevertheless it is the subtle coordination and combination of all of them that provides the potential battle-winning system of systems. It requires imaginative skill to achieve coherent ISTAR planning coupled with careful attention to detail and manipulation of the many platforms, systems and devices available to support a commander on the modern battlefield.
- 2. Chapters in this publication follow a graduated sequence for the reader. The concept, the process, the architecture and the employment of ISTAR and the assets it can bring to the battlefield are described in this publication.
- 3. ISTAR needs to be addressed in conjunction with other publications in the Field Manual. The two publications most directly relevant to ISTAR are:
 - a. AFM Vol 1 Pt 4 Countersurveillance, OPSEC and Deception
 - b. AFM Vol 1 Pt 8 Command and Staff Procedures

Both are necessary to provide the reader with the overall context of ISTAR and its use on the battlefield.

CONTENTS LIST

		Page
PREFACE		iii
CHAPTER 1	THE ISTAR CONCEPT	
	Introduction Purpose Characteristics Information and Intelligence ISTAR Architecture Principles of ISTAR Processes ISTAR Collection Assets Characteristics of Effective Intelligence Products Supporting the Common Operational Picture and Situation Awareness Support to Targeting and Information Operations Battle Damage Assessment Counter ISTAR Force Protection Deception Educating Users Joint ISTAR Multinational ISTAR Military Information	1-1 1-2 1-3 1-4 1-5 1-7 1-7 1-8 1-8 1-9 1-9 1-10 1-11 1-11 1-11
CHAPTER 2	THE ISTAR PROCESS	
	General Co-ordinating the Process Areas of Intelligence Interest and Responsibility The Intelligence Cycle Intelligence Preparation of the Battlespace The Intelligence Estimate Direction Collection Intelligence Requirements Management and Collection Co-ordination The Intelligence Collection Plan Requests for Information Collection Assets Timeliness Collected Information Processing Dissemination ISTAR Support to Targeting Summary	2-1 2-1 2-2 2-3 2-5 2-6 2-8 2-8 2-8 2-9 2-9 2-9 2-10 2-10 2-12 2-14

		Page
Annex A Annex B Annex C Annex D	AII/AIR Dimensions Example of an Intelligence Estimate Example of an ISTAR Collection Plan ISTAR Support to Targeting	2-A-1 2-B-1 2-C-1 2-D-1
CHAPTER 3	ISTAR COMMAND AND CONTROL	
Annex A Annex B	The Role of the Commander The Role of the G2/ISTAR Staff Other Specialist Staff Interplay Between Intelligence and Other Staffs Tasking The Collection Capability Example of an ISTAR Op Order and Annex Example of an ISTAR Synchronisation Matrix	3-1 3-1 3-4 3-4 3-5 3-A-1 3-B-1
CHAPTER 4	EMPLOYMENT OF COLLECTION ASSETS	
OHAI IER 4	LIM LOTIMENT OF GOLLEGIION AGGETO	
	Introduction ISTAR Collection Planning Planning Considerations Planning Criteria for the Allocation of Assets Planning the Use of Assets Attributes of Collection Assets Countering Camouflage, Concealment and Deception	4-1 4-1 4-2 4-2 4-3 4-5 4-6
Annex A Annex B	Current ISTAR Collection Capability Possible Mix of ISTAR Assets for each Level of Command	4-A-1 4-B-1
CHAPTER 5	CHARACTERISTICS OF COLLECTION CAPABILITIES	
A 22.2.2.4	General Ground Based Manned Reconnaissance Formation and Close Reconnaissance Engineer Reconnaissance NBC Reconnaissance Long Range Patrols Air Reconnaissance and Surveillance Unmanned Aerial Vehicles Aviation Reconnaissance STA Systems Electronic Warfare Electronic Warfare Support Measures Relationship to SIGINT ESM Derived Information NON Comms ESM	5-1 5-1 5-2 5-3 5-4 5-5 5-6 5-8 5-12 5-13 5-17 5-17 5-18 5-18 5-20
Annex A	ISTAR Collection Systems and Sensors	
Glossary		Glossary 1-9

CHAPTER 1

THE ISTAR CONCEPT

Introduction

- 1. Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) is defined as "The co-ordinated acquisition, processing and dissemination of timely, accurate, relevant and assured information and intelligence which supports the planning, and conduct of operations, targeting and the integration of effects and enables commanders to achieve their goal throughout the Spectrum of Conflict". It is a command driven capability that supports the maintenance of the Common Operational Picture and the development of Situational Awareness (SA) for commanders, staffs and other users at all levels of command both inside and outside of the Land Component. ISTAR, when combined with an effective C⁴I capability, is known as C4ISTAR and is the practical application of the Find Concept². The term Intelligence, Surveillance and Reconnaissance (ISR) is used at the Joint level. It follows the same basic concept as ISTAR but does not tie targeting and ISR to the same degree based on the perception that time critical target engagement reduces at the operational level and above.
- 2. ISTAR is a "System of Systems" that is made up of three principal elements: information, either raw or processed; the processes that enable information to be collected, collated and analysed into intelligence; and the physical architecture that encompasses the ISTAR collection systems, their organisations and the various staff cells. All three elements have to be treated equally, if any one element is neglected, it may lead to a reduction in the overall efficiency of the system.

Purpose

3. ISTAR must provide timely, accurate, relevant and assured information and intelligence to every level of command, remembering that its primary function is to support the commander and his decision making process. When manoeuvring and executing operations, especially at the lower tactical levels, the commander will require precise, real time information on the enemy and may even need to have a 'dialogue' with a specific sensor or its controller. The precise requirement of the commander will vary with the level of command at which he is operating - decisionmaking times, for example, will expand at higher levels. ISTAR must also serve other related activities such as support for Information Operations (Info Ops) and Media Operations. Information for evidential purposes can be expected to assume increasing importance, but the crucial factor here will be the audit trail for the handling of information that may be used as evidence, rather than the quality of the information. It is also anticipated that there will be an increasing emphasis on those collection assets that can assist with the assessment for potential collateral damage as well as carrying out Battle Damage Assessment (BDA).

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¹ Army definition.

² Find is defined as "The timely acquisition, processing and dissemination of information on, primarily enemy forces and the environment, through the seamless integration of decision making, planning, operations (including Information Operations) and targeting throughout the battlespace in order to focus effects" (Future Army C2 paper).

- Operations require a full understanding of the environment. Current and developing 4. ISTAR systems will enable much more usable information about the environment to be collected. It will be possible to analyse this more rapidly than at present and it is expected that considerable amounts of environmental data will be available throughout the Land Component. Such information will be an effective and vital input to SA.
- An effective ISTAR capability will allow the Commander to identify enemy 5. weaknesses and enables him to make the decisions that can exploit those weaknesses. This is achieved by making best use of the intelligence held and produced at higher levels of command combined with the information provided by ISTAR collection assets held at that and lower levels of command. Systems that provide "coarse grain" information will be used to provide a general picture of enemy activity and cue "fine grain" systems which will permit the development of intelligence at the level of detail that the Commander requires at selected points within the battle space. This cross cueing between collection assets is a continual activity that spans levels of command as well as component boundaries. The whole process is sequential and iterative ensuring that appropriate information is provided to the right place at the right time to allow the appropriate application of force. It will also permit fleeting opportunities to be exploited and allow mobile targets to be monitored and tracked.

Characteristics

- 6. The component characteristics of ISTAR are:
 - a. Intelligence. Intelligence is defined as "The product resulting from the processing of information concerning foreign nations, hostile or potentially hostile forces or elements, or areas of actual or potential operations"³. Intelligence in a military context is the product of our knowledge and understanding of the terrain, weather, activities, capabilities, doctrine and intentions of an actual or potential adversary or of any other forces with which the Army is concerned. Intelligence is fundamental to the planning and conduct of operations across the whole spectrum of conflict as it allows the commander to understand the threat and gain mastery of the environment, consequently reducing risk to his own force whilst enabling decisions which optimise their capabilities.
 - Surveillance is defined as "The systematic observation of b. aerospace, surface or subsurface areas, places, persons, or things, by visual, aural, electronic, photographic, or other means"⁴. Surveillance monitors areas and activities; this may be by passive or active means. Surveillance cues and is cued by, other surveillance systems reconnaissance and target acquisition resources to investigate specific activities or to obtain more detailed information on a particular observation. It provides for example security to friendly forces through early warning of adversary activity within

⁴ Ibid.

³ AAP-6.

gaps, on exposed flanks or in rear areas. Surveillance implies that the adversary must act, move or radiate before it can be detected.

- Target Acquisition. Target Acquisition is defined as "the detection, C. identification, and location of a target in sufficient detail to permit the effective employment of weapons"⁵. Target Acquisition has evolved from simply supporting the employment of weapons; rather, it has become focused on the delivery of effects. Targets could be countries, areas, installations, agencies or persons against which intelligence activities are directed. Acquisition provides sufficient accuracy in locating adversary forces to enable their effective engagement by direct or indirect fire weapons or to enable other effects (such as Offensive Info Ops) to be used against them.
- d. Reconnaissance. Reconnaissance is defined as "a mission undertaken to obtain by visual observation or other detection methods, information about the activities and resources of an enemy or potential enemy, or to secure data concerning the meteorological, hydrographic or geographic characteristics of a particular area"6. Reconnaissance is generally a focused and relatively short duration method of collecting information about the adversary. ISTAR collection assets are assigned a mission to obtain specific information about the adversary. Reconnaissance activity is not confined to "reconnaissance" units but may be undertaken as a function by many non-ISTAR elements.

Information and Intelligence

- 7. The purpose of ISTAR is the production of intelligence from information. In order to understand the ISTAR system, the clear distinction between the two must be understood:
 - *Information.* Information is unprocessed data⁷ of every description that may a. be used in the production of intelligence. It is normally collected by individual sensors, systems or capabilities.
 - "The product resulting from the processing of information b. Intelligence. concerning foreign nations, hostile or potentially hostile forces or elements or areas of actual or potential operations". Intelligence is the result of a process involving the evaluation, analysis, integration and interpretation of disparate pieces of information, usually in relation to existing information and intelligence, in order to clarify a situation and produce meaningful conclusions, assessments and predictions in response to the commander's intelligence needs. There are three types of intelligence:
 - (1) Basic Intelligence. Basic intelligence is intelligence on any subject. which may be used as reference material for planning and as a basis for processing subsequent information or intelligence.

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⁵ Ibid.

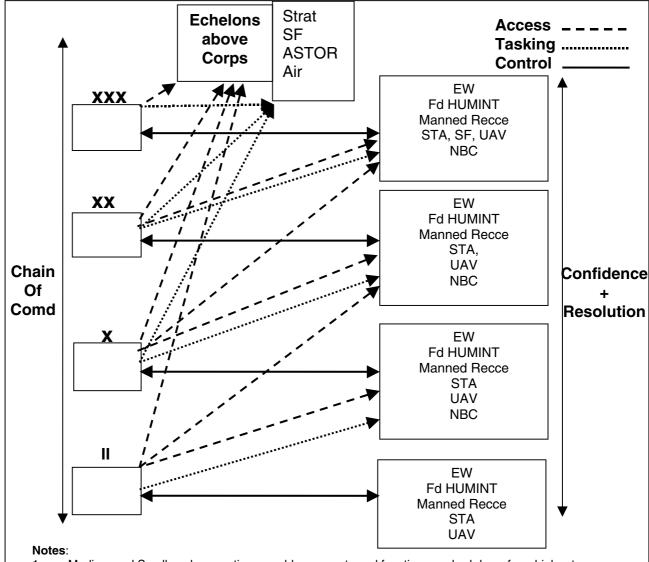
⁶ AAP-6.

⁷ This includes geographic data.

- (2) *Current Intelligence*. Current Intelligence is intelligence which reflects the current situation at the strategic, operational, or tactical levels.
- (3) Applied Intelligence. Applied Intelligence is intelligence that has been analysed and refined to a degree where it provides direct support to the decision making process.
- 8. Managing all of the information, particularly time-critical information for targeting purposes, is an important part of the overall command and staff process. Information Management must be enforced to prevent overload of ISTAR staff and Communications and information Systems (CIS). This will be prevented by providing only the information that is actually needed, rather than that which is unwanted or unnecessary.

ISTAR Architecture

9. The ISTAR Architecture consists of four elements: the staffs who conduct the ISTAR process, the formations and units that own the ISTAR collection assets, the collection assets themselves and the CIS that enables the process. The architecture should allow access to information wherever it may be held, the ability to pass Requests For Information (RFI) and tasking to different levels of command, the ability to control the collection assets within a level of command and to disseminate the intelligence produced. The ISTAR Architecture is shown at Figure 1-1. The development of new ISTAR collection systems that will have their own C2 capability, as well as the upgrading of CIS should allow the architecture to work ore efficiently. This in turn will lead to changes in working practices which will impact ISTAR, such as a decrease in reliance on manually inputted reports and returns.



- Medium and Small-scale operations would see assets and functions pushed down from higher to lower levels of command.
- 2. Higher levels of command can access information from lower levels and lower level assets could continue to be tasked by higher levels through, for example, the Collection Plan.
- 3. The brigade level architecture applies in principle to Air Manoeuvre (AM) and Ground Manoeuvre (GM) brigades, with the emphasis shifting to support from higher level assets for AM brigades to enable them to work within a larger AO.
- 4. The collection assets are indicative.
- 5. Assets are tasked through the Collection, Coordination and Information Requirements Management (CCIRM) process.

Figure 1-1 The ISTAR Architecture

Principles of ISTAR

10. ISTAR is driven by a series of guiding principles, which aim to provide the most comprehensive possible understanding of the adversary. This includes knowledge of the adversary's goals, tactical objectives, strategy, intentions, capabilities, methods of operation, vulnerabilities, morale and sense of value and loss. The intelligence staff must also understand the adversary's character, culture and customs. They must develop and continuously refine their ability to think like the

adversary in order to advise on the adversary's likely perceptions, reactions and responses to our own actions. The guiding principles that support the ISTAR concept and enable the components to work effectively are:

- a. Command Driven. Direction of the ISTAR effort and determination of priorities must be led by the Commander at each level of command. Unless the Commander devotes sufficient effort to these requirements he cannot guarantee that he will receive the intelligence he requires for his decision making and conduct of operations.
- b. Centralised Co-ordination. ISTAR must be co-ordinated centrally at the highest level of command commensurate with the types and capabilities of the collection assets being used. This ensures there is no unplanned duplication of effort, no gaps in collection and enables the most efficient and effective use of limited resources in accordance with the commander's priorities.
- c. Responsive and Timely. ISTAR must be highly responsive to the needs of commanders, staff and users ensuring Information Requirements can be understood and dealt with quickly and effectively. Responsiveness requires prioritisation of work to ensure that effort can be focused. The entire process must also be sufficiently timely to provide intelligence at the right time allowing actions to be taken inside the enemy's decision/action cycle. Timeliness within ISTAR contributes to operational tempo, the focussing of effects and enables the initiative to remain with friendly forces.
- d. Continuous Coverage. Although ISTAR collection assets will always be limited in number the aim must be to strive for continuous coverage in time, space and across the EMS.
- e. System of Systems Approach. The most useful and complete intelligence can only be achieved through the collation and analysis of information and intelligence collected from multiple sources. A "system of systems" approach results in the production of complementary data where information from one source confirms and augments information provided by another and provides a higher level of confidence in the resulting all source intelligence product.
- f. Robustness. A robust mix of collection capabilities should be allocated to each level of command to provide flexibility to the commander to ensure he can acquire the information he requires. This will not only allow the cross cueing of sensors but also enable a higher level of confidence in the information on a particular target.
- g. Accuracy. Information must be filtered, analysed and interpreted to produce accurate intelligence. Intelligence must be factually correct and indicate the degree of confidence in intelligence assessments and judgements. The drive to maintain tempo will act against this requirement and significant command effort will be required to balance these requirements and to ensure that accuracy is not sacrificed to achieve speed.

- h. Continuous Review. ISTAR organisations and staffs must continuously review the collection plan, processes and products to ensure that changes in the information received, operational situation and user requirements are being accommodated. They must guard against any temptation to distort information to fit previous assessments or preconceived ideas. Intelligence must also convey the uncertainties that are inevitable in assessments and not imply a false degree of confidence.
- i. Source Protection. Sources must not be employed on tasks where their loss would be disproportionate to the value of the information they provide or are seeking to collect. Similarly, in disseminating intelligence, sources and methods must be protected to avoid compromise and subsequent loss of collection ability. In essence, this will involve a command decision on the balance between the protection of the source and the satisfaction of users' intelligence requirements. This dilemma will become particularly acute in multinational operations.
- j. Accessibility. Information and intelligence must be readily accessible, both for users and for intelligence staff. It must be stored in a form that allows information requirements to be met. This will require inter-connectivity at each level of command between the cells, organisations and collection assets that deal with ISTAR.

Processes

11. The ISTAR process revolves around the four elements of the Intelligence Cycle – Direction, Collection, Processing and Dissemination. This cycle is adopted across the joint community and by many other countries. Traditionally the Cycle has focused on determining what information is required, collecting that information and then processing it to gain intelligence. The ISTAR process brings the Intelligence Cycle together with the integrated and co-ordinated use of collection assets.

ISTAR Collection Assets

12. ISTAR collection assets are becoming more sophisticated and capable. From 2005 onwards a step change in capability will occur as new systems are fielded. ISTAR takes a "System of Systems" approach to the employment of collection assets. This requires the assets to be used as an holistic entity rather than as a series of stovepipes. It seeks to provide a robust mix of assets at each level of command and to ensure the essential interplay between them⁸, avoiding a reliance on any one type of asset. Within the Land Component ground based manned reconnaissance is now considered to be a core capability at each level of command. This, combined with other systems such as Unmanned Aerial Vehicles (UAV), Electronic Warfare (EW) and Human Intelligence (HUMINT), provides the ingredients for this robust mix.

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⁸ Key to this is the ability to cross cue between any sensor or system.

The Characteristics of Effective Intelligence Products

- 13. Effective intelligence is intelligence that meets the commander's needs. In order to achieve this, intelligence products must have the following characteristics:
 - a. *Relevance*. Intelligence must support the commander's mission, concept of operations, and intelligence requirements.
 - b. *Usability*. Intelligence products must be in a format that can be easily used and they must highlight the significance of the information or intelligence they contain and include an assessment of the validity of the intelligence.
 - c. *Timeliness*. Intelligence products must be available in sufficient time to enable decisions to be made and implemented.
 - d. *Objectivity*. Intelligence must be unbiased, undistorted, and free from political influence or constraints. Intelligence methodology and product must not be directed or manipulated to conform to a desired result, preconceived views of a situation or adversary, or a predetermined objective or institutional position.
 - e. Availability. Intelligence must be readily available to those who need it, taking account of both source protection and the penalty of intelligence compromise. This may require pragmatic decisions to be made on the releasability of intelligence
 - f. Completeness. Intelligence should be as complete as possible using all available information to answer customers' requirements and provide a full understanding of the situation whilst not slowing down the dissemination process.

Supporting the Common Operational Picture and Situation Awareness

14. The Common Operational Picture is a snapshot in time of friendly and adversary forces and of the battle space environment. It is overlaid over a common geospatial framework and formed from the output from the database of information and intelligence which is common throughout a level of command and which is disseminated throughout that level of command. The Common Operational Picture informs the commander's Situational Awareness (SA) which is his understanding of the operational environment in the context of his mission. ISTAR contributes to the Common Operational Picture by providing the database of information and intelligence on the adversary and, to a certain extent, on the environment. It is therefore a contributor to the Common Operational Picture and SA but provides only part of the data.

Support to Targeting and Information Operations

15. ISTAR supports targeting by detecting, identifying and tracking a target, the component of a target and the system to which it belongs. Further, it indicates its vulnerability, relative importance and its assessed current operational status. Support to the targeting process can be derived as the result of specific targeting

intelligence requirements, as a by-product of Intelligence Preparation of the Battlespace (IPB), from the tasking associated with an unrelated Information Requirement or from air or ground engagement. In the latter case it is passed by the most direct means to the appropriate manoeuvre element, Offensive Support organisation or direct to a weapon system. The requirement placed upon commanders to avoid or minimise collateral damage⁹ is likely to generate additional IRs that will have to be met before target attack approval is given in the Target Recommendation step of the Targeting Cycle¹⁰.

Information Operations (Info Ops) rely upon detailed knowledge and understanding 16. of the adversary and the way in which he thinks and in which both he and his systems process information. The analysis of psychological, political, cultural, behavioural and other human factors, which influence decision making together with detailed systems analysis of infrastructure and military capability, will be critical to success. Accurate, releasable, detailed intelligence about decision-makers and the decision making process is the foundation of successful Information Operations. ISTAR contributes to Info Ops in two ways, one direct and the other is via Counter ISTAR. ISTAR provides the basic and current intelligence that allows own force Offensive Information Operations to be planned and targeted. It also provides feedback on the effectiveness of those Offensive Information Operations. Counter ISTAR provides information and intelligence on an adversary's Information Operations capabilities and activities and the intent behind their use in order to allow Defensive Information Operations to be planned and targeted.

Battle Damage Assessment (BDA)

- 17. BDA consists of physical damage assessment, functional damage assessment and target system assessment. It is the timely and precise assessment of the effects of the application of lethal or non-lethal force against a pre-determined objective. Such assessment is primarily a G2 responsibility but must closely link with the Targeting Process and involves close co-operation with the operations and fire support staff.
- 18. The production of BDA will give rise to a series of pre and post-attack intelligence requirements that will be dealt with by ISTAR in the normal manner. They will require the tasking of the appropriate ISTAR collection assets before an attack takes place. The results of the BDA, and the intelligence implications, may materially affect the conduct of operations. The ISTAR staff must ensure that effective procedures are put in place to provide support to the BDA process.

Counter ISTAR

19. Counter ISTAR is defined as "activities undertaken to identify, quantify, determine the intent of, and counteract an adversary's ISTAR capability" 11. Counter ISTAR and ISTAR are mutually supportive whilst Counter ISTAR also contributes to Force Protection, Operations Security (OPSEC), Deception and Info Ops as shown in Figure 1-2. The ISTAR effort determines what operations or activities an adversary

¹¹ Army Definition.

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⁹ 1997 Geneva Protocol 1 to the 1947 Geneva Conventions.

¹⁰ The Targeting Process and Cycle are covered in AFM Vol 1, Part 8, Command and Staff Procedures.

is undertaking or planning, whilst the Counter Intelligence (CI) element of Counter ISTAR focuses on the adversary's ISTAR capability, intent and activities, what he wishes to find out about us. CI is a largely predictive activity that will use own ISTAR assets to determine what the adversary is collecting against. These CI Information Requirements are fed into the ISTAR process in the same way as any other. The Counter STAR element of Counter ISTAR contributes to Force Protection by determining what actions must be undertaken by own forces to deny information to an adversary once the intent of the adversary's ISTAR collection effort is understood; it is therefore more active in nature and more often than not deters hostile ISTAR.

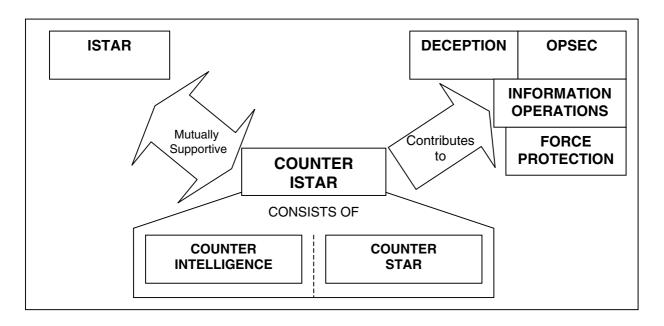


Figure 1-2 Counter ISTAR Relationships.

Force Protection

20. Force Protection aims "to conserve the fighting potential of the deployed force by countering the wider threat to all its elements from adversary, natural and human hazards and fratricide"¹². The threat from an adversary might be symmetric, such as those faced by friendly forces in the course of operations; or asymmetric such as Computer Network Attack (CNA), espionage, sabotage, subversion, terrorism and criminal activity. The G2/ISTAR staff is responsible for Counter Intelligence (CI), and the provision of security intelligence and non-conventional threat assessments to support Operational Security (OPSEC)¹³, Counter Surveillance and Counter Reconnaissance activities.

Deception

21. ISTAR is a prime target for (and prone to) deception. Any adversary will wish to conceal his activities from our ISTAR capability or to deceive us into believing that he is doing something else. A degree of suspicion must therefore be engendered

¹² JWP 0-01.1 ratification Draft Edition 2.

¹³ OPSEC includes: Personnel Security, Physical Security, Information Security (INFOSEC), Information Technology (IT) Security and Organisational Security.

throughout the ISTAR architecture from the individual soldier manning an Observation Post (OP) to the analyst. It is important to avoid jumping to conclusions and equally important to take a measured approach to analysis although this must be set off against the need to develop intelligence rapidly. The need to pass processed information or intelligence to the commander is crucial. Direct access to raw data or individual sensors can lead to the commander being deceived until such time as information from all sources can be processed to produce a more comprehensive picture. Counter ISTAR also assists with own force deception in that it can determine what intelligence the adversary is collecting and how. This enables own forces to work out what adversary collection assets need to be deceived and how to achieve the desired effect.

Educating Users

22. ISTAR organisations and staffs need to liaise closely with users in order to ensure that their requirements are clearly understood and met in a timely and appropriate manner. They should engender a high degree of confidence amongst users that their requirements are being met, not only in terms of the finished product provided but also in terms of collection requirements being satisfied and intelligence databases being maintained, to support the intelligence capability. They should also ensure there is a general awareness amongst users of the intelligence process and the broad capabilities and limitations of ISTAR collection assets. This will help to prevent users from setting unrealistic intelligence requirements.

Joint ISTAR

- 23. The ISTAR capability within the Army should be seen in the context of the wider joint ISR capability within the Armed Forces. The Government and MOD are served by a strategic ISTAR capability, whilst each service has its own ISTAR capability. However, the real synergy of ISTAR can only be achieved through the integration of each of the strategic and single Services' ISTAR capabilities. There are an increasing number of ISTAR collection systems capable of meeting the needs of all of the Services and multiple levels of command, often all at the same time. This requires the G2/ISTAR staffs at each level of command and particularly the Land Component HQ level to consider the role that they play in the wider ISTAR capability, whilst also remembering that this wider capability can also be harnessed to meet the Land Component's requirements.
- 24. RFI will regularly move outside a Single Service component when the means to satisfy them is located elsewhere within the Joint ISTAR capability. There will be an increasing number of RFIs targeted at the Land Component as the Army's ISTAR collection capability improves and the level of granularity required at the operational and higher levels becomes finer.
- 25. The pattern of recent operations has involved smaller Land Components being deployed out of their normal chain of command. The employment of Brigade HQs as Land Component Command HQs is a regular occurrence, some have even acted as Joint Task Force Headquarters (JTFHQ). This places an increased requirement on the lower levels of command having a full understanding of the joint ISTAR

capabilities so that, when acting as a Land Component HQ or a JTFHQ, a Brigade HQ, for example, can play an effective part in the overall ISTAR process.

Multinational ISTAR

- 26. Most countries, whether or not they are members of NATO, have their own approach to ISTAR and their own ISTAR collection capabilities. Different terms may be used, such as RSTA, RISTA, or ISR but in most respects the underlying principles are the same. ISTAR doctrine for NATO and ABCA¹⁴ countries already exists at the Joint and Army levels and, where possible, is reflected in this AFM. Despite the doctrinal guidance that is available, it is likely that formations involved in multinational operations will be provided with an ISTAR capability that does not conform precisely with that envisioned in such guidance. A multinational operation will be supported by an ISTAR capability that is a likely to be an *ad hoc* amalgam of information, process and architecture.
- 27. Intelligence support to multinational operations requires strict procedures for the integration of processes, the sharing of information and the use of ISTAR collection assets. Such procedures should ideally be agreed prior to the commencement of combined operations. Additionally, multinational operations may involve non-Alliance nations and differences in language and culture may compound operational and procedural disparities. Two broad approaches to the resolution of these problems are possible depending on the nature of the combined operation and the participants:
 - a. Integrated Information Sharing. In these circumstances ISTAR collection assets, processes and personnel are fully integrated. This allows for the ready flow of information and intelligence and a synergy over the use of collection assets. It also reduces duplication and simplifies the dissemination of the product in formats that are readily useable by dissimilar national force elements. However, the releasability of sensitive national information and intelligence may cause difficulties for participants that will often only be solved through pragmatism linked to an understanding of the sensitivities involved.
 - b. Parallel Information Sharing. In these circumstances different national ISTAR capabilities work separately and often in parallel, with some integrated links to provide an ability to exchange information. This allows for national control of product, collection and security issues but promotes duplication of effort and may lead to suspicion of the amount of knowledge not being released by partners.
- 28. During multinational operations the intelligence product supporting that operation should be shared and early liaison should be initiated at the highest levels of the alliance or coalition to ensure that the intelligence operations of each participant are co-ordinated. This co-ordination should involve the exchange of ISTAR liaison officers with multinational headquarters and the establishment of an ISTAR architecture complete with secure communications. The diverse nature of

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¹⁴ America, Britain, Canada, Australia (ABCA) is an organisation established by the countries' Armies after the Second World War to help better understand each nation's doctrine and capabilities.

multinational forces and of their operational doctrine, national interests and cultures will influence the intelligence process in ways that are unique to a multinational intelligence effort. The following factors should be considered in the establishment of a multinational ISTAR capability:

- a. The development of a multinational intelligence system acceptable to all allied nations.
- b. The establishment of clearly defined channels for the flow of information and intelligence.
- c. The establishment of agreed standing operating procedures for ISTAR operations.
- d. The development of a secure, reliable and dedicated CIS architecture.
- e. The provision of appropriate linguist support.
- f. The establishment of formal liaison between allied G2 staff and ISTAR units.
- g. The establishment of common databases, and tasking and reporting systems with agreed formats and reports.
- h. The establishment of agreed procedures for the release and disclosure of protectively marked or sensitive information and intelligence
- 29. The ISTAR capability should support multinational all-source information and intelligence, its subsequent processing and dissemination. This all-source intelligence will include that provided by national agencies and, therefore, sources must be protected and national policies respected. National Intelligence Cells (NIC) are likely to be established at the joint level of command to allow for the sanitising of sensitive national intelligence prior to its input into the multinational intelligence system. They may also be established at the Land Component Commander level to ensure the flow of information to all parts of the multinational structure.

Military Information

- 30. In recognition of the impartial position for which the United Nations (UN) strives in peace support operations they normally use the term "military information" in favour of "intelligence". While ISTAR for the UK is not bound by the same restrictions on its own operations as those imposed by the UN, it has to be understood what the operational implications for impartiality are for the UK. The UN maintains its impartial position in the following manner:
 - a. The UN conducts its military affairs based on impartiality. If this impartiality is compromised the effectiveness of the UN is diminished.
 - b. The UN is only prepared to use overt means for the collection of information for fear of alienating any of the parties to a dispute.
 - c. The confidence of all sources of information has to be maintained so that they will continue to co-operate. This particularly applies to the parties in dispute and therefore precludes the use of covert collection activities.

CHAPTER 2

THE ISTAR PROCESS

General

1. Intelligence is produced as the result of a methodical and logical process. The need for intelligence is determined, the commander provides direction, the staff plan and direct the collection of information, co-ordinate the collection effort, the collection assets acquire the necessary information, the received information is then processed into intelligence and the intelligence is disseminated to whoever needs it. However, current information and intelligence decays rapidly, its value decreasing with the passage of time. In order to reduce the rate of decay the ISTAR process must be taut and flexible.

Co-ordinating the Process

- 2. To achieve a truly effective ISTAR capability requires a very high level of coordination throughout the architecture. Co-ordination ensures that the correct questions are asked, the most appropriate collection assets are tasked, any duplication of collection is planned and not accidental, the information received is what is needed, the product is created in a timely manner and the intelligence is passed to those that need it. Co-ordination with the Targeting Process is of particular importance as at critical stages of an operation targeting may be the most important activity being undertaken by a HQ. ISTAR co-ordination has two aspects:
 - a. *Co-ordination of the Process*. The ISTAR process must be centrally co-ordinated at each level of command. This co-ordination crosses the levels of command to ensure the ISTAR process as a whole is being run efficiently and effectively.
 - b. Co-ordination of the Collection Assets. The effective use of the allocated collection assets must also be co-ordinated; this ensures the "system of systems" approach to using collection assets can be supported. This co-ordination must be done for the assets organic to each level of command but also across levels of command to ensure best use is made of all the collection assets.

Areas of Intelligence Interest (All) and Responsibility (AIR)

3. A commander must know what part of the battlespace he can expect to receive information and intelligence on from other levels of command as well as know what part of the battlespace he has a direct responsibility for. To this end all formations and units will be allocated AII and AIR by their next higher level of command. These areas will vary according to the operational situation, the type of ground, the ISTAR assets available and the size of the force deployed (AII/R are listed at Annex A). Responsibility for the provision of intelligence requires that the Commander must be

¹ Ensuring that each collection system is seen as an element of the overall mix of collection systems rather than as an independent entity.

allocated an appropriate mix of ISTAR collection assets to be able to acquire such information. All and AIR will not be limited to geospatial areas. They may also cover subjects such as ethnicity, economic and political matters, all of which will impact on the Commander's Critical Information Requirements (CCIR) and Priority Intelligence Requirements (PIR).

- 4. An AIR is defined as "An area allocated to a commander, in which he is responsible for the provision of intelligence, within the means at his disposal"². In practice the size of this area will be limited by the capabilities (of which range will be a principal element) of the collection assets at his disposal. This is the area within which the commander is likely to direct the main effort of his staff.
- 5. An AII is defined as "The area in which a commander requires intelligence on those factors and developments likely to affect the outcome of his current and future operations". The commander will require intelligence from the area outside his AIR if it is likely to influence the plan for his current operation or it could affect future operations that he may undertake. The commander is unlikely to have any significant organic collection capability to acquire information within that area of the AII⁴ that lies outside his AIR.

The Intelligence Cycle

6. The Intelligence Cycle (see Figure 2-1), which is the fundamental process for developing intelligence, is central to the ISTAR Process. The Intelligence Cycle consists of Direction, Collection, Processing and Dissemination; each of these elements is a process in its own right, which include a number of sub-processes. These sub-processes contribute to the production of intelligence products and are applicable at all levels of command. The impetus to the ISTAR process is the commander, whilst detailed requirements are provided through both the IPB and the Intelligence Estimate. These tools are the primary means of determining what intelligence is required and how the ISTAR collection assets can be used to gather the necessary information.

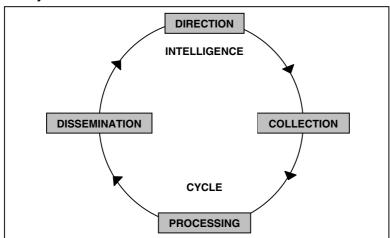


Figure 2-1. The Intelligence Cycle

³ JWP 0.1-1.

Issue 1.0: Mar 02 2 - 2 RESTRICTED

² AAP-6.

⁴ Collection assets such as HUMINT and EW may be able to gather information from outside the AIR but it would be insufficient to provide a comprehensive intelligence picture.

Intelligence Preparation of the Battlespace⁵

- 7. IPB is an analytical methodology that is conducted at all levels of command to produce graphical intelligence assessments, estimates and other intelligence products in support of the commander's decision making process. There is a clear linkage with the Intelligence Estimate in relation to determining enemy activity within the battlespace where the estimate can cover the detail that cannot be shown in graphical form. The purpose of IPB is to support the commander's decision making process, provide him with a means to focus ISTAR collection assets on critical activities and determine targeting requirements. In the past, within the Land Component, IPB focused only on the battlefield. The truly joint nature of operations has required the methodology to move from being ground focused to being truly four-dimensional⁶. As such the evolved process involves:
 - a. Defining the total battlespace.
 - b. Describing the battlespace's effects.
 - c. Evaluating the adversary.
 - d. Determining and describing the adversary's potential Courses of Action (COA).
- 8. IPB is not a static process conducted at the start of an exercise or operation and isolated within each level of command. It is a dynamic process that is constantly updated and crosses levels of command. The current process is stifled by the lack of sufficiently capable CIS support, which prevents it being used to best effect. The development and fielding of new CIS will start to remove these barriers to enable the dynamic process that IPB was always envisaged to be.
- 9. IPB can be applied to all types of operation and battle-space and can be closely linked to the individual stages of the commander's decision making process. The results of the IPB process are represented on a series of overlays. IPB is interrelated to the Intelligence Cycle and the Targeting Process. IPB is dependent on intelligence produced through the Intelligence Cycle and during IPB new intelligence requirements will be identified. These requirements will then be turned into Information Requirements and appropriate collection assets can be tasked with the collection of information in response to them.
- 10. IPB consists of three basic steps:
 - a. Battlespace Area Evaluation. This step assesses the effects of relevant factors concerning the battlefield environment on operations conducted by both friendly and opposing forces. Its primary purpose is to identify adversary and friendly forces' Mobility Corridors and Avenues of Approach (AA) or defensive positions and counter attack manoeuvre options.

⁵ Further detail of IPB can be found in AFM Vol 1 Part 8 – Command & Staff Procedures.

⁶ This includes the Electro Magnetic Spectrum (EMS).

- b. Threat Evaluation. This step identifies the adversary's doctrinal courses of action independent of terrain and weather constraints, ie how the adversary fights according to his tactical doctrine or based on past experience in fighting him. The result of the Threat Evaluation can be an overlay or a series of overlays showing deployment and tactics for each doctrinal COA, eg attack formation, positioning of units in defensive operations etc.
- c. Threat Integration. In the third step of IPB, the results of the Battlespace Area Evaluation are combined with the doctrinal COAs developed in the Threat Evaluation. The aim of Threat Integration is to identify how the battlefield environment will shape doctrine and turn it into practice. The Threat Integration process consists of the production of a sequence of overlays as follows:
- 11. IPB is produced as a series of overlays⁷. These are transmitted across and between levels of command. The co-ordination of overlay production, in particular, is important as the overlap between Alls and AIRs across levels of command could cause unnecessary staff effort and duplication of asset tasking. The main overlays are:
 - a. The Situation Overlay. This overlay is produced as part of the Threat Evaluation step of IPB. In it the adversary's doctrinal model is moulded to fit the restrictions imposed by the factors shaping the battlefield environment such as terrain, infrastructure, protected areas, weather and other relevant factors. Based on an assessment of the adversary's aim, his strengths and weaknesses and his possible deployment and tactics, a Situation Overlay is produced for each COA showing his tactical deployment adapted to the terrain along identified AA and Mobility Corridors. The overlay should also include time lines showing rates of advance or withdrawal and Phase Lines (PL) indicating points in time and space of critical importance to the momentum of the threat's operation.
 - b. The Event Overlay. The Event Overlay is derived from the Situation Overlay in the Threat Integration step of IPB and identifies graphically when and where key tactical events may take place. Locations where events of importance to the conduct of the operation may occur are designated as Named Areas of Interest (NAI) and may be Point NAI and Area NAI. Detection and recognition of events or activities on the part of the threat in these points and areas will confirm or deny the threat's intention to pursue a specific COA. The identification of NAI prompts the tasking of collection assets through the Intelligence Collection Plan in order to establish and maintain surveillance over these areas.
 - c. The Decision Support Overlay (DSO). The DSO is the end product of the integration process. It is a combined intelligence and operational estimate in graphical form. The intelligence and operations staff in the course of wargaming develop Target Areas of Interest (TAI) and refine the NAI identified on the Event Overlay. TAI, which can be points or areas, are places where

⁷ In some cases these are still map and talc based but are becoming digitised.

the commander can influence the operation by destroying, delaying or disrupting the threat using his strike assets e.g. reserves, artillery, air and aviation support. The identification of TAI feeds the Decide stage of the Targeting Process. A Decision Point (DP) or a Decision Line (DL) may be identified for each NAI and TAI. DP and DL are points and lines offset in time and space from their respective TAI where the commander must make a decision to use his assets if he is to influence the operation at a particular TAI. As with the NAI, it is necessary to maintain surveillance over TAI and DP. The requirement to maintain surveillance as well as the need to acquire further targeting data and BDA will provide additional input to the Intelligence Collection Plan.

12. IPB products are used by staffs in preparing their estimates and for the analysis and selection of friendly COA. From an ISTAR perspective IPB is generally used to direct ISTAR activity in support of current and future missions. The end product of IPB is a DSO which influences when the commander must take action in order to execute his plan and influence the opposition. The targeting information that arises from IPB forms the basis of the TA element of ISTAR. IPB enables a commander to determine his intelligence requirements through clarity of presentation and logic. IPB also provides the basis for wargaming, which is used to develop the detailed plan. The DSO, refined through war gaming, can assist the commander and his staff in managing the plan and focusing the ISTAR effort and determining targeting priorities.

The Intelligence Estimate

- 13. The Intelligence Estimate is a logical process of reasoning used to determine adversary courses of action, highlight intelligence gaps and prioritise collection activities. Its primary role is to support a commander's decision making process. The estimate can be presented in a variety of forms including a full written estimate, a bullet point brief, a collection of deductions, or an executive summary combined with a graphic product. Essentially the Intelligence Estimate follows the IPB steps of Evaluate the Threat and Determine Adversary Courses of Action, while including key aspects of the Analysis Of the Environment (AOE) (an example format is at Annex B).
- 14. The key to an effective estimate is to ensure that it focuses on decision support. A written intelligence estimate is of limited value if it is not tied to the commander's decision making process, to the operations planning processes and through the linking of potential adversary activity to a decision orientated Indicators and Warnings (I&W) process.
- 15. The Intelligence Estimate is normally used in conjunction with IPB. It is a time consuming process practised more often at higher levels of command, when time permits, or for non-warfighting operations when the balance of intelligence required is less about physical locations and more about trends and activities. It is used to feed directly into the operational estimate and to assist with the development of the Intelligence Collection Plan. The Intelligence Estimate will often be started before the operational estimate process to ensure that the intelligence input into the latter is timely. The Intelligence Estimate is particularly useful in focusing on those elements

of intelligence that cannot be directly related to the battlespace or a geographic representation. In general terms an intelligence estimate covers:

- a. A review of the situation.
- b. The adversary's probable aim.
- c. Factors such as terrain, force dispositions, time and space.
- d. The key deduction from the factors.
- e. The adversary's COA, including the most probable.
- f. The adversary's probable plan.
- g. A summary of adversary vulnerabilities.
- h. Information Requirements including priorities.

Direction

- 16. **General**. Direction is defined as "Determination of intelligence requirements, planning the collection effort, the issuing of orders and requests to collection agencies, and maintenance of a continuous check on the productivity of such agencies". Direction stems from the commander at each level, as he is the initiator of the intelligence gathering process and is shown in context of the ISTAR Process at Figure 2-2. However there are two aspects to direction as part of the cycle, they are:
 - a. The direction that the commander gives to his G2 staff concerning the intelligence he needs and the timeframe for its delivery. He should be as specific as possible and place his information and intelligence requirements in order of priority, especially those relating to targeting.
 - b. The direction given to the various collection assets stemming from the Intelligence Collection Plan. This includes the initial determination of what assets may be task organised to other levels of command as well as directing who has co-ordination responsibility for the assets.

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⁸ AAP-6.

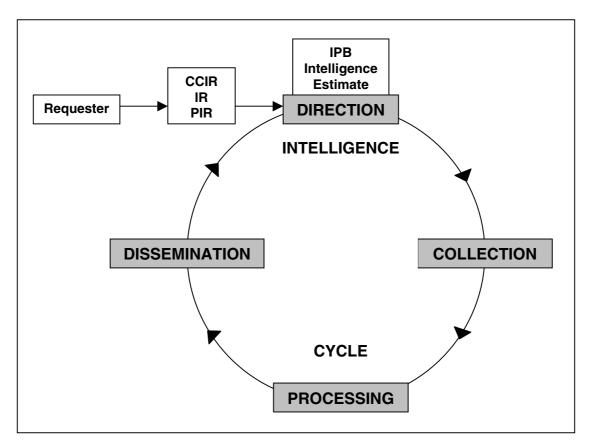


Figure 2-2. The ISTAR Process (First Stage)

- 17. **Commanders Critical Information Requirements.** At the outset of an operation and at various points during an operation, such as the transition from one phase to another, the commander will require answers to questions that will enable him to conduct operations successfully, these are CCIR.
- 18. Information Requirements. CCIR are normally generic in nature although they will include requirements for some specific information. These must therefore be broken down into a number of Information Requirements that are then combined with Information Requirements from other elements of the staff and from other levels of command. Once these Information Requirements are brought together they can be taken forward into the second stage of the intelligence cycle. Some of these Information Requirements will be critical to the production of the intelligence needed for the planning and conduct of operations and, because of the importance of this to the commander in assisting him to reach a decision, these are designated as PIR.
- 19. **Priority Intelligence Requirements.** Many of the CCIR and Information Requirements will be non-ISTAR related or will simply demand facts that are already held, or can be answered by reference to information held elsewhere within the architecture. There will, however, be some questions concerning the adversary or the environment, which are critical to the planning and successful execution of the friendly course of action. There is an implicit urgency to PIR and they may also require a more in depth analysis of the information that is held, or the use of ISTAR collection assets at own or other levels of command as a matter of priority. CCIRs and Information Requirements will normally be generated as a result of the

operational and intelligence estimate, IPB and the various processes of other staff branches.

Collection

- 20. Collection is defined as "The exploitation of sources by collection agencies and the delivery of information obtained to the appropriate processing unit for use in the production of intelligence". Collection encompasses the processes that enable the intelligence requirements to be answered and the assets that actually gather the information. Its place within the ISTAR Process is shown at Figure 2-3.
- 21. The Collection process is closely linked to Mission Command. Collection is based on the commander's direction and the Information Requirements received. The first step is a review of available information to see which Information Requirements can already be satisfied. Then the various additional Information Requirements are collated and laid out in a logical sequence that forms the basis of the Collection Plan. Although much information will already be available it is unlikely that it will be complete or entirely up to date. At this stage IPB provides a general indication of the geographic location to which collection assets need to be deployed in order to gather the necessary information. The Collection process also includes the identification of the assets that can most effectively meet the various Information Requirements.

Intelligence Requirements Management and Collection Co-ordination

- 22. The terms Intelligence Requirements Management and Collection Co-ordination are normally presented in a different order and more commonly known as CCIRM. However the practicalities of the Intelligence Cycle demonstrate that managing the requirements must precede the collection of information. Whether the term CCIRM is used or not there are two key functions that must be performed to gather the information required efficiently, these are:
 - a. Managing the intelligence requirements.
 - b. Co-ordinating the collection effort.

The Intelligence Collection Plan

- 23. The Intelligence Collection Plan is the normal way of recording the intelligence requirements. It is a synopsis of CCIRs, PIRs and Information Requirements combined with further input from the intelligence estimate and IPB (an example format is at Annex C). In effect it is a tasking matrix that links information collection with the collection assets. It lists the information requirements with the organisations or databases that might hold the information or with the collection assets that might be used to gather the information.
- 24. The Intelligence Collection Plan is no longer a static document frozen in time but a continuous process. It will react and respond to changes in the operational situation

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⁹ AAP-6.

and the information gathered by the assets tasked. It will feed into the ISTAR Operations Order or Surveillance and Target Acquisition Plan (STAP) but will be the management tool for the minute by minute co-ordination of the ISTAR capability.

Requests for Information

25. If it is known that an Information Requirement cannot be satisfied from information held at that level of command, or by an organic collection asset, then it must be passed into the larger ISTAR architecture for someone else to answer either from information held or by tasking a collection asset. The term RFI is used to describe the format in which an Information Requirement is passed to the CCIRM staff at higher, lower or adjacent levels.

Collection Assets

- 26. Collection assets are normally considered in terms of sources and agencies. A source is a "person from whom, or a thing from which, information can be obtained" 10 whilst an agency is "an organisation or individual engaged in collecting and/or processing information"11. Sources and agencies are normally grouped under the headings of:
 - Controlled. Those that are under control of the intelligence staff and which a. can be tasked to answer questions, such as ISTAR collection assets.
 - b. Those that are not under control of the intelligence staff and which cannot be tasked, such as the media or some nationally controlled Alliance ISTAR collection assets¹².
 - C. Those that produce information from an unexpected quarter, such Casual. as a refugee.

Timeliness

- 27. The collection effort must be timely, whilst collection assets must be able to deliver their information in as short a time as possible. The ideal is that information should reach the requester in real time or near real time. However, this is often impossible and the requirement to factor in time delays to collection planning must be understood. The time taken for information to undergo some form of analysis must be taken into account in planning. Further, the limitations of the current CIS architecture may preclude or delay the delivery of the information in the desired form. The tasking organisation must consider the use of collection assets using the following time considerations:
 - Response Time. This is the lapsed time between the initiation of a request a. for information and the receipt of that information. The response time of a collection asset will largely vary according to its type. An asset that needs to deploy to gather information, such as Tactical Air Reconnaissance (TAR) will not be as responsive as one that is already close to the target.

¹⁰ AAP-6.

¹² Assets that a nation might use to support an operation but over which they maintain national control and tasking authority.

b. Reporting Time. This is the lapsed time between a sensor detecting an item of information and the receipt by an analyst. At the tactical level, especially for targeting purposes, the reporting time must be as short as possible.

Collected Information

28. Information will be acquired in many different ways. Some of it will have already been turned into intelligence, such as reports retrieved from existing databases, others will just be items of information that require further processing. The information gathered can be classified into two types. The first is that information which is time critical and which must be passed through the system as rapidly as possible in order to be acted upon – this is termed Combat Information. This sort of information is likely to be that necessary for time critical targeting. The second is general information that contributes to the overall intelligence picture. All information, including the time critical information, will be passed back into the Intelligence Cycle for Processing and further exploitation.

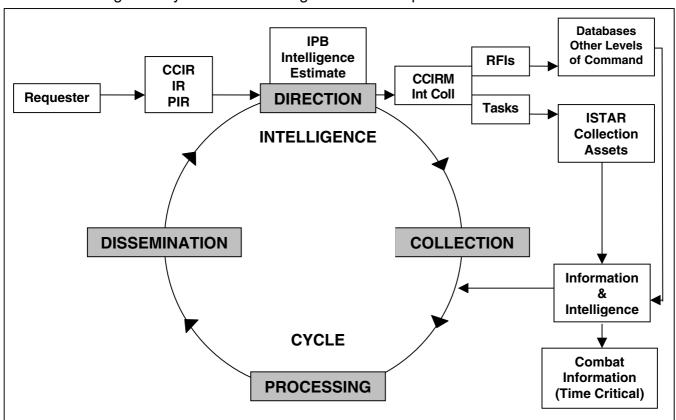


Figure 2-3. The ISTAR Process (Second Stage)

Processing

29. Processing is the part of the Intelligence Cycle where the information gathered is converted into intelligence; its place within the ISTAR Process is shown at Figure 2-4. It is a structured series of actions which, although set out sequentially, may also take place concurrently. It is defined as "The production of intelligence through collation, evaluation, analysis, integration and interpretation of information and/or other intelligence". Processing is carried out at a number of points within the ISTAR architecture ranging from an individual sensor platform, the sub-unit HQ of an ISTAR collection asset or the G2/ISTAR cell in a manoeuvre formation or battlegroup. Such processing might follow the complete processing series of actions or only a part of

these. Each level of processing relates information or intelligence to facts that were not available at the previous level thus enabling new intelligence to be determined. The main actions within Processing are:

- a. *Collation.* "A step in the processing phase of the intelligence cycle in which the grouping together of related items of information or intelligence provides a record of events and facilitates further processing" Collation is the basic process for receiving, registering, sorting and recording all data received or accessed. It must ensure that the relevant data can be readily retrieved, cross-referenced and compared. An efficient collation process is vital to assist in managing the information flow within ISTAR.
- b. *Evaluation*. "A step in the processing stage of the intelligence cycle constituting appraisal of an item of information in respect of the reliability of the source and the credibility of the information" This is an important subprocess, as the judgement of relative value will determine the weighting given to individual pieces of information as they are taken forward through the Collection process. Information is rated alphanumerically¹⁵.
- c. Analysis. "A step in the processing phase of the intelligence cycle in which information is subjected to review in order to identify significant facts for subsequent interpretation" The emphasis in this step is on analysing the meaning of each individual piece of information until every conclusion of relevance and significance has been drawn from it.
- d. *Integration*. "A step in the processing phase of the intelligence cycle whereby analysed information or intelligence is selected and combined into a pattern in the course of the production of further intelligence" Integration is that part of processing that leads to the development of a meaningful intelligence product.
- e. *Interpretation*. "The final step in the processing phase of the intelligence cycle in which the significance of information or intelligence is judged in relation to the current body of knowledge"¹⁸. Integration and Interpretation are often referred to as fusion at the operational level of command but caution should be exercised as fusion, in some contexts, is taken to mean the amalgamation of information at the *beginning* of the processing stage rather than at the end.
- 30. Time Critical Information must be allowed to pass through the process to the requester as rapidly as possible. This information is normally for targeting purposes where the need for speed is paramount. However, this does not mean that the value of such information to the overall intelligence picture is lost. The information is also passed into the normal Processing element of the Intelligence cycle where it is analysed along with all of the other relevant information.

¹³ AAP-6.

¹⁴ Ibid.

¹⁵ An alphanumeric rating scheme is used covering reliability of the source (A-F) and credibility of the information (1-6).

¹⁶ AAP-6.

¹⁷ Ibid.

¹⁸ Ibid.

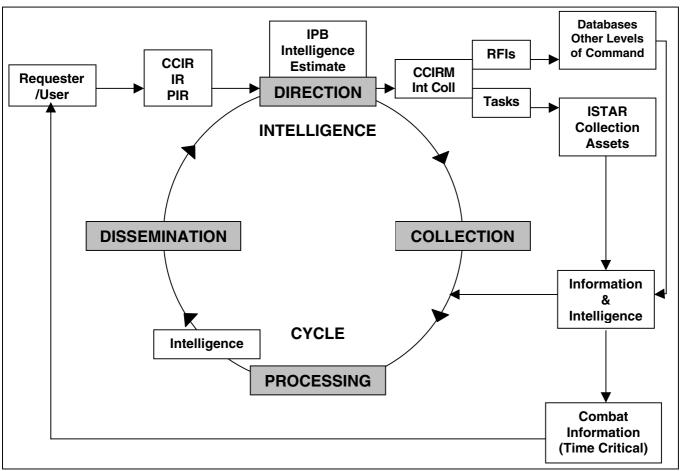


Figure 2-4. The ISTAR Process (Third Stage)

Dissemination

- 31. Dissemination is defined as "the timely conveyance of intelligence, in an appropriate form and by any suitable means, to those who need it" and its place within the ISTAR process is shown at Figure 2-5. Care must be taken to ensure that intelligence does not reach its destination too late to be of value. Likewise it should be in a form that answers the question and can be understood by the recipient. Dissemination is governed by a set of principles, these are:
 - a. *Clarity*. A clear differentiation should be made between facts and the interpretation of them.
 - b. *Conciseness*. With the pressure of time and limitations on the amount of information and intelligence that can be passed, the need for reporting to be concise and to the point is paramount.
 - c. Standardisation. Intelligence can be understood more quickly and easily if it is provided in a logical sequence that follows a standard format. This is especially true when exchanging information and intelligence between components or within a multinational environment.
 - d. *Urgency*. Whenever possible information should be converted into intelligence and disseminated because the interpretation of the facts is more valuable than the facts themselves. However, when time is at a premium,

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¹ AAP-6.

processing of urgent information may not be possible. In these circumstances, the information, usually known as Combat Information, should be disseminated as quickly as possible with the caveat that it has not been processed and may not be reliable. This particularly applies to current information and intelligence at the tactical level.

- e. *Distribution*. G2/ISTAR staffs are responsible for ensuring that all information and intelligence is passed to those who need it, including flanking or neighbouring formations/units, by the most appropriate means.
- f. Regularity. Urgent information and intelligence collected to meet intelligence requirements will be disseminated whenever it becomes available. The commander and his G2 staff will require, in addition, regular summaries of all intelligence that affects their operations.
- g. Security. As a general rule, information concerning the adversary need not be highly classified if the adversary would not have sufficient time to act upon it should he intercept it. However, the greatest care should be taken not to reveal the source of information and there will be occasions where the risk of compromising the source will have to be weighed against the value of the information in making the decision on whether to use it or not. On such occasions, the G2/ISTAR staff will have to make recommendations on the impact of possible compromise in order to assist the commander in making a decision.

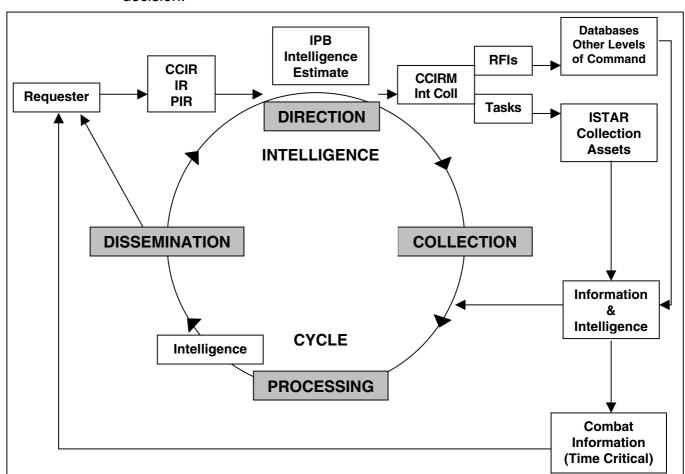


Figure 2-5. The ISTAR Process (Complete)

ISTAR Support to Targeting

32. ISTAR provides critical support to targeting. It supports all phases of the Targeting Process ranging from the selection and identification of targets through to the determination of effects through BDA. There should be a close linkage between the G2 and G3 staffs to ensure that effective support to targeting can be maintained. There will often be a tension between the allocation of ISTAR resources for information gathering and that required for targeting purposes, but this must not detract from the effective functioning of ISTAR. A key function of ISTAR coordination is to ensure that rigorous prioritisation based on command direction supports all users as fully as possible. Further detail of ISTAR support to targeting can be found at Annex D.

Summary

33. The commander is key to initiating the ISTAR Process, providing the overall direction and providing arbitration over conflicting priorities. The commander should feel that he "owns" this process, that it is working to his direction and that it is responsive to his demands. The intelligence staff will be competing for the attention of the commander against other staff elements. However, ensuring that he is engaged at the start of the process, and at key stages throughout, will be of benefit in the longer term. The ISTAR Process is depicted as being a cyclical process and will always follow the same sequence. However once an operation is in progress the cycle elements will overlap and coincide. Assumptions and deductions will be made continuously and information will be compared with that already held, stimulating further Information Requirements from within the system. Information Requirements and inputs will also be fed in continuously from external sources. Making best use of the available ISTAR collection assets places an increasing burden on co-ordination. The ISTAR process cannot effectively serve the commander's needs if his collection resources are not properly co-ordinated and controlled.

AREAS OF INTELLIGENCE INTEREST AND RESPONSIBILITY DIMENSIONS

The AII and AIR dimensions shown below are an indication of how the battlespace is expected to expand over the next few years. These dimensions were developed in BA 2000, and other, force development work, when a division was expected to operate in an area 20 times as large as a divisional area of the 1980s. They are based on radii from the centre of mass of a formation/unit and are not diameters. The dimensions will also depend on the type of operation and the ground.

	PLANS	OPS	TARGETING
	(Area of Int	(Area of Int	(Organic
	Interest	Responsibility)	Systems)
Land Component	> 96 hrs ahead	Next 96 hrs	Real Time
	Theatre & LOCs	Theatre	Theatre wide
	All altitudes	All altitudes	All altitudes
Corps	> 96 hrs ahead	Next 72 hrs	Real Time
	500 km	300 km	300 km
	All altitudes	All altitudes	70,000 ft
Div	> 48 hrs ahead	Next 48 hrs	Real time
	300 km	150 km	50 km
	60,000 ft	60,000 ft	60,000 ft
AM Bde	> 72 hrs ahead	Next 48 Hrs	Real time
	300 km	150 km	150 km
	60,000 ft	60,000 ft	60,000 ft
GM Bde	> 36 hrs ahead	Next 36 hrs	Real time
	150 km	50 km	30 km
	20,000 ft	3,000 ft	3,000 ft
LitM Bde	> 72 hrs ahead	Next 36 hrs	Real time
	300 km	200 km	200 km
	60,000 ft	60,000 ft	60,000 ft
AM Unit	> 36 hrs ahead	Next 24 hrs	Real time
	150 km	150 km	150 km
	2,500 ft	2,500 ft	2,500 ft
GM Unit	> 24 hrs ahead	Next 24 hrs	Real time
	50 km	15 km	15 km
	2,500 ft	2,500 ft	2,500 ft
LitM Unit	>36 hrs ahead	Next 24 hrs	Real time
	150 km	150 km	150 km
	2,500 ft	2,500 ft	2,500 ft

ANNEX B TO CHAPTER 2

FORMAT OF AN INTELLIGENCE ESTIMATE

The Intelligence Estimate is intended to be a staff tool that helps rather than hinders and, as such, is neither rigid in form or a mandatory task. The template provided is generic and applicable to all types of operation and levels of command. The general format is the same as a G3 estimate except that the third column is where particular IRs or Collection Tasks are noted as the Estimate is filled out. However, the format is provided as a guide and it should not be assumed that each heading should be used. Output from the Intelligence Estimate may be passed to the G3 staff at any stage of its preparation as deemed appropriate, as to wait until the Estimate is complete may slow down the HQ battle rhythm.

QUESTION/FACTOR	CONSIDERATION/ DEDUCTION	INFO REQUIREMENT/ COLLECTION TASK	NOTES
Review of the Situation Adversary Forces			This section should be kept short as much of the detailed information will be held in databases.
Friendly Forces			
Commander's Mission			
Adversary wider aims and courses			
Commander's Priority Intelligence Requirements			

QUESTION/FACTOR	CONSIDERATION/ DEDUCTION	INFO REQUIREMENT/ COLLECTION TASK	NOTES
Adversary Aim			This will be an assessment based on current intelligence.
Factors Politics			It is impossible to detail all of the possible factors to be considered. This list should be used as a guideline which can be added to or subtracted.
Economics			from depending on the situation and operation type.
Climate & Weather			 All factors should be considered from 3 perspectives; the adversary (ies),
Terrain			neutrals and the impact on own forces.
Approaches			Torces.
Axes			
Routes			
Obstacles, incl fixed fortifications			
Effect on own/adversary forces			
Transportation & Infrastructure			
Adversary			
Capabilities			
Dispositions			

QUESTION/FACTOR	CONSIDERATION/ DEDUCTION	INFO REQUIREMENT/ COLLECTION TASK	NOTES
Equipment			
Vulnerability			
Combat effectiveness			
C2 capability			
ISTAR			
Personalities			
Morale			
Logistics			
Deception activities			
Air situation			
Activity & Intentions			
Relative Strengths (allocations, reinforcements, committed/reserve forces, combat effectiveness)			
Time and space			
Assessment of Tasks			

QUESTION/FACTOR	CONSIDERATION/ DEDUCTION	INFO REQUIREMENT/ COLLECTION TASK	NOTES
Local population/refugees	BEBOOTION	OCCEPTION THEK	
Demography			
Social aspects			
Security and Surprise			
Weapons of Mass Effect (WME)			
Asymmetric Capabilities			
Sabotage			
Subversion			
Info Ops			
CNA			
Criminal Activity			
Summary of Considerations/Deductions			This should only focus on the key Considerations or Deductions.
Adversary Courses of Action			There is no requirement to assume
Course A			there must be three courses of action available to an adversary – the
Advantages and Disadvantages			number might be more or less.
Course B			 Care should be taken against assuming that a minor variation is the

QUESTION/FACTOR	CONSIDERATION/ DEDUCTION	INFO REQUIREMENT/ COLLECTION TASK	NOTES
Advantages and Disadvantages Course C Advantages and Disadvantages			equivalent to a different course of action.
Adversary's Most Probable Course of Action			This should be based on clear reasoning rather than a "leap of faith" deduction.
Adversary's Probable Plan Mission			It is unlikely that this section can be filled in with much detail initially.
Execution Summary of Adversary Vulnerabilities			This will provide key input into the main operational estimate.
Information and Collection Requirements Gaps in knowledge			This section should allow focus on own collection capability and how it might be used, and leads into the planning of collection asset usage.
Collection assets available (incl allies)			
Collection tasks underway			
Collection capability shortfalls			
Collection Priorities			

ANNEX C TO CHAPTER 2

FORMAT OF AN INTELLIGENCE COLLECTION PLAN

This example of an Intelligence Collection Plan is not intended to mirror that produced at any particular level of command, rather it provides a generic layout that should be used.

PIR	INFO	PRIORITY	ACTIVITY	NAI		COLLECTION ASSETS						REMARKS		
	REQUIREMENT			TAI										
				DP/DL										
(1)	(2)	(3)	(4)	(5)					(6)					
					Corps	1	2	3	ASTOR	PHX/	STA	Fd	EW	
						Bde	Bde	Bde		WKPR		HUMINT		

Notes:

- 1. This should list the PIR in the order of priority that they have been accorded.
- 2. The Information Requirements are broken out from the CCIR and PIR, however not all Information Requirements can easily be related to CCIR/PIR. This does not invalidate them but will reflect on how they are dealt with and what priority they may be accorded.
- 3. Each Information Requirement must be allocated a priority. This assists the IRM personnel in determining their own work priorities and the collection organisations to determine how they need to mould their operations to meet the collection requirements.
- 4. This should list the particular activity that should be reported on i.e. the identification of bridging assets at a river-crossing site.
- 5. This lists the NAI/TAI/DP and DL that may be relevant to the Information Requirements.
- 6. This should also list the databases where information might be held, as well as the collection assets that might be used to gather the information.

ISTAR SUPPORT TO TARGETING

(Full details of the Targeting Process can be found in AFM Vol I Part 8 *Command and Staff Procedures*)

General

- Targeting is a command responsibility and is derived from the IPB. It is the process
 of selecting targets and matching the appropriate response to them, taking account
 of the operational requirements and capabilities. ISTAR contributes to targeting by
 providing the essential elements of information about targets or targets sets that
 enable an effect to be applied, as well as determining the result of engagement.
- 2. Targeting requires co-ordinated action among several staff branches, which includes the G2/ISTAR staff and cells. This is key as sensors and collection capabilities under control and controlled by other levels of command have to be closely coordinated for quick and efficient reporting of fleeting or dangerous targets. G2/ISTAR personnel will always be part of any targeting team that is formed.
- 3. ISTAR assists with all four stages of the Targeting Process: deciding, detecting, delivery and assessing.

Decide

- 4. ISTAR assists with targeting by providing information about potential targets. These could be a geographical area, a complex, an installation, or mobile or stationary forces equipment and capabilities that an adversary could use. ISTAR will particularly focus on providing information on those targets that an adversary can least afford to lose or that provide him with greatest advantage.
- 5. ISTAR supports Target Value Analysis (TVA) through the use of the IPB and Intelligence Estimate. TVA is a more detailed analysis of the adversary within selected COA. TVA contributes to the development of High Value Targets (HVT) and determines the subset of HVTs that must be acquired, an ISTAR task, in order for the own forces mission to succeed. This subset is known as the High Payoff Targets (HPT).
- 6. HPTs are determined once the staffs have war-gamed various COA. As each friendly force option is wargamed the G2/ISTAR staff work to ascertain the adversary HVTs that should be acquired to support own force actions. There will often be more targets than can easily be engaged and the HVTs are reduced, often based on intelligence, to a number of key targets known as the High Payoff Target List (HPTL). At this stage the staff will determine the requirement for BDA and the G2/ISTAR staff will consider what collection assets might be used to support this.

7. A Sensor/Attack Systems Matrix is a targeting tool that can be used to determine where the critical HVTs can be acquired and attacked. This matrix would be directly linked to the ISTAR Synchronisation Matrix.

Detection

- 8. ISTAR collection systems are fundamental to the detection function. The G2/ISTAR staff factor in the information requirements from the Targeting Process into the ISTAR Process and allocate assets accordingly. The G2/ISTAR staff must coordinate closely to ensure that target information is passed and that ISTAR is being responsive to the changing targeting needs. The priority of the targeting information requirements will be balanced against those of the force as a whole but at certain stages of an operation they are likely to provide the bulk of the information requirements. When mobile, fleeting targets are to be acquired and engaged the G2/ISTAR staff will liaise with other branches to ensure the Sensor Decider Shooter loop is as timely as possible.
- 9. Targeting has a particular need for the tracking of mobile targets once acquired. The ISTAR input to the Targeting Process must ensure that the essential elements of information to support effective targeting are passed. ISTAR collection assets might also detect targets of opportunity i.e. targets not on the HPTL, the engagement of which may contribute to own force success.

Delivery

10. During the Delivery stage of the Targeting Process ISTAR provides support through verification that the target and target activity are as had been expected when the IPB was undertaken. It may also be required to provide continuous target location and activity details to ensure that effects that are to be delivered over time can be applied effectively. The effects of engagements can only be properly assessed by an observer or analyst. These will often come from within the ISTAR architecture and it is important to ensure that the flow of information to the Targeting Process is maintained.

Assessment

11. ISTAR supports the Assessment phase of the Targeting Process by providing BDA. BDA contributes to the Targeting Process and the ISTAR Process in equal measure in that the output of BDA is intelligence and assessment. BDA requirements will normally have been pre-determined in relation to planned target engagements, therefore ISTAR collection assets available to provide BDA information will already have been tasked, or the requirement will have been included in the Intelligence Collection Plan. However, for targets of opportunity this will often not be the case, and BDA needs will have to be factored into the ongoing collection effort. It is important to note that ISTAR collection assets will have a variety of tasks and support to BDA is only one of them. This means there must be careful prioritisation of these assets. BDA must be objective and rigorous and consequentially often time consuming. BDA can only be achieved through information received from sensors and other levels of command.

12. BDA has three components:

- a. *Physical Damage Assessment*. Physical damage assessment estimates the quantitative extent of physical damage through the munitions blast, fragmentation and/or fire damage effects to a target. The assessment is based on observed or interpreted damage.
- b. Functional Damage Assessment. Functional damage assessment estimates the effect of attack on the target to perform its intended mission compared to the operational objective established for the target. This assessment is based on all source intelligence and includes an estimate of the time needed to replace the target function.
- c. Target System Assessment. Target system assessment is a broad assessment of the overall impact and effectiveness of all types of attack against an entire target systems capability. It may also be applied to adversary formation or unit combat effectiveness.

CHAPTER 3

ISTAR COMMAND AND CONTROL

The Role of the Commander

- 1. At all levels the commander is pivotal to the effective functioning of ISTAR. The commander should be continuously engaged in ISTAR and his influence is the key to:
 - a. *Direction*. The commander should provide the direction to the ISTAR process. He must convey the essence of what he wants ISTAR to achieve for any given phase of an operation and this must include his priorities.
 - b. Determining CCIR. Although the commander may state, in general terms, what his requirements are, if this guidance is not understood then the ability for ISTAR to satisfy them will be reduced. His staff will interpret and refine those requirements but the commander should detail priorities and be available to answer the staff's questions and to define in more detail what he wants.
 - c. Arbitrating over Asset Allocation. A number of ISTAR collection systems and capabilities are either multi-role or very limited in number, and some are both. There will inevitably be competing demands for their use and when the staff cannot resolve a conflict of requirements the commander must be prepared to act as the arbitrator in any dispute.
 - d. Re-Tasking and Re-Direction. The operational situation can change rapidly and ISTAR must be able to adapt rapidly to these changes. The commander needs to ensure that, when he starts contingency planning, or when changes to his mission are imposed, he conveys the impact of these changes to his ISTAR staff.
 - e. Use of Specialist Capabilities. There are a number of specialist ISTAR capabilities that require the personal involvement of the commander in the process. These are particular high value capabilities, capabilities being used in a sensitive manner, and certain capabilities that require high level oversight.

The Role of the G2/ISTAR Staff

2. **General**. The G2/ISTAR staff gain and maintain the commander's confidence by providing effective and timely intelligence. They should ensure that the commander has confidence in the intelligence product and receives intelligence at the right level of detail, providing resolution, for him to be able to make informed decisions. They should at all times be able to provide predictive, comprehensive and unbiased assessments. Intelligence staff should ensure that decision makers at all levels are aware of facts, assessments and gaps in intelligence. The relationship between the elements of the G2/ISTAR staff is shown at Figure 3-1.

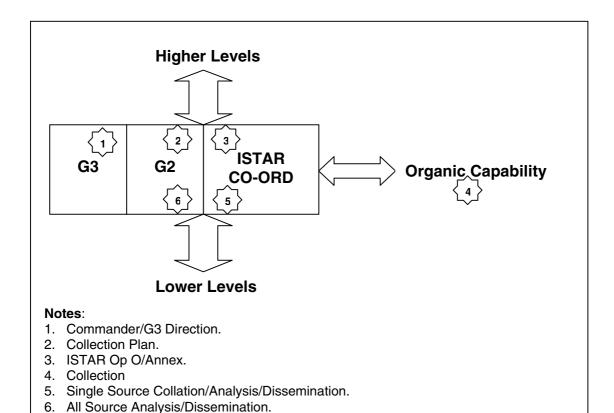
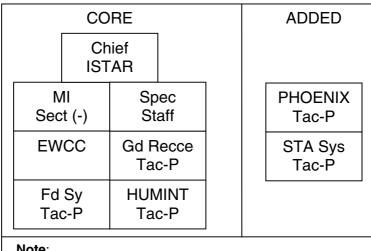


Figure 3-1. Generic ISTAR C² model.

- 3. Chief G2. Chief G2 has overall responsibility for ISTAR support to the commander. He is the direct interface with the commander and his principal advisor on intelligence matters. He is responsible for briefing the commander and his principal staff and provides the overall assessment of adversary activity. He is also the conduit through which the commander provides his information or intelligence requirements. At unit level this function is carried out by the ISTAR Officer.
- 4. The G2 Cell. The role of the G2 cell is to ensure that the commander's CCIRs and supporting intelligence requirements are processed, that the information required is either retrieved or collected, that the various ISTAR capabilities are used to best effect and that the product is turned into timely, relevant intelligence. It functions as the provider of intimate support to the commander, interpreting his requirements and working to provide information to the level of detail necessary to plan and coordinate the ISTAR capability as a whole. It also provides the focus for all source analysis at each level of command, being the recipient of operational and strategic intelligence feeds and is the authority for the "Red Picture" compilation. The cell should ensure that it not only services the level of command to which it belongs but that all the information relevant to other levels of command, other components, or allies is also passed in a timely manner. At unit level this function is carried out by the ISTAR Cell.

- 5. Chief ISTAR. Chief ISTAR¹ is responsible for ensuring the ISTAR collection assets are deployed to best effect to meet the CCIR/PIR determined by the G2 staff. He ensures that assets are tasked and dynamically re-tasked to achieve the commander's intent as circumstances change. He is responsible for ensuring the delivery of information from the collection assets to the G2 staff for all source analysis as well as liaison with higher and lower formations/units. At unit level this function is currently carried out by the ISTAR Officer.
- 6. ISTAR Co-ordination Cell. The ISTAR Co-ordination Cell is responsible for the "system of systems" co-ordination of organic collection assets, including coordination with assets at differing levels of command. It also carries out single source analysis of reports from individual systems under control of the subject level of command. It could be a Cell embedded in the Main HQ, or remoted from it, as a satellite HQ, depending on the operational situation and level of command. At the Corps level it would remain embedded, as there is little imperative to remote it. Whether remote or embedded, from an ISTAR process perspective, it and the G2 cell should be seen as a holistic entity. The Co-ordination Cell/HQ receives direction from the G2 staff, but is also closely linked with other branches to support manoeuvre and fire support, for example. The Cell, as the focus for ISTAR collection co-ordination, would also include specialist staff and the Tactical Parties (Tac-P)², or equivalent, from the various collection capabilities allocated to the individual levels of command. A diagram of an example ISTAR Co-ordination Cell for division or brigade levels is at Figure 3-2. At unit level this function is currently embedded within the ISTAR Cell.



- 1. Gd Recce encompasses Armd Recce & STA Ptls.
- 2. An Imagery Support Group (ISG) may be provided for some ops

Figure 3-2. Example ISTAR Co-ordination Cell (Div & Bde)

Issue 1.0: Mar 02 3 - 3

¹ The Future Find Concept for the Land Component paper (ADC/P(00)17) notes that the co-ordination of ISTAR remains a staff function and that the development of other models may occur over time through experience and experimentation.

²A Tac-P is a liaison/command element from an ISTAR capability that would be attached to the ISTAR Co-ord Cell. It provides advice and guidance on the use of the capability and provides a means of communication to system elements to support tasking, asset co-ordination and the receipt of information.

7. *Military Intelligence (MI) Personnel*. MI personnel make up the bulk of the G2 and ISTAR Co-ordination support staff. They are allocated to all HQs from JFHQ to brigade and are provided by 1 MI Brigade. They support all of the functions of CCIRM and are the intelligence analysts. 1 MI Brigade provides additional specialist personnel to cover Fd Sy and HUMINT. For a JRRF operation MI personnel may augment unit ISTAR staffs if the unit commander is the LCC or COMBRITCON.

Other Specialist Staff

- 8. Artillery Targeting Staff. Artillery targeting staff focus on the acquisition of information about enemy ground based artillery and air defence assets, their capabilities and intentions. They also function as collectors of information specifically to support targeting and offensive support. The majority will normally be co-located with the Offensive Support Group (OSG) staff, although a small element should be incorporated into the ISTAR Co-ordination Cell to ensure timely engagement of targets.
- 9. **Engineer Intelligence and Geographic Staff**. Engineer intelligence³ and geographic staff focus on the terrain, weather, military geographic information and information on the resources required for the planning of operations. They also evaluate the capability of an adversary to carry out engineer tasks and where such activity might take place. Environmental considerations are important as they influence the determination of both adversary and friendly courses of action and are an integral element of the IPB (BAE) process. Engineer intelligence and geographic staff and personnel can be found at all levels of command within the Land Component and are also allocated to the JFHQ. They will normally be collocated with the G2 staff.
- 10. Additional Staff. There are a number of circumstances where additional staff will need to be incorporated into the G2/ISTAR cells. A primary example is when assets that do not have a primary ISTAR function are used for reconnaissance or surveillance, for example helicopters. In this circumstance a liaison element from the helicopter unit would need to be incorporated into the ISTAR Co-ordination Cell. Where Tactical Air Reconnaissance (TAR) is in support of the Land Component, Air Force staff should be incorporated into the ISTAR Co-ordination Cell. At division level this would include representation from the A2 of the Air Operations Co-ordination Cell Land (AOCC(L)) and the G2 of the Air Manoeuvre Planning Team (AMPT). In addition representation from the G2 of the AMPT would also be incorporated into the ISTAR Co-ordination Cell for 16 Air Assault Brigade.

Interplay Between Intelligence and Other Staffs

11. The relationship between the intelligence and other staffs should be mutually supportive. Intelligence staffs need to have an understanding of both current and planned operations in order to anticipate intelligence requirements, to focus their efforts, to prioritise the use of collection assets and to help understand what an

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³ Further detail on Engineer intelligence can be found in Military Engineering Vol I, Part 2 Royal Engineer's Intelligence.

⁴ If the senior UK formation HQ is a brigade then a similar representation is expected.

adversary might be doing as a reaction. Similarly, the other staffs rely on intelligence staff to provide the knowledge of the threat and the environment for the planning and conduct of operations. The operations staff must be clear on the deployment and allocation of the many ISTAR collection assets. Therefore it is important to ensure that the ISTAR collection asset co-ordination function is closely linked to the operations staff.

Tasking the Collection Capability

- 12. The growing complexity of operational situations, the improving ISTAR capability and the complexities of ISTAR co-ordination drive the need for a formalised means of providing direction to the ISTAR collection assets at each level of command and the ISTAR elements at subordinate levels of command. Brigades and battlegroups already use a STAP that is, in effect, a combination of Intelligence Collection Plan and Operations Order. However, ISTAR requires a way of ensuring that the Intelligence Collection Plan is more than a sterile, static document and this is achieved through the use of the final product of IPB, the DSO. The combination of Collection Plan and DSO provide the means for recording what tasks need to be carried out to gather the necessary information. The planning and use of ISTAR collection assets is covered in more detail in Chapter 4.
- 13. Tasking ISTAR collection assets is normally carried out in two ways:
 - a. Through a formal document such as an ISTAR Operations Order or an ISTAR Annex to the main Operations Order.
 - b. Through the use of the DSO and a Synchronisation Matrix.
- 14. **ISTAR Operations Orders and Annexes.** These documents provide a means to give formal direction to the ISTAR capability within a level of command and to a lower level of command. An ISTAR Operations Order mostly follows the normal headings of an Operations Order, whilst an ISTAR Annex will normally be a truncated version adapted for a specific level of command. Such documents will generally only be prepared when the operational situation dictates, such as the start of a new phase of an operation, a change in the commander's overall plan, or the need for a radical change in the ISTAR effort. An example of an ISTAR Op Order and Annex can be found at Annex A.
- 15. **DSO and Synchronisation Matrix**. The normal management of ISTAR is done through the medium of the DSO and Synchronisation Matrix. An example of an ISTAR Synchronisation Matrix is at Annex B. This overlay and matrix are constantly updated to reflect the changing operational situation and provide the focus for the G2/ISTAR staff to determine whether they need to change their planned use of ISTAR collection assets. In dynamic operational situations certain collection assets may need to be re-tasked very rapidly without waiting for the DSO or Synchronisation Matrix to be updated. Although the actual situation will dictate the method of re-tasking the DSO and Synchronisation Matrix must remain the authoritative record for ISTAR activity or the ISTAR collection effort will become disjointed and uncontrollable.

16. Intelligence Management Plan. An Intelligence Management Plan⁵ is normally produced by the PJHQ and the JTFHQ at the start of an operation. It is, for intelligence purposes, the equivalent of an Intelligence Campaign Plan, but in reality it includes the same elements of information that are found in an ISTAR Operations Order/Annex. It will, as a minimum, include the allocation of AIR and AII, the components of a core OPINTEL support architecture, the CCIR and the allocation of ISTAR collection assets. It may also include such matters as the authorisation of changes or exceptions to procedures and practices in the light of operational constraints. The Intelligence Management Plan will be received by the LCC HQ from the JTFHQ and may be promulgated further down the chain of command, if appropriate, or the content subsumed into the ISTAR Operations Order.

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 $^{^{5}}$ An example of an Intelligence Management Plan can be found in JDP /02 Intelligence, Surveillance and Reconnaissance (ISR).

EXAMPLE OF AN ISTAR OPERATION ORDER/ANNEX

- 1. An ISTAR Operations Order will generally follow the same format as a normal Operations Order. It may be issued as a stand-alone document, if the planned operation is specifically ISTAR focused, otherwise it will normally be issued in truncated form as an Annex to the main Operations Order. The ISTAR Operations Order/Annex is not designed to be a major staff effort and detract from other work, rather it is intended to contain only the essential information required for the deployed ISTAR capability. It should link to the IPB, Intelligence Collection Plan and ISTAR Synchronisation Matrix, where the additional detail will already be held. At the start of an operation, where greater detail may be necessary, it may be developed as a written product. However it will more often be presented as an Overlay Operations Order in a fast moving operation and at lower levels of command.
- 2. The nature of the ISTAR Operations Order is likely to change over the coming years with the introduction of new CIS systems. Much of the data currently included might be considered as reference data and this will gradually become available to all users through the COP and other applications. It is anticipated that the ISTAR Operations Order/Annex will evolve to being a product that is specifically focused on providing intent rather than re-presenting factual data that is already held within the wider CIS infrastructure.

OPERATION ORDER	NOTES
INFORMATION & INTELLIGENCE REQUIREMENTS CCIR 1. When and where will the adversary commit his second echelon forces? PIR 1. What is the strength and intent of the adversary 1st Tank Div?	A précis of the current CCIR/PIR may be added here. These should only be those that are of prime importance to the current situation.
AREAS OF INTELLIGENCE RESPONSIBILITY AND INTEREST	AIR and AII will normally be allocated at the start of a campaign or operation but will need to be dynamically updated as the operation progresses. This will be of considerable importance in fast moving operations and when units or formations may be conducting such manoeuvres as Passage of Lines.
Atts ASTOR will be TACON for Phases 1 & 2 of the operation. Dets None	At the start of an operation a full Task Org may be required as ISTAR assets are moved between levels of command or are re-subordinated. This should be represented in the standard Task Org format as an attached Annex or Appendix. Major changes to the Task Org may appear as a simple text entry at the front of the ISTAR OpO/Annex.
SITUATION En Forces It is anticipated that the adversary will be capable of committing his second echelon forces within the next 24 hrs. The most likely COA is a strike against our 14 th Div in an attempt to reach our main logistics supply area. Friendly Forces	The Situation section is not intended to be a re-iteration of the equivalent section of the main OpO, nor of the most recent INTSUM. It is, however, expected to include the most recent assessment of adversary intentions and only those elements of intelligence that are pertinent to the OpO/Annex. For instance the movement of an adversary force might be the driver for the issue of an OpO/Annex and therefore the prime target for the ISTAR collection effort.

14 th Div has been allocated a further Fmn Recce unit which will be deployed to their front and along the boundary with us.	•	It should include pertinent details of the use of collection assets at other levels of command or by other friendly forces, especially those that might need de-confliction or coordination with activity in your level of command.
MISSION	•	The ISTAR Mission should be directly related to the commander's mission and the extant PIRs, it is not provided by a higher level of command. This is only required when the OpO relates to a specific ISTAR operation. For all other operations the Mission in the main OpO is used.
EXECUTION	•	The execution section is designed to provide general guidance to the ISTAR assets held at the particular level of command or those that are TACOM for the phase of an operation. Contingency planning should be included. Specific tasks will be found in the Intelligence Collection Plan.
Concept of Operations ISTAR is to focus on support to GM elms in Phase 1 and OS during Phase 2. ISTAR ME: Phase 1. Loc & track first ech forces between Lines LONG WING and WIDE NECK. Pri is C2, tks, APCs and arty. Phase 2. Loc & track 1st Tank Div. Pri is C2, arty, tks & AD.	•	The Concept of Operations is a précis of what the ISTAR collection assets must achieve in order to meet the commander's mission. It will focus on priorities for the collection effort and any changes as the operation moves from phase to phase as well as the key tasks to be achieved. It should include the general intent of the ISTAR effort, tied to the intent of the operation, and include detail of the ISTAR Main Effort.
ISTAR Collection Assets Scheme of Manoeuvre	•	ISTAR collection assets will be allocated a mission, where possible, and specific tasks in relation to the force's mission and time and space. These must be linked to the Collection Plan. Although some collection assets can follow the tenets of Mission Command others require specific and detailed

Armd Recce:

Phase 1. Establish an OP matrix covering AAs 1 & 2 fwd of line LONG WING.

Phase 2. Maintain OP matrix but be prep to wdr via Y and move to boundary with 14th Div between A & B should 14th Div be forced to wdr.

ASTOR:

Phase 1. Pri is movement detection in AA1 and 2.

Phase 2. Pri is tracking of sub unit (+) elms of 1 Tk Div.

UAV sub-unit:

Phases 1 & 2. Pri is Tk, AD and C2 elms of 1 Tk Div throughout.

EW Sqn:

Prep Phase. Move to area of C & establish baseline.

Phase 1. Pri is C2 and AD assets of 1 Tk Div.

Phase 2. Pri is arty C2of 1 Tk Div. Be prep to move to the area of D & E to establish a baseline there should 14th Div be forced to wdr.

FHT:

Phase 1. Pri is refugee de-briefing.

Phase 2. Pri is PW tac questioning.

Sufficient resource to be alloc to maint current source handling op.

tasking. The Scheme of Manoeuvre will therefore be a balance between mission, priorities and specified tasks.

 Individual collection assets such as Armd Recce are treated in much the same way as any other manoeuvre asset with specified tasks generally minimised to allow the Recce Comd to follow the principles of Mission Command.

 In this operation the commander has been given priority tasking for ASTOR. He will not control the ac or allocation of Ground Stations but his tasks will be given highest priority in the ASTOR mission plan. He will also have authority to task the ac in flight.

 Other collection assets such as Field HUMINT Teams cannot be treated in the same way as manoeuvre elements and the focus for their tasking will be on the sort of operations they are to undertake and types of information they are to focus on. For instance at one point they may be required to undertake refugee de-briefing, whilst at another point the need is to further develop their sources.

TASKS As per Intelligence Collection Plan/Synchronisation Matrix.	Specific tasking for individual collection assets will be found in the Intelligence Collection Plan and Synchronisation Matrix.
SERVICE SUPPORT	Service Support will only be included when required. Typically it might cover such items as direction on the permissible sortie rate of UAVs.
COMMAND & SIGNAL	The growing complexity of current and future ISTAR systems will increase the importance of the Command & Signal section.
Locations	 Locations should only be included for the key command elements of the various ISTAR collection assets. It should include future locations such as the HQ of the Armd Recce unit/sub-unit, UAV Ground Control Stations (GCS) etc (the advent of APLNR as part of digitization is likely to decrease this requirement over time).
Liaison	Liaison should include when and where Tac-Ps should be located/moved as well as G2 liaison requirements with other levels of command or Joint/Allied forces.
CEIs	 Most CEI matters would be expected to appear in the main OpO. ISTAR systems coming into service have considerable communications capability and it may be appropriate to provide detailed information for them here, rather than in the main OpO. Details that should be considered are frequencies for air ground transmissions to Ground Stations
EMCON	 (GS) and satellite comms frequencies. Future ISTAR systems include a number that either have active sensors or which require to transmit to pass data. The normal procedures for EMCON may therefore not apply to these systems and specific direction to them would be included here.

ANNEXES/APPENDICES	 Annexes/Appendices may include the Task Org, Traces of other additional information.
DISTRIBUTION	 Distribution should be to all of the ISTAR assets allocated to the individual level of command as well as the G2/ISTAF cells at higher and lower formations. It may be necessary to pass copies direct to collection systems that are held at othe levels of command but which may be TACON to this level of command for the operation.

ANNEX B TO CHAPTER 3

EXAMPLE OF AN ISTAR SYNCHRONISATION MATRIX

An ISTAR Synchronisation Matrix is used to assist with planning the use of ISTAR collection assets. It enables collection assets to be planned against the needs of the DSO. It can be adapted for different levels of command and the collection assets that they may be allocated. A very simple example is used here which is likely to be refined by individual formations and units. Operational use will determine which particular ISTAR subunits may be allocated to what task. It is probable that there will be insufficient collection assets to cover all of the tasks all of the time and a form of prioritisation will be required.

The Synchronisation Matrix should be attached to the ISTAR Op O/Annex but must be regularly updated to take account of the changing operational situation, the commander's priorities and the collection assets available. It should be re-distributed every time it is updated.

Timing as at: 012100Z.

TIME (Estimated)	- 8	- 6	- 4	- 2	Н	+ 2	+ 4	+ 6	+ 8	NOTES
Enemy Activity	Fmn Recce	Fight in Sy Zone	Defend main Pos'n		CB Fire		Fight in Sy Zone	Defend Main Pos'n	CB Fire	
ASTOR	•		AA 1 & 2							Pri is movement detection
TAR	MC 2 & 3	-	MC 1 & 3	•		• -	MC 3 & 4,	NAI 3		
UAV 1	-	MC 2 & 4		TAI 1 & 2				◆ _ TAI 2		
UAV 2		•	NAI 1 & 3		TAI 3 & 5	•				UAVs 2 & 3 pri H-2 to H+2 &
UAV 3		·	-	TAI 4	NAI 2	_ 		◆ _NAI 2		H+6 to H+8 is for tgting.
EW	•		PIR 6,	NAI 3 & 4			PIR 3,	NAI 1		
Armd Recce	•	NAI 1, 2 & 3		-		,	-	NAI 2 & 4		
STA Sys				*	TAI 3 & 5	*		•	TAI 2	Only emit when cued
STA Ptls	*				NAI 4, 5 &	6				Due for extraction after H + 12
FHT	-		PIR 1 & 2			•	-	PIR 3		
JFIT	•				PIR 4 & 5					

CHAPTER 4

EMPLOYMENT OF COLLECTION ASSETS

Introduction

- 1. Assets need to be organised to provide:
 - a. Confidence, Resolution and Timeliness. Assets need to be organised in such a way that the intelligence provided to the commander is of a resolution and timeliness that allows him to make his decisions and act upon them. This will require a mix of coarse and fine grain systems.
 - b. Access. Access implies a relatively passive function of drawing on available information and intelligence. Access should be provided to information wherever it is held within the Architecture, both internally and externally to the Land Component. The access might be through the C⁴I infrastructure or via direct feed from sensors that are supporting multiple levels of command.
 - c. Tasking. Many of the systems being developed will be able to feed multiple levels of command at the same time. Commanders should therefore be able to pass tasks to assets at higher levels of command as well as being able to task assets at subordinate levels of command through their own Collection Plans. Such tasks will compete with many other tasks and priorities at these higher levels.
 - d. *Control*. Commanders cannot guarantee that their tasking requests will receive due priority, especially in dynamic and unpredictable circumstances. They should therefore, be provided with some collection assets at each level of command to give them the ability to meet their essential information needs and to provide robustness to the overall structure.
 - e. Other Factors. Other factors that will determine the appropriate mix of assets required at a specific level of command include the scale and type of operation, time and space, the complexity of the environment and system capabilities. In addition, lower levels of command are more limited in their ability to either process information or manage complex assets without considerable augmentation that could imbalance the overall functioning of the headquarters. The functions and capabilities of levels of command differ, which in turn affects the resource requirement for each level.

ISTAR Collection Planning

- 2. Collection assets should be deployed without rigid adherence to templates; instead they should be packaged to provide broad utility. To achieve the necessary coverage with developing systems and associated C⁴I will not necessarily require an identical mix of assets at each level of command.
- 3. ISTAR collection assets are often characterised by their use in Surveillance, Target Acquisition or Reconnaissance modes. In reality, many collection assets can be

used in different ways that cut across any artificial division between S, TA and R. The guiding principle is to use a collection asset in the most appropriate way to gather the information that is required. Additionally, there are many systems that are not considered to have a primary ISTAR function (such as Attack Helicopter (AH)) but which, depending on the operational situation, can provide effective input into ISTAR as a whole. The exigencies of operations will require collection assets to be used in ways for which they were not designed but this serves to underline the flexibility required of ISTAR as a whole.

Planning Considerations

- 4. The use of ISTAR collection assets needs to be carefully planned. This is not just a G2 or ISTAR function but one that requires involvement of staffs in many areas and across levels of command. There should be strong linkage between the G2/ISTAR staff and the G3 staff to ensure consistency of effort. The employment and tasking of ISTAR assets will be the responsibility of the G2/ISTAR staff whilst their movement, within the battlespace, must be conducted in conjunction with the G3 staff. There are two main types of ISTAR planning that can be carried out:
 - a. Planning the Allocation of Assets. This is planning the allocation of ISTAR assets to match the collection requirements at each level of command. In other words, resourcing levels of command with sufficient collection assets to ensure they can service their commander's requirements.
 - b. *Planning the Use of Assets*. This is planning the use of the allocated ISTAR collection assets to gather the required information.

Planning Criteria for the Allocation of Assets

- 5. Collection assets, the numbers and types of which will vary with each operation, phase of operation and other circumstances, will be allocated to each level of command. A number of principles apply to this form of planning:
 - a. Robust ISTAR Mix. A robust ISTAR mix means providing a mixture of ground and airborne, manned and unmanned IMINT, SIGINT and HUMINT collection assets at each level of command. This robust mix must be able to match the areas of influence and responsibility for different levels of command and be flexible enough to allow for rapid changes in the operational situation. However, this does not require an identical mix of assets at each level of command as system capabilities will cross command boundaries.
 - b. Size and Type of Operation. Different types of operation will affect the type and number of ISTAR assets deployed and how they are used. A humanitarian operation will require fewer ISTAR assets than a war fighting operation. A peace support operation may require more of certain types of assets, such as HUMINT but less of others, such as ASTOR. A Rapid Effect operation will require early deployment of ISTAR collection assets that have broad utility but a small footprint. A large operation will allow concentration of some assets, such as EW, at higher levels of command. For medium and small-scale operations the balance of effort is pushed down the chain of

command, which would necessitate the provision of EW assets, for example, at lower levels of command.

- c. *Time and Space*. The changing nature of warfare has increased the battlespace for which each formation and unit is responsible. Assets must be allocated to cover the maximum amount of the physical and electronic battlespace and additionally to provide some built in redundancy.
- d. Capability. In relation to ISTAR collection assets this includes such elements as Field HUMINT Teams (FHT) that are not systems per se but are a collection capability in their own right. Each system has strengths and weaknesses which affect how it is used and at what level of command. The asset must have the appropriate sensor package to acquire the information and be capable of producing the information required within the necessary timeframe. For instance, ASTOR will have an excellent capability against a sophisticated enemy with much armoured equipment but is of much lesser use against a light guerrilla force. The capability factor is the key in determining what asset might be best to acquire information of a certain type. Chapter 5 of this AFM will highlight the particular advantages and disadvantages of each type of collection asset.
- e. Centralised Co-ordination. The best use of the various types of collection assets is through centralised co-ordination. Such centralisation is normally carried out at the highest practicable level to ensure the most efficient utilisation of the individual capabilities. However, this should not be done at the expense of providing effective support to lower levels of command and certain specialist capabilities may achieve greater effect by being allocated to a lower level of command.
- 6. There are insufficient assets to permanently 'hard-wire' them into each level of command. However, there should be a core group of assets at each level of command that should be allocated for virtually all operations, supplemented by additional assets depending on the circumstances. A possible mix of assets for different scales of operation can be found at Annex A.

Planning the Use of Assets

- 7. Once allocated, collection assets will be used to support the Intelligence Collection Plan at each level of command. However it is important to plan to make best use of the assets allocated, as there are never likely to be enough. Planning can be broken down into three levels:
 - a. The planning of which collection assets can best service the requirement of the Intelligence Collection Plan. This is a high level and generalised form of planning where it is determined that a particular information requirement could be best met by a particular collection capability. This function would normally be the responsibility of the G2 staff.
 - b. The planning of how the agreed collection assets can meet the individual tasks. This is a more detailed level of planning where the use of all of the

allocated collection assets is reviewed and planned in concert. Co-ordination is carried out within the level of command and also across levels of command to avoid unnecessary duplication. This function would normally be the responsibility of the ISTAR co-ordination staff, in conjunction with the Tac-Ps of the individual collection capabilities.

- c. The tactical planning for the use of specific sensors and platforms. This is the practical application of Tactics, Techniques and Procedures (TTP) to the use of collection assets. This function would normally be the responsibility of the operations staff within individual ISTAR units or sub-units.
- 8. The planning process within each level of command must take into account a number of planning considerations that are applicable to the use of collection assets:
 - a. Clear Direction. Collection Assets must be given clear direction otherwise they are unlikely to produce the information expected. The way such direction is provided will vary from operation to operation and will also depend on the type of asset. Ground based and aviation reconnaissance assets are much more likely to work to principles of mission command whilst wide area surveillance and air reconnaissance systems require specific tasking.
 - b. *Time and Space*. Time and space is a major consideration for the use of allocated assets. The likelihood of there not being sufficient collection assets demands that they be used in the most efficient way in order to cover the whole battlespace. This will, in particular, drive the need to prioritise and sequence requirements.
 - c. Capability. The way each system is used will depend on a number of different factors. Each of these must be considered when selecting a particular system for use. These are:
 - (1) Security and Risk. The collection asset must be adequately protected whilst still being able to gather the required information. There will always be an element of physical, political or military risk in the use of a particular collection asset. A balance has to be struck between the risk of loss of the asset and the intelligence gain. Likewise, the compromise of an asset may indicate to an adversary what is being collected against and this may give a clue to own force operational plans. If the risk is considerable then there may be a need to refer to higher authority for a decision.
 - (2) Suitability. There will be occasions when more than one type of collection asset can carry out a collection task and is available to do so. Careful consideration must be given to the attributes of each asset to ensure the most appropriate one is used for the task.
 - (3) Battlespace Environment. Various components of the battlespace environment, such as weather, terrain, or political constraint may limit the ability of an asset to collect information. Such considerations must be taken into account during the collection planning process.

Depending on how critical to success the collection of a particular item of information may be, alternative assets may be tasked on a contingency basis to account for changes in the environment.

- d. *Multiplicity*. Multiplicity of tasking is the deliberate process of using more than one asset to collect the same information. Each asset will produce a slightly different output, which is a valuable aid towards the verification of the information gathered. The scarceness of assets may limit opportunities to use assets in this manner within a particular level of command and, therefore, co-ordination with assets used at other levels of command should be considered.
- e. *Balance*. Balance is achieved by placing an even distribution of collection workload across the available collection assets. Care must also be taken not to place over reliance on any one asset.
- f. Use of Stealth. In order to preserve capability and to try and prevent the enemy determining what collection assets are being used and what their collection targets may be, ISTAR collection will normally be conducted in a stealthy manner. This is particularly important for manned sensors that have to be deployed forward of own troops and which are consequently more vulnerable. In addition, if an adversary does not really understand what ISTAR collection assets we are using, and how, it becomes a great deal more difficult for them to carry out Camouflage, Concealment and Deception (CCD).

Attributes of Collection Assets

- 9. A growing number of collection assets are becoming available to the G2 staff. All of these assets have a certain number of characteristics that should be considered when their use is being planned. There are, however, two key attributes, one or other of which will apply to all collection systems, which must be taken into consideration:
 - a. Active Collection Systems. An active collection system, such as radar, is one that has to radiate to gain information. The use of radiating systems brings a level of risk, as such systems are inherently detectable. The likelihood of detection is based on the nature of the system and the amount of radiated power. The use of radiating systems requires additional thought during the planning process. It may not only provide the enemy with information on the type and location of the system being used but it may also provide them with information on the sort of activity about which we are trying to gather information. Reconnaissance is normally an active function that deploys and moves collection assets to search for information.
 - b. Passive Collection Systems. A passive collection system, such as sound ranging, is one that does not need to radiate to gather information and is characterised as a surveillance system¹. It is therefore inherently safer to use but may not be able to gather as much information as a radiating system.

¹ Certain surveillance systems may be active i.e. Synthetic Aperture Radar (SAR).

Surveillance is essentially a passive activity, monitoring an object, target or area for changes or signs of activity. This observation could range from short-range visual observation by a sentry to sophisticated strategic SIGINT systems.

10. The first pre-requisite for target acquisition is having the information to acquire the target in the first place. Such information could come from many sources or could be provided by collection systems that cue a specific target acquisition system or a collection system being used in a target acquisition mode. Target acquisition brings with it a specific level of detail; this is normally tied to the effect to be achieved against that target. Precision guided weapons require a high level of accuracy, an EW jamming system may only require an idea of the general area of the target, whilst Information Operations may require an understanding of the culture of the target. Once a target is acquired it must, where possible, be tracked or monitored. This enables the target to be engaged by the most appropriate weapon available and at the time of own force's choosing. Collection capability should also be deployed to enable effective BDA to be carried out rapidly.

Countering Camouflage, Concealment and Deception (CCD)

11. In general terms an adversary will always try and conceal what they are doing. Sometimes this will be achieved by chance whilst at other times it is achieved through planned activities, the latter principally through the application of CCD techniques. The effective use of ISTAR collection systems, and careful analysis, will help to counteract this. However, it should never be assumed that a truly determined adversary cannot prevent us finding out specific information about him or deceiving us.

CURRENT ISTAR COLLECTION CAPABILITY¹

Ground Manoeuvre Reconnaissance

- 1. Ground Manoeuvre Reconnaissance currently encompasses Formation Reconnaissance, Close Reconnaissance and Engineer Reconnaissance. Formation Reconnaissance is provided by three Reconnaissance Regiments that are part of 1 (UK) Recce Brigade and a Reconnaissance Regiment for 1 (UK) Armoured Division. Close Reconnaissance is provided as a troop or platoon that is integral to armoured and infantry units. Formation Reconnaissance Regiments and Engineer Reconnaissance subunits are equipped with a mixture of CVR(T) types, whilst unit reconnaissance elements may be mounted in CVR(T), landrovers or be dismounted.
- 2. 1 (UK) Reconnaissance Brigade has three primary roles: first, to provide a Reconnaissance Brigade of two FR Regiments (each of four Squadrons) for the ARRC; second, to provide 3 (UK) Division with an FR Regiment as Div Recce; and third to provide the Lead Recce Battlegroup (LRBG) as part of the JRRF's Lead Recce Task Force (LRTF) and elements for other JRRF Task Forces.
- 3. Engineer Reconnaissance elements are provided at division, brigade and battlegroup levels. An Engineer Formation Reconnaissance Troop is normally under TACON of the Formation Reconnaissance Regiment, whilst an Engineer Close Reconnaissance Troop is OPCON of the Brigades.

Aviation Reconnaissance

4. Lynx, Gazelle and Attack Helicopters (once in service in 2003) may be used for reconnaissance. Missions may be for observation, reconnaissance or surveillance and, in warfighting, will normally be provided by a mix of the two types. Tasking is normally controlled at divisional or brigade HQ although 16 Air Assault Brigade carries out its own tasking.

Air Reconnaissance

5. The allocation of Air Reconnaissance missions will be directed by the Joint Force Air Component Commander (JFACC) based on the direction given by the Joint Task Force Commander (JTFC). Tasking may be passed via the Air Liaison Officers (ALO) provided at Division or Brigade level, who link into the appropriate Air Operations Co-ordination Centre (AOCC). Tasking from the Land Component will be accepted but these compete with many other tasks, a situation which is exacerbated by the fact that most reconnaissance aircraft² have a dual role. Missions will be flown with any aircraft available with general planning taking place up to 72hrs ahead

¹ This list is not meant to be exhaustive and does not include every other component, joint or multi-national systems that might support an operation.

² Some specialist reconnaissance aircraft are also available including CANBERRA PR9 and NIMROD R (EW).

of the sortie to fit in with the Air Tasking Order (ATO). Shorter notice missions are now increasingly planned and undertaken.

Electronic Warfare

6. 14th Signal Regiment (EW) provides EW support. The Regiment has one armoured and two wheeled squadrons. One squadron is normally allocated to each division and one to HQ ARRC. At brigade level and above, an Electronic Warfare Coordination Cell (EWCC) will normally be attached when EW assets are deployed. The cell commander provides EW advice to the commander and the intelligence staff. If EW assets are deployed to a unit the EW detachment commander will carry out the same function. A light EW capability, either vehicle mounted or manpackable, is also provided and this can be used to support Special Forces, Light Forces or JRRF Task Forces.

NBC ISR

7. NBC ISR functions can be conducted from a variety of sources from individuals, through Battlegroups to specialist organizations. The principal source for the conduct of NBC reconnaissance and surveillance at the tactical level is the battlegroup.

Surveillance and Target Acquisition

8. 1 Artillery Brigade, in addition to indirect fire assets, also comprises elements of the Army's ISTAR capability. STA systems and patrols are fielded in 5th Regiment and the HAC. The Bde HQ deploys as an intermediary CS HQ for HQ ARRC and for the UK Land Component HQ responsible for Deep Strike. The Brigade provides its ISTAR assets in force packages for all levels of command depending on the operational situation.

Unmanned Aerial Vehicles

9. PHOENIX UAVs are fielded with 32 and 39 Regiments RA. They form one of the batteries within each regiment, although work is underway to form them into a single UAV Regiment by early 2004. PHOENIX elements would deploy as a general ISTAR collection asset allocated to specific levels of command and can be used in a wide variety of ISTAR tasks.

Surveillance and Target Acquisition Systems/Patrols

10. Acoustic Weapon Locating (AWL), Weapon Locating Radar (WLR) and the regular component of STA patrol assets are currently organised as part of 5th Regiment RA with the TA STA Ptls provided by the HAC. For warfighting operations the Regiment is used in support of depth fire at either Corps or Division Levels, although for some missions assets will be allocated to Brigade level. On JRRF operations STA assets will be appropriately packaged for the operation type and may be task organised to any level of command.

Military Intelligence (MI)

- 11. 1 MI Brigade contains all of the MI units, subunits and personnel within Land Command. These carry out a variety of roles, within the Land Component, at levels from Corps to Brigade. MI capability is normally provided by small sections of personnel or by individuals. Each individual is trained in at least two skills from the range of Combat Intelligence, Imagery Analysis, Security, HUMINT and Counter Intelligence. The roles and capabilities of MI are as follows:
 - a. United Kingdom National Intelligence Cell (UKNIC). UKNICs are small sections that provide a direct link to strategic intelligence feeds for a deployed national commander. An UKNIC may also include specific support groups covering IMINT and SIGINT. 1 MI Battalion currently provides a UKNIC to HQ ARRC. Further UKNICs may be deployed to a JTFHQ depending on the operation and would normally be resourced from 1 MI Brigade.
 - b. *MI Section (Int)*. MI subunit HQs and Sections are allocated to JTFHQ, corps, division and brigade HQs. They act as integral elements of the staff carrying out analysis and co-ordination support for intelligence. For JRRF operations an MI Section would be allocated to the initial Task Force.
 - c. *MI Section (HUMINT)*. MI Sections, called FHTs are provided for operations. They can carry out a variety of tasks including MI Liaison, interrogation, debriefing, source handling, mobile intelligence reconnaissance and Covert Passive Surveillance (CPS). Due to the sometimes sensitive nature of the work, control of HUMINT is carried out by a discrete cell within the G2 staffs.
 - d. MI Section (Fd Sy). MI Sections, normally referred to as Fd Sy Sections, are allocated to corps, division and brigade HQs. They support the Counter Intelligence (CI) and security functions.

Forward Observation Officers (FOO) and Mortar Fire Controllers (MFC)

12. Artillery units provide Forward Observation Officers (FOO) to GM and AM units. FOOs may be mounted in Warrior, in other vehicles, including helicopters, or move on foot depending on the type of unit they are supporting. Their primary function is to provide continuous observation of designated areas of the battlefield and, as part of this, to cue and control indirect fire. Mortar Fire Controllers (MFC) are held integral to GM and AM units and link into the STA matrix at those levels. They provide both Target Acquisition and Surveillance functions in a similar manner to FOOs.

ANNEX B TO CHAPTER 4

POSSIBLE MIX OF ISTAR ASSETS FOR EACH LEVEL OF COMMAND

		SK-ORGANISED RATIONS(1)		APABILITY FOR RFIGHTING(1)	ADDITIONAL CAPABILITY FOR MEDIUM PEACE SUPPORT(1)	ADDITIONAL CAPABILITY FOR SMALL-SCALE(1)
CORPS	MI Sects	Fd HUMINT Coy(2)	MI Sect	SF (R)		
	Fd Sy Sect	EWCC	Fd Sy Sects	NBC Regt		
	STA Ptl Unit	UKNIC	Fmn Recce Regts (3)			
DIV			L	I		
DIV	MI Sects	Fd HUMINT Sect	MI Sect	Fd HUMINT Sects		
	Fd Sy Sect	EW Regt	Fd Sy Sect	STA Bty Gp		
	Fmn Recce Regt (3)	Engr Recce Tp	UAV Bty			

AM BDE					
	MI Sects	Fd HUMINT Team	UAV STA Sys Bty Tp		
	Fd Sy Sect	EWCC	Fmn Recce Lt EW		
	TACPs	Engr Recce Tp	Sqn(4) Elm		
GM					
BDE	MI Sect	Fd HUMINT Team	UAV	UAV STA Ptls Bty Element	
	Fd Sy Sect	EWCC	STA Sys	STA Sys EW Tp Sqn	
	Fmn Recce Sqn(3)	Engr Recce Tp	Тр	UK NIC Avn Recce Element	
LitM BDE					
DDL	MI Sect	Fd HUMINT Team	UAV Bty	UAV Fmn Recce Bty Sqn	
	BRF (5)	EW Tp	STA Sys Tp	STA Sys Tp	
	TACP				

UNIT	ISTAR Offr	Arty	CR2 Tp	WR/Al pl	MI Det	Fd HUMINT Det
	& Cell Close Recce	Tac Gp Engr Recce	TACP	UAV	Fd Sy Det	Fmn Recce Tp
	Pl/Tp	Sect		Elm	STA Sys Tp	Lt EW Team

Notes:

- 1. Additional deployable elements of national strategic systems may be added to levels of command.
- 2. The creation of a Multi-National (MN) ARRC HUMINT Unit is being discussed.
- 3. Includes Tactical Air Control Parties (TACP).
- 4. For use as Lt Armr as well as ISTAR.
- 5. BRF includes BPT, NGFO & Engr Recce.
- 6. ASTOR is unlikely to be fielded during the life of this AFM but if so it could be allocated at Corps, Div or Bde levels.

 7. It is assumed that WATCHKEEPER will be fielded towards the end of the life of this AFM.

CHAPTER 5

CHARACTERISTICS OF COLLECTION ASSETS

General

1. There are a considerable number of collection systems available to the Land Component. When these are combined with those assets available to the other components, this results in an acceptable level of overall capability. The key to the successful use of these assets is a better overall understanding of their characteristics. Much of the technical detail of the systems is classified and this chapter will provide only the detail that falls within the overall classification of the AFM. This chapter also provides some details of the CONOPS for each system but it is not designed to provide the low level operating instructions that guide the use of each collection system. These can be found in subordinate publications and user guides.

Ground Based Manned Reconnaissance

- 2. **Background**. Ground based Manned Reconnaissance gives depth and resolution to the ISTAR mix and is likely to be most effective when used with OPSEC and when faced by weather and environmental constraints. Ground based Manned Reconnaissance will be cued by other ISTAR systems, such as UAVs, in order to obtain more detailed information on a particular target. Collection assets should be deployed without rigid adherence to templates, rather they should be packaged to provide broad utility across a spectrum of requirements. To achieve the necessary coverage, will not necessarily require the deployment of an identical mix of collection assets and associated C⁴I at each level of command.
- 3. **Advantages and Disadvantages.** There are a number of advantages and disadvantages to the use of ground based Manned Reconnaissance and these are listed below:
 - a. *Advantages*:
 - (1) Combination of Man and Sensor. The combination of man and sensor extends the capabilities of both entities and within the manoeuvrist approach allows the use of mission command to exploit opportunities. When man and sensor are collocated the operational effect is resilience.
 - (2) Endurance. Ground based Manned Reconnaissance has a particular capability to be able to loiter and self sustain. It can operate continually for extended periods of time and has varying degrees of integral logistic support.
 - (3) Counter CCD. Ground based Manned Reconnaissance is able to penetrate tree and urban cover and making use of the most intelligent of sensors to self re-task, manoeuvre and interrogate to acquire

information. Manned Reconnaissance is resistant to technical deception.

- (4) All Weather. Although range may be reduced by bad weather, ground based manned reconnaissance provides an all weather, 24 hr capability with endurance. It is able to provide the full spectrum of ground environmental reconnaissance, including NBC, and is effective in areas of overhead cover.
- (5) Intimate View of the Battlespace. Ground manoeuvre reconnaissance forces are also able to determine adversary intent using their integral weapons, protection and mobility. The adversary response can provide useful information as to dispositions, capabilities and intent.

b. Disadvantages:

- (1) Vulnerability. The use of Ground based Manned Reconnaissance contains risks that may be unacceptable in certain circumstances or types of operation. The vulnerabilities are particularly evident when all types of Ground based Manned Reconnaissance are deployed behind the adversary's FLOT, as neither reliance on stealth nor a robust approach will guarantee successful insertion or survival and may incur the likelihood of casualties with an inherent problem of extraction and treatment. Ground based Manned Reconnaissance in depth may require the support of Assurance Operations¹ for their success.
- (2) Lack of Mobility. Both Long Range Reconnaissance Patrols (LRRP) and Surveillance and Target Acquisition Patrols lack organic mobility and have limited re-deployability once inserted. Armoured Reconnaissance has greater mobility but also a greater sustainment requirement.
- (3) Combat Identification. The problems inherent in combat identification are common to all types of Manned Reconnaissance and in some cases the co-ordination of infiltration and extraction is constrained by the security classification of the operation.

Formation and Close Reconnaissance

4. General. Armoured, or vehicle borne reconnaissance elements, are used at corps, division, brigade and battlegroup levels. At corps and division they are part of Formation Reconnaissance (FR) Regiments and normally consist of armoured reconnaissance sub-units with other Arms task organised as required. At battlegroup level they may be armoured or vehicle borne troops and are integral to the units, this is termed Close Reconnaissance. FR elements may be allocated to brigades but they are not organic and their allocation will depend on the type of operation that is being conducted and the actual operational situation. This form of

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¹ Operations by one force conducted in order to facilitate the conduct of another operation by a separate force.

reconnaissance is normally conducted by stealth but most reconnaissance elements are task organised with at least a self-defence, if not offensive capability. All Formation and Close Reconnaissance elements take direction from the commander and G2/ISTAR staff at their level of command but they also have the ability to self retask in order to exploit a tactical situation. Formation and Close Reconnaissance elements carry out reconnaissance, patrolling, scouting, screening and OP tasks as part of their ISTAR function

- 5. **Formation Reconnaissance**. FR will primarily be involved in Deep and Rear Operations but the range of operations will vary widely. It may be used as an ISTAR collection capability or in other roles, such as economy of force, and may be conducted anywhere in the Area of Operations to the limits of sustainability and available communications. It will often be conducted at some distance from the other forces and as such may have no indirect fire support assets within range. Nonetheless, good C⁴I linkages to other means of firepower (e.g. Close Air Support (CAS) and Aviation) enable recce-strike opportunities to be seized.
- 6. Close Reconnaissance. Close Reconnaissance is normally carried out within the range of Close Support artillery and frequently within the protection afforded by the battlegroup. It is the primary ISTAR capability directly available to the battlegroup commander for his own collection effort. As such it is fundamentally important that the Close Reconnaissance commander understands the battlegroup commander's intent and reacts to it.

Engineer Reconnaissance

- 7. Engineer Reconnaissance is carried out by RE troops that are part of the General and Close Support Engineer Regiments (1 per regiment). These troops are normally allocated to formations and will also be allocated to units as the operational situation dictates. When allocated to formations they are normally put under TACON of the FR Regiment, whilst within a battlegroup they should become part of any reconnaissance group. Engineer Reconnaissance elements are very versatile and there is often a temptation to use them for non-engineer reconnaissance. This should be resisted as it degrades their ability to perform their primary function and significantly reduces their ability to respond to Engineer Reconnaissance tasks.
- 8. Engineer Reconnaissance² is required to determine changes to natural and manmade features caused by battle damage or natural weather effects (such as flooding). In general terms Engineer Reconnaissance can be used to carry out the following tasks:
 - a. Route reconnaissance.
 - b. Obtaining cross-country movement, trafficability and 'going' information.

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² Formation and Close Reconnaissance can be used in a similar role – albeit with a lower level of expert knowledge.

- c. Reconnaissance of natural, enemy and friendly obstacles, including river reconnaissance and as a prelude to constructing or enhancing man-made or natural obstacles.
- d. Reconnaissance of helicopter landing sites and aircraft take-off strips.
- e. Ascertaining the availability of local materials and resources.
- f. Obtaining battle damage information.
- g. Determining enemy engineering activity.

NBC Reconnaissance

- 9. Detection of NBC hazards encompasses the employment of 3 techniques: reconnaissance, survey and surveillance. Units performing NBC reconnaissance conduct operations to deny or confirm the presence of contamination and identification of the agent. Once contamination is detected, survey techniques determine the area of contamination. Surveillance is a systematic method of monitoring area for potential contamination. These techniques can exploit both surface and air assets³:
 - a. NBC Reconnaissance. NBC reconnaissance is a mission undertaken to obtain information by visual observation or other methods, to confirm or deny the presence of NBC hazards or attacks. It may include gathering information on enemy use of NB weapons, associated hazards, or meteorological data for NBC hazards prediction. At the tactical level of operations, NBC reconnaissance is an all-arms task and thus individual Battlegroups and units possess a NBC reconnaissance capability. At the operational level, the Joint NBC Regiment possesses a specialised NBC reconnaissance capability that may be provided to assist with tactical level tasks.
 - b. *NBC Survey*. NBC survey is the directed effort to determine the nature and degree of NBC hazards in an area of confirmed or suspected contamination, and to delineate the boundaries of the hazard area. This may include monitoring the degree of radiation or the presence of biological or chemical hazard and the sampling of items suspected of NBC contamination. At the tactical level of operations, NBC survey is an all-arms task and thus individual battlegroups and units possess a NBC survey capability. At the operational level, the Joint NBC regiment possesses a specialised NBC survey capability that may be provided to assist with tactical level tasks particularly where there is a large area to survey. At the military operational/strategic level of operations SIBCRA⁴ teams may be tasked to take samples in order to provide unequivocal proof of an attack and to inform the strategic decision making process.

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³ JWP 3-61 NBC Defence in Joint Operations.

⁴ Sampling and Identification of Biological, Chemical and Radiological Agents (SIBCRA). Strike Command operates 2 SIBCRA teams for post attack agent identification and analysis in order to inform strategic decision making.

- c. NBC Surveillance. NBC surveillance is the systematic observation of surfaces, areas, places, persons or things by visual electronic, mechanical or other means for determining the presence or absence of NBC hazards. NBC surveillance across the battlespace is achieved by a variety of sources from individuals equipped with rudimentary detection equipment (detector paper) to specialist NBCD units equipped with specialist platforms. NBC surveillance includes the identification of an opponent's intention to employ NBC weapons.
- 10. NBC ISR functions can be conducted from a variety of sources from individuals, through Battlegroups to specialist organizations. The principal source for the conduct of NBC reconnaissance and surveillance at the tactical level is the Battlegroup. However, the Joint Commander may allocate specialist resources should the operational scenario merit it.

Long Range Patrols

- 11. **General**. Long Range patrols are normally tasked to provide intelligence and enduring covert surveillance and observation behind enemy lines. They have a wide-ranging surveillance function but can also provided TA for strike assets as well as BDA. They are normally small in size and are, by virtue of their covert nature and limited mobility, best suited to observing NAI/TAI/DPs or other static targets. These patrols deploy on foot, by vehicle or helicopter and any subsequent moves must be carefully considered as they have no integral transport and their current communications are limited. They provide a very discreet from of ground surveillance, operating in hostile areas. They have a particular utility in support of the deep battle and can operate across the spectrum of conflict.
 - a. Long Range Reconnaissance Patrols are provided by the SAS (R).
 - b. Surveillance and Target Acquisition Patrols are provided by 5 Regt RA and the HAC and will not normally be deployed further than 50 kms in front of the FLOT, although the actual distance is situation and mission dependant. Patrols will be based at a FOB to conduct their planning and will then deploy covertly from there.
- 12. **Advantages and Disadvantages**. There are a number of advantages and disadvantages with the use of long Range patrols, these are:
 - a. Advantages
 - (1) Continuous Surveillance. Once in position long range patrols provide a continuous surveillance capability for considerable periods of time.
 - (2) Target Acquisition. Patrols can undertake Target Acquisition and support indirect fire engagement while maintaining a view of the target and providing the ability to adjust fire.
 - (3) Rapid BDA. Patrols can provide immediate BDA on engaged targets although their static nature may not allow full BDA to be carried out.

- b. *Disadvantages*.
 - (1) *Vulnerability*. Lightly equipped and armed patrols are vulnerable to enemy action especially during insertion, extraction or re-deployment.
 - (2) Lack of Mobility. The lack of integral tactical mobility is a weakness for mobile operations. Re-deployment can be difficult and time consuming.
 - (3) Communications. Current communications systems are not ideal and sometimes fail (SAS (R) patrols are better equipped). Weight restrictions also limit the types of communication equipment that can be carried.
 - (4) Sustainability. Patrols can only carry a certain amount of supplies with them and re-supply is often difficult, especially if the patrol is operating at some distance from friendly forces.

Air Reconnaissance and Surveillance

- 13. **Tactical Air Reconnaissance**. This is used as an integral part of the ISTAR systems and capabilities available to the Land Component. However, as it is a capability that is provided by other components there are particular aspects of its use, which do not apply to other assets, that must be considered, especially in the planning and tasking processes. Most fast jets are provided with a reconnaissance capability but as most are also multi-role or have utility at the operational and strategic levels of command, there can be no guarantee that air reconnaissance will be available when the Land Component commander requires it.
- 14. **Sensors**. Reconnaissance aircraft are either dedicated to reconnaissance tasks or are able to be fitted with sensors. Details of the various aircraft and sensors can be found at Annex A. In general terms air reconnaissance sensors include Optical, Electro Optical (EO), Infra Red (IR), Synthetic Aperture Radar (SAR), Moving Target Indicator (MTI)⁵ radar and Thermal Imagery (TI).
- 15. **Advantages and Disadvantages**. Tactical Air Reconnaissance as a non-Land Component collection asset is often not considered properly when making a Collection Plan. The following basic advantages and disadvantages should be considered:
 - a. Advantages.
 - (1) Range of Aircraft. Aircraft will be able to range further into the adversary's rear areas than any ground-based sensor. They are likely to be able to reach any point within the Area of Operations.
 - (2) Types of Sensors Available. Whilst the primary role of 2 and 13 Sqns (Tornado), 41 Sqn (Jaguar) and 39 Sqn (Canberra PR9) is air

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⁵ SAR/MTI aircraft are not currently in service with the RAF.

reconnaissance most fast jets can be fitted with multiple sensor types and can carry more than one type of sensor for each mission. The gradual move towards external pods, rather than internal payloads, has increased the flexibility of the aircraft by being able to use a sensor better tailored for the tasking and reducing aircraft turn round times between missions of differing types.

(3) Crew Linked to Sensors. Just as with manned ground based Manned Reconnaissance, the possession of a manned sensor on board the aircraft provides greater flexibility as well as providing another source of valuable information. All reconnaissance missions require a written report from the pilot (a MISREP), which is provided in addition to the information gathered by the sensors.

b. Disadvantages.

- (1) Vulnerability. Aircraft are vulnerable to enemy action and even a single reconnaissance aircraft can often require a supporting package of other aircraft if it is to operate in a hostile environment. This vulnerability will limit where in the battlespace it is deemed safe to use the platform and at what height it might be used. This may also dictate the type of sensor to be used and could impact on the ability to be able to carry out the required task or to provide the sensor information at the right level of detail.
- (2) Speed of Response. Most air reconnaissance missions are preplanned and changes to the mission requirements once planned are difficult to make especially when the mission is part of a complex ATO. The capability to provide 'on call' missions will vary according to the type of operation but will normally only be provided on an exceptional basis.
- (3) Product Dissemination. The current C³I architecture within the Land Component and between components is not robust. This limits both the type of data and the speed with which it can be passed (imagery is particularly demanding of bandwidth). Most dissemination of imagery is still confined to hard copy although this situation will change in line with technological advances in the future.
- (4) Limited Assets. There will only be limited air assets available for air reconnaissance tasks, which will be allocated on a priority basis.
- 16. Asset Allocation. Air assets are allocated to task according to the planning cycle dictated by the Air Component Commander. Due to the complexity of air operations, especially in a MN environment, the allocation of air assets is normally planned some considerable time ahead. Although there remains flexibility to allocate aircraft to tasks at short notice this applies only to a small number of aircraft and the requirement to support air reconnaissance will be in conflict with the requests for aircraft to be used in support of other mission types. Allocation of tasks to collection assets is carried out, within the Air Component, at the operational level by the

CCIRM cell. The type of aircraft allocated will vary and, as most of the fast jets are multi-role, it is often not easy to determine what type of aircraft might actually be available for air reconnaissance. In a multi-national environment it is quite likely that an aircraft from another country would carry out a task. However, neither the platform type nor its nationality is the key issue. The priority is to ensure that the air reconnaissance request is both correctly completed and identifies the exact collection requirements.

- 17. **Requesting**. Air Reconnaissance can be requested by any level of command. However, the responsibility for co-ordination of Land Component requests will fall to an individual level of command, which is normally the senior Land HQ deployed. Air reconnaissance requests are passed on the Air Reconnaissance Request Form F210. It is important to provide the necessary detail required by the form and it will often be necessary to consult the nearest RAF Liaison Officer (LO) for advice (the Brigade Air LO (BALO) or Division Air LO (DALO)). Even when a request has been submitted, there is no guarantee that it will be met, as it must compete with requests from many other levels of command.
- 18. **Product Dissemination**. There are a number of types of product that may be generated and passed to the requester. After all reconnaissance flights a post flight report, the RECCEXREP, is produced. This provides general detail of what has been detected during the mission. This is passed via the Squadron Intelligence Officer to the Air LOs and any pertinent details will be passed to the requester. All imagery will be analysed at a Reconnaissance Intelligence Cell (RIC) that is part of the Air Component ISTAR architecture. The output can be either textual (RECCEXREP), imagery with annotation or a combination of both. These reports will be passed to the requester via the Air LOs through whatever communications channels are available. Current communications and C² systems provide a very limited capability for the transmission of imagery and therefore text reports are normal. Imagery, if it is required, will normally be confined to hard copy produced either at the RIC or at a point closer to the requester if the C³ architecture will permit this. The current process is slow but planned C³I enhancements will improve this between now and 2010.

Unmanned Aerial Vehicles

19. **General**. UAVs are a highly flexible asset, well suited to a variety of roles in support of the ISTAR requirement. The current in-service UAV is Phoenix which, although initially procured as a TA system in support of long-range indirect fire assets, has developed into a general ISTAR asset. This has resulted from the success of its employment in Kosovo and the realisation by commanders of the contribution that UAVs can make to the provision of information to support their decision making. It is expected that UAVs will be in high demand in the future and can be expected to deploy at all scales of effort and across the spectrum of conflict, to complement other ISTAR systems. In this context it is vital that UAVs are seen as part of a 'system of systems' and are but one element of the ISTAR effort supporting other sensors and strike systems. They will rely upon the key enablers of digitisation, information fusion and battlespace management to provide an effective capability. These paragraphs focus on the capability delivered by Phoenix but it is possible that the new UAV system WATCHKEEPER will be in service within the period of validity of

this AFM. WATCHKEEPER is likely to provide a much enhanced UAV capability for the Land Component and specific doctrine for its use is being developed and will be published prior to it entering service. A key element of WATCHKEEPER is that the system is expected to provide capability at division, brigade and unit levels at the same time.

- 20. **System Components**. UAV systems, including Phoenix, comprise a number of different components:
 - a. Air Vehicle (AV). AV are typically constructed from lightweight composite materials and are of modular construction to allow for quick assembly, simple transportation and storage. They must be capable of carrying a suitable payload (sensor suite) and providing that payload with a stable platform in most weather conditions.
 - b. Ground Control Stations. A GCS is where mission planning, flight control and initial analysis of the sensor product takes place. Communications between the GCS and UAV will normally be via a Ground Data Terminal (GDT), through which flight control data and sensor products are transmitted. It may have to emit continuously during the mission when it could be vulnerable to adversary intercept therefore the GDT can be remoted from the GCS by cable (for Phoenix this is 1,000m). Each GCS will have workstations operated by personnel with the following roles:
 - c. *Mission Controller (MC)*. The MC will carry out the detailed planning for the UAV missions, co-ordinate system deployment and the communications plan.
 - d. Air Vehicle Controller (AVC). The AVC will control the launch, flight and recovery of the UAVs.
 - e. *Imagery Analyst (IA)*. The IA will be responsible for control of the sensors and display of the product from the UAV. He will conduct the initial analysis of the product, which will then be disseminated for action or secondary interpretation.
 - f. Remote Viewing Terminal (RVT). A RVT may be available (not with Phoenix) which typically comprises a portable screen and receiver. This allows UAV imagery to be received by users outside the GCS, including HQ staff or the commander. The RVT may be connected by fibre optic cable to the GCS or it may be a stand-alone unit receiving imagery direct from the UAV; in the latter case, where the communications link is UHF, the RVT antenna will need LOS with the UAV. The imagery received by the RVT will be provided in real time and will be being analysed by the IA at the same time as others are viewing it.
- 21. Launch and Recovery. Most medium and small UAVs use some sort of catapult and rail to launch them. Larger UAVs may require a prepared surface or runway. Recovery can be in a number of different ways, Phoenix uses a parachute but the majority of UAV use a prepared surface or runway. AVs will return to a predetermined recovery location, which can be programmed into the system automatically, where a small team will then collect, dismantle and load the UAV into

the recovery vehicle. Depending on the operational situation, the recovery site could be the same as the launch site.

- 22. **UAV Tactical Parties.** Where UAVs are a task organised asset Tac-Ps will deploy with the supported force HQ. Within a Phoenix battery the BC will deploy with his party to provide advice on UAV matters. His role will include the planning and coordination of battery deployments and he will assist in the de-confliction of airspace.
- 23. **Advantages and Disadvantages**. There are a number of advantages and disadvantages relating to the use of UAVs.
 - a. Advantages. UAVs provide the commander with a number of benefits that include enhanced SA, TA and BDA. The combination of these benefits will help the commander to manoeuvre and conduct decisive operations:
 - (1) Mobility. UAVs have considerable battlefield mobility. The speed and range of the AV allows it to move quickly around the battlespace out to its maximum range. With the ability to re-task when in flight this provides a highly responsive capability.
 - (2) View of the Battlefield. As UAVs are airborne sensors they can look into areas of the battlepsace which other assets might not be able to cover and from a different angle. Targets that are hidden from a ground based sensor might be clearly visible to a UAV sensor.
 - (3) Types of Sensor. Future UAVs should be fielded with a range of sensors that will allow broad and narrow area coverage and a near all weather capability. Currently, Phoenix has an effective EO/TI sensor but it has no other sensor options.
 - (4) Endurance. Future medium and large UAVs are expected to have considerable endurance, potentially over 10 hrs in some cases, whilst smaller UAVs will probably have commensurate endurance with Phoenix. Combined with rapid response and an effective GCS architecture it should be possible to maintain surveillance of given target areas for considerable periods of time.
 - (5) Expendability. Although no commander would wish to lose ISTAR assets because UAVs are unmanned can be more readily used on high risk missions. The loss must be balanced against the potential intelligence gain but this significantly reduces one of the constraints that would apply to manned platforms.
 - (6) Tracking. UAV's mobility allows them to maintain observation of targets whilst the target or AV is moving. This capability enables the tracking of targets.

b. *Disadvantages*:

- (1) Airspace Co-ordination. De-confliction must take place within the current airspace management procedures, which can be a lengthy process. In order to ensure a timely response to tasking specific measures may need to be agreed in advance, such as the allocating a blanket altitude for UAVs, which other air users will stay out of. Specific measures will often have to be defined in Theatre for specific operations.
- (2) Deployment. Due to the requirement for all of the system components to maintain a line of sight data link with each other, UAV deployment will be limited by adverse terrain. Line Of Sight (LOS) requirements may result in a reduction of the maximum achievable range unless measures can be taken to ameliorate this e.g. the deployment of more than one GCS or the use of an AV as an airborne relay. AVs also have a ceiling constraint (currently 2,000m Above Mean Sea Level (AMSL) for Phoenix) as well as an optimum height Above Ground Level (AGL) for optimum sensor performance. This constraint is like to reduce as more modern systems, with higher ceilings, are fielded.
- (3) Weather. Poor weather, such as strong winds, may prevent the AV from being launched. Once airborne, icing conditions may reduce the operational ceiling or preclude flights altogether. Cloud, rain, fog and smoke (including multi-spectral) will degrade sensors, although the degree of degradation will vary according to sensor type.
- (4) Vulnerability. UAVs may well be considered a High Value Target (HVT) by an adversary and are vulnerable to certain AD systems. The lower and slower they fly, especially if they loiter in a specific area, even though they have a relatively small signature, the greater their vulnerability. AD systems with an optical tracking capability have a higher chance of destroying a UAV.
- (5) Endurance. Whilst AV endurance is not unlimited, operating procedures and newer systems will considerable enhance endurance. However, the support staff is not established for permanent 24/7 operations, although they will be able to provide a surge capability. The IAs in particular are susceptible to fatigue and this has an impact on the performance of the overall system.
- (6) Electro Magnetic Compatibility (EMC). UAV operations will be limited if operating in the vicinity of transmitters radiating within specific bands unless the field strengths are below the limit defined in the Military Aircraft Release (MAR).
- 24. **NRT Information**. UAVs, currently Phoenix, offer the ability to provide NRT information and intelligence to the commander at the tactical level. This capability is both flexible and responsive and is applicable across the spectrum of conflict.

Aviation Reconnaissance

- 25. **General**. A principal role of Army Aviation is "Observation and Reconnaissance". The progressive introduction into service of increasingly sophisticated observation devices, the arming of aircraft, and enhanced Defensive Aids Suites (DAS) has seen the capability of this role in an "in-contact hostile environment" significantly enhanced. Aviation can provide an ISTAR function where the crew together with their observation/surveillance devices and CIS can provide a highly effective collection capability for manoeuvre forces. Manned aviation reconnaissance is capable of acquiring information, interpreting it and acting on or reacting to that information. Aviation reconnaissance is complementary to manned ground reconnaissance. Aviation reconnaissance can be flexibly grouped to support all levels of command. Its use as an ISTAR collection asset must be carefully balanced against its other roles. The decision as to which role should be undertaken at any one time will almost always be command led. A procedure must be put in place to collect and process AH information post mission.
- 26. **Advantages and Disadvantages**. The following specific advantages and disadvantages should be considered when planning the use of aviation reconnaissance:
 - a. Advantages.
 - (1) High Tactical Mobility. Aviation reconnaissance is largely free from the constraints of terrain. Its speed allows it to match its tempo to that of the operational situation and is particularly useful in conjunction with the use of AM forces.
 - (2) Range of Aircraft. Although unable to match the range of fixed wing aircraft, helicopters have significant range and will be able to penetrate well into the adversary's depth. They are likely to be able to reach out to most of the areas about which the Land Component might wish to have information and intelligence within the Area of Operations.
 - (3) Crew Linked to Sensor. As with ground based manned reconnaissance the fact that the sensor platform is crewed allows the on-board sensors to be used with greater efficiency. The crew's analytical capabilities and the wide field of view afforded to them by the platform enhances the aircraft's use as a collection asset.
 - b. Disadvantages.
 - (1) Endurance. Aviation reconnaissance has limited endurance and cannot, for instance, match that of ground based reconnaissance assets.
 - (2) Vulnerability. Aircraft are vulnerable to enemy action and even a single reconnaissance aircraft can often require a supporting package of other aircraft if it is to operate in a hostile environment. This

vulnerability will limit where in the battlespace it is deemed safe to use the platform and at what height it might be used.

- 27. **Attack Aviation Reconnaissance**. The Apache AH Mk 1 has a comprehensive mix of STAR capability, embedded CIS and weapon systems. As such it can take a more aggressive stance when being deployed for reconnaissance purposes and could fight for information. It can conduct reconnaissance as part of a manoeuvre mission, provide support to others conducting reconnaissance or conduct reconnaissance mission in its own right.
- 28. **Combat Support Aviation Reconnaissance**. Combat Support Aviation, based on Battlefield Light Utility Helicopters (BLUH) can also provide an ISTAR function in the form of manned reconnaissance. Specific tasks that might be requested are:
 - a. LUH ISTAR Specific Tasks. Screens, Observation Posts (OP), point, route and area reconnaissance and BDA.
 - b. LUH ISTAR Support Tasks. Formation and battlegroup reconnaissance, reconnaissance in support of engineers, artillery, AD and NBC reconnaissance.
 - c. *Direction of Fire*. Helicopters, including LUH and AH, fitted with the appropriate communications systems, data links and STAR devices can be used to direct fire.
- 29. *Other Operations*. Aviation reconnaissance has proved to have great utility in Other Operations. UK experience in N. Ireland and the Balkans has demonstrated the requirement for and the ability of BLUH to conduct reconnaissance with specialist observation devices appropriate to the terrain and type of operation. In addition the use of simple hand held stills and video cameras still has considerable utility in certain circumstances. AH has also demonstrated an ability to deter, coerce and, where necessary, to act during reconnaissance and surveillance missions.

STA Systems

- 30. General. These systems provide direct support to indirect fire systems within the Land Component. They are coupled closely to artillery systems through the targeting process and specific CIS. Their primary purpose is to carry out Target Acquisition; however this information is also an important element of the overall ISTAR capability and contributes to the intelligence effort. STA systems are broken down into Active Weapon Locating Radar (WLR) and Passive Acoustic Weapon Locating (AWL) systems.
- 31. **WLR**. WLR are active systems and as such are detectable. This disadvantage is balanced by overall capability, acquisition range and the use of SOPs. They will normally deploy some distance behind the FLOT and will operate when cued by other systems. They will move regularly using 'emit and move' and need to be allocated sufficient real estate to support this tactic.

- 32. **AWL**. AWL are passive systems and inherently undetectable. They work by detecting sound waves given off by the sound of indirect fire weapons or acoustic events. However, these sound waves will be attenuated by weather and certain types of terrain. AWL work by establishing a baseline and triangulating sound events based on the direction of the detected sound. This baseline takes time to set up and re-deploy which limits the tactical mobility of the capability. **Human Intelligence**
- 33. **General**. HUMINT⁶ covers a broad spectrum of capabilities, and these are applied in different ways according to the type of operation. Certain HUMINT activities will be more applicable to some military operations than others but HUMINT operations occur as part of the ISTAR process and complement the other intelligence disciplines. HUMINT activities have a particular utility in supporting the Security and Counter Intelligence elements of Force Protection.
- 34. **HUMINT Activities.** HUMINT activities are broken down into a number of elements. These elements may be conducted at the same time but must be co-ordinated within the HUMINT capability as well as within ISTAR as a whole:
 - a. Source Operations. Source operations involve structured inter-personal contact between a trained HUMINT operator and an individual with access to information of potential intelligence interest. Conventional Directed Activity (CDA) may be carried out by any manoeuvre unit as part of their STAP, whilst Intelligence Corps and some E2 personnel selected and trained in specific HUMINT skills provide a specialist capability at other levels. Source operations are complex and may also be covert and sensitive and cover the following:
 - (1) Conventional Directed Activity. This is HUMINT collection carried out by military personnel as part of normal duties. It is conducted by non-specialist personnel, as a by-product of their normal function, for example elements of a ground manoeuvre unit talking to the local population whilst on patrol. It will be monitored by the G2X through unit IOs.
 - (2) Military Intelligence Liaison (MI Liaison). This is overt contact by HUMINT operators and intelligence officers with members of friendly organisations. Examples would be Host Nation intelligence and security services, police and other official agencies. The staff organisation contacted knows the status of the UK operator or officer involved and usually his interest. It is unlikely that formal tasking will occur, however the aim is to foster co-operation so that requests for assistance are met with a positive response.
 - (3) Debriefing. This is the detailed and formal questioning of selected and consenting individuals who are assessed as being likely to provide useful information. Examples might be refugees or evacuees from a conflict area, released detainees, Non Government Organisations

⁶ A category of intelligence derived from information collected and provided by human Sources (AAP-6).

- (NGO) or defectors from a hostile organisation selected after a wider screening and selection process. It is usually an overt activity.
- (4) Source Handling. This is the handling of human sources that have access, or potential access, to information of significant intelligence value where the high risks involved require the employment of specialist techniques.
- (5) Interrogation. This is the systematic and formal questioning of non-consenting individuals, in a carefully controlled environment. It normally applies to Prisoners of War (PW), and members of other hostile organisations detained in circumstances that may or may not amount to armed conflict. This is an overt activity, which may be conducted in uniform or civilian clothes. The interrogation function is performed by trained personnel, (generally from Tri-Service reservists with, appropriate language expertise) in Joint Field Interrogation Teams (JFIT).
- b. HUMINT Support Skills. Personnel possessing these skills do not exploit sources but are used to support HUMINT operations and other disciplines such as Counter-Intelligence (CI) operations and OPINTEL collection. They are:
 - (1) Military Intelligence Reconnaissance (MI Reconnaissance). This is when HUMINT specialists, with the appropriate skill sets, carry out vehicle borne mobile reconnaissance outside the immediate battle area. This is in pursuit of specific information requirements, often of a sensitive nature that requires confirmation or exploitation. This would not usually be carried out by MI operators employed on other HUMINT duties due to OPSEC considerations.
 - (2) Covert Passive Surveillance (CPS). This is covert systematic observation of a person, place or object from concealed/covert static Observation Posts (OPs) or the observation of persons of interest by foot, vehicle or aircraft. This can be conducted over extended periods to detect and identify events or to determine patterns of behaviour but will only be sanctioned (in this context) in support of intelligence operations and mobile CPS will only be carried out in permissive environments.
- 35. **Advantages and Disadvantages**. There are particular advantages and disadvantages that apply to HUMINT activities, these are:
 - a. Advantages:
 - (1) Information on intentions is more readily available than from other collection capabilities.
 - (2) HUMINT allows the exact expression of the Commander's Intelligence Requirements direct to the source.

- (3) Intelligence Requirements can be pursued in depth by the HUMINT operator who can ask supplementary questions on his own initiative.
- (4) HUMINT operations are cost effective when compared to other sophisticated, technological collection platforms.

b. Disadvantages:

- (1) HUMINT operations will become more limited as the operational situation becomes more dangerous and Force Protection becomes more of an issue.
- (2) Communication with potential sources is essential, language requirements are difficult to predict, and the use of interpreters unless vetted runs the risk of OPSEC lapses.
- (3) HUMINT is not precise; operations may take time to develop and to shift emphasis to new IRs. Once established, case development may be rapid and it is essential that sufficient HUMINT collection assets are available in theatre to deal with this contingency.
- 36. **HUMINT Management**. Within the G2 staff the G2X⁷ is the HUMINT staff function. It is the focus at the Theatre level for tasking and direction, control, co-ordination and de-confliction. It also provides the focus for all CI related activity in theatre that requires HUMINT support. A close relationship will be required with the G3 Ops staff. Unit and formation IOs will be responsible for managing CDA at their respective levels but it will be monitored and co-ordinated by the G2X. The G2X has the following key roles:
 - a. *Operational Oversight*. This encompasses clearance procedures, authorisation of operations and ensuring consistency of source reports and source accuracy grading across the Theatre. In addition it monitors compliance with Human Rights Legislation and maintenance of the Theatre source register.
 - b. Liaison, Co-ordination and Deconfliction. This ensures that activities are synchronised with Other Government Departments (OGD), Allied and Host Nation components (where applicable) and that part of the field force which is conducting conventional Military Liaison and CDA as part of their operations.
 - c. Source Handling. Responsibility for authorising source handling operations is an extremely important and sensitive issue. Ministerial approval will be required prior to deployment but for operational reasons, once deployed, approval may be devolved down to the lowest acceptable level whilst recognising the constraints of British Law.
- 37. *Field HUMINT Teams*. FHT are the specialist element of HUMINT collection capability. The FHT is a deployable self-contained group able to engage in HUMINT

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⁷ Also called J2X (Joint) and CJ2X (within allied formations).

operations in any theatre given appropriate sanction. Although self contained for HUMINT work it would rely on the supported formation for critical support such as rations, fuel and its communications connectivity to the Formation and wider military and civilian structures throughout the deployment. Depending on the operational environment it can function as a composite group from the formation HQ area or wherever it can best fulfil its function inside or outside contingent force locations. The FHT has a modular capability that is based on the skill sets of individual HUMINT Operators. This allows individual FHTs to be tailored to specific missions if pre-deployment intelligence and the mission type require it. A typical FHT will contain the following skill sets:

- Debriefing.
- b. MI Liaison.
- c. Source Handling.
- d. Covert Passive Surveillance (Static OP capable and a capability to advise on the suitability of more complex operations).

Electronic Warfare

- 38. Electronic Warfare is a military discipline whose aim is the dominance of the EMS. It is divided into three sub-disciplines as follows:
 - a. Electronic Warfare Support measures (ESM). Defined as "The division of EW involving actions taken to search for, intercept and identify EM emissions and locate their sources for the purpose of immediate threat recognition. It provides a source of information required for immediate decisions involving Electronic Counter Measures (ECM), Electronic Protection Measures (EPM) and other tactical actions".
 - b. *Electronic Counter Measures*. Defined as "The division of EW involving actions taken to prevent or reduce an enemy's effective use of the Electromagnetic Spectrum, through the use of EM energy".
 - c. Electronic Protection Measures. Defined as "The division of EW involving actions taken to ensure effective friendly use of the EMS despite the adversary's use of EM energy".
- 39. However, it is only the ESM division of EW that is considered to be an ISTAR asset and therefore is the only division dealt with in this section. ESM may be conducted against Communications (COMMS) and non-communications (NONCOMMS) targets and each is described below.

Electronic Warfare Support Measures

40. ESM is concerned with looking for and identifying electronic targets (Search), exploiting those target once found (Intercept), locating targets by Direction Finding (DF) techniques and then comparing this 'raw data' with existing databases

(Analysis). ESM is passive, which means that it cannot be detected. ESM activities detect, identify and exploit the characteristic signatures of EM emissions. This exploitation can yield valuable information on an adversary's use of the EMS and his future intentions. ESM operations target intentional emissions such as radio, weapon systems, radars and other sensors, or unintentional emissions such as those at infra-red frequencies made by, for example, an exhaust plume.

Relationship to SIGINT

- 41. Signals Intelligence (SIGINT) is a related but specialised activity that may contribute to the databases used within ESM. It consists of Communications Intelligence (COMINT) and Electronic Intelligence (ELINT), which are similar to the activities described above as Comms and Non-Comms ESM. Although SIGINT is beyond the scope of this chapter it should be noted that the Electronic Warfare Co-ordination Cell (EWCC) may act as a secure conduit for national SIGINT during coalition operations, and may link to the UKNIC at the Coalition Joint Task Force HQ. However, it can be used in peace, crisis or war. Its use in peacetime is essential to build up and maintain an EW database for operations, such as the NATO Emitter Data Base (NEDB). However, NATO and national rules strictly govern the transfer of SIGINT information between force components.
- 42. **Advantages and Disadvantages.** The use of EW as part of ISTAR capability has a number of advantages and disadvantages:
 - a. Advantages:
 - (1) Although transmissions can be attenuated by weather and terrain EW effectively provides a 24 hr all weather capability.
 - (2) ESM is passive and therefore inherently non-detectable by an adversary's EW capability. In other words they do not know when they are being listened to.
 - b. *Disadvantages*:
 - (1) EW can only work when an adversary is radiating and providing signals that can be intercepted.
 - (2) Detailed analysis is dependent on linguistic capabilities that may be in short supply. This may be especially so when operating on a JRRF operation outside NATO.

ESM Derived Information

- 43. **General.** The ESM collection effort is characterised as follows:
 - a. It is one of the few tactical information gathering systems that has the potential to provide surveillance to the limit of the AIR. Most ESM provide all-weather, day/night, long range information gathering systems to the operational and tactical levels.

- b. It provides steerage, in support of ECM and other ISTAR assets.
- c. It is passive, except for its organic C² systems.
- d. It is capable of exploiting a variety of EM emissions depending on the capabilities and purpose of the ESM equipment.
- 44. **Search**. The first step in the ESM cycle is the search through the frequency spectrum to identify possible electronic targets. These targets may be operating anywhere in the EMS: Combat Net Radio (CNR) in the HF and VHF bands; radio relay and air traffic control nets in the UHF band; AD, surveillance and guided radars in the SHF band.
- 45. *Intercept*. Once a signal of interest has been detected it will be exploited so that as much information as possible can be extracted from it. It is not necessary to hear the contents of a message to gain information, because technical data about the transmission or analysis of traffic flow will reveal much intelligence, although nets not protected by on-line encryption devices are obviously the most vulnerable to interception.
- 46. **Direction Finding**. The purpose of DF is to locate transmitters⁸. DF sensors normally work in groups of three or four, known as a Baseline and will be tasked to take bearings on specific transmissions. A single DF sensor will produce a Line Of Bearing (LOB). Two LOBs intersecting produce a CUT, but ideally 3 or more LOBs should be used to produce a Position FIX. The result will not be a single point but a probability ellipse whose size depends upon the accuracy of the bearings. Developments in technology now enable HF Skywave Single Site Locating systems to be employed on the battlefield. These can estimate the location of the transmitter from a LOB, although these estimates are far less accurate than the fixes obtained using a complete baseline. It should also be noted that burst transmission and frequency hopping systems are easily intercepted and located and must not be considered ESM proof.
- 47. **DF Techniques**. These may have the accuracy to provide target acquisition data sufficient for modern SMART weapons or area weapons employment, although the potential requirements for positive identification may require other ISTAR collection assets to be tasked. Where this is not the case, for example target acquisition for land indirect fire weapons, the DF accuracy will often be sufficient to cue another ISTAR sensor. A transmit operator can improve his resistance to DF by implementing all EPM measures and if the signal cannot be heard by enemy ESM, it is not possible to carry out DF.
- 48. **Analysis**. The information gained from Intercept must be analysed by specialists before it can be usefully turned into intelligence. Out of this analysis also comes 'Steerage' for further EW tasking and targeting. It is not only clear voice transmission which can be used as a source of information; other areas include the degree of traffic flow, equipment characteristics and signatures and groupings of emitters through a process known as Emitter Density Location (EDL). EDL has a

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⁸ It is important to realise that it is immaterial whether a transmission is secure or insecure, it can still be DF'd.

larger impact with Non-Comms ESM because of the ease with which radar systems can be identified. However, in the communications band, when data and secure systems are located a reliable disposition of forces on the battlefield may be deduced.

Non-Comms ESM

- 49. Radar is the use of electromagnetic energy for the detection and location of targets. There are several different types of radar that can be found on the battlefield. Common examples are:
 - a. Ground Based Surveillance Radar. Examples of these are AD radars that are used for the surveillance of air space or Battlefield Surveillance and Mortar Locating Radars.
 - b. Airborne Radar. Examples of these are Radar aided flying such as navigation, Terrain Following or Avoidance Radar systems or intelligence gathering Radar e.g. Sideways Looking Airborne radar (SLAR), Synthetic Aperture Radar (SAR) and Moving Target Indicator (MTI).
- 50. The interception of radar is relatively easy because the pulse has to be of sufficient power to illuminate the target and for the echo to return to the sensor (maximum effective range). However, this means that the passive detectable range of the radar is considerably increased. Intercept and identification of a radar emitter can be achieved by matching the measured parameters to a known database and this can provide information in the following areas:
 - a. Electronic Order of Battle (EOB). The location and identification of radars can indicate the location and level of associated units since particular types of radars are often associated with particular units or HQs. Matching radar activity can also be an indicator of future intentions, adversaries are unlikely to undertake major operations without protection from air attack.
 - b. Passive Air Defence. The ability of modern Non-Comms ESM systems to observe for airborne Radar systems and to locate and track them can provide a passive form of air defence.

ANNEX A TO CHAPTER 5

ISTAR COLLECTION SYSTEMS and SENSORS

(Including systems that do not have a primary ISTAR function)

Current Systems

SYSTEM	COMPONENT	WHERE FOUND & NUMBERS AVAIL	ROLE	SENSOR RANGE	REMARKS
ASP (Advanced Sound Ranging Prog)	Land	5 Regt RA 3 x Tps of 2 x Sects Each Sect has 1 x CP & 4 x Dets. Each Det can deploy up to 3 x Sensor Posts. Poss one Tp per Wpn Loc Bty. Max 4 Command Posts & 48 sensor posts	Acoustic Wpn Loc (AWL) primarily of indirect fire systems (Guns & mors). Will detect any reasonably large acoustic event i.e. ground explosion. Very limited capability against rockets. System is passive.	Requires min of 3 x Sensor Posts. CEP 50m. Omni directional max range 30 kms. 1 x Sect has baseline coverage of 120 x 30 kms but can be deployed in any configuration Detect 5 events per second.	ISD Apr 2002. System is affected by met conditions esp wind. Performance degraded by areas of "sound shadow" (such as woods/hills)
AH (Longbow Radar, TADS)	Land	6 x 8 ac Sqns as part of 16 Air Asslt Bde.	Longbow: Fire Control Radar TADS: Tgt Acquisition	Longbow radar: 8 kms moving tgt 6 kms static tgt Radar Interferometer: Passive radar emission detector – detects at 1.5 x lethal range of emitter FLIR: Auto tracking 3,500m Manual tracking 3,000m Day TV: Auto tracking 5,600m Manual tracking 4,000m Direct View Optics: 3,000m	Does not have a primary ISTAR role but TA systems have wide utility
BSS 400	Land	Gazelle (specialist fit for NI only)	Recce & Surv	Gyro stabilised TI & Day TV	
Canberra PR9 with RADEOS	Air		Long range stand off electro- optical system		OSD 2006
Challenger 2 (TOGS)	Land	1 per MBT	Tgt acquisition	Detection beyond 3,500m. Identification 1,500m	Does not have a primary ISTAR role

SYSTEM	COMPONENT	WHERE FOUND & NUMBERS AVAIL	ROLE	SENSOR RANGE	REMARKS
Chancellor	Land	Lynx (specialist fit for NI only)	Recce & Surv	Gyro stabilised Day TV & Low Light TV	
Classic	Land/Air	Limited fielding	Seismic & thermal intrusion alarm system	Transmission range 7,000m or 20,000m with relay	
Cymbeline	Land	One Tp with 29 Cdo Regt RA. 5 Sects with 5 Regt RA	Mortar Locating Radar	Fixes to 50m prob error under optimum conditions. Max planning range from radar to mors: 10,000m for 81mm mors 14,000m for 120mm mors Scans 720 mils arc Performance drastically reduced in rain	Out of Service Date Dec 02. Due to be replaced by COBRA/MAMBA during latter half of 2003.
E3-D	Air	7 in service	Airborne Early Warning	Broad area air coverage (radar horizon) but limited against low, slow moving tgts.	Has maritime capability.
Field HUMINT Team (FHT)	Land	Up to 6 x Teams. Deployed at Div/Bde level	Specialist Field HUMINT	Each team consists of comd element and two sub-teams	In process of being formally established
Finch	Land	Gazelle (specialist fir for NI only)	Recce & Surv	Gyro stabilised TI sensor	
Gazelle Observation Aid (GOA)	Land	1 per ac (not all Gazelles are fitted)	Surveillance & Recce	6 kms +	
Gun Sound Ranging (GSR)	Land	2 Tps in 5 STA Regt RA Each Tp has 2 Sound Ranging Bases (only one base can be operated at any one time)	Acoustic Gun & Mortar Locator	1.6 or 2.5 times sound ranging base length (base length typically 10-12 kms) Accuracy is affected by weather. System can be swamped by intense arty activity.	Due to be replaced by Advanced Sound Ranging Programme (ASP)
HALO	Land	2 Tps in 5 STA Regt RA. Each Tp has 2 x HALO sets.	Acoustic Gun & Mortar Locator	Sensor range: Detection range 30 km + Accuracy A (50m CEP)	Each set comprises 2 to 8 sensors sited 2-4 kms apart.
Harrier	Maritime/Air				May be fitted with EO/IR Pod
Inf Laser LP7	Land	1 per MFC Pty in Armd Inf Bns. Some FOO Parties	Laser Range finder	6,000m	

SYSTEM	COMPONENT	WHERE FOUND & NUMBERS AVAIL	ROLE	SENSOR RANGE	REMARKS
Islander	Land		Recce & Surv	Specialist camera & sensor fit	
Jaguar	Air	6 x Imagery Pods 5 x Gd Imagery Exploitation Systems (GIES)	Electro-optical air recce pod	At medium level: Detect tks 12,000m Recognise tks 8,000m	Dual optical & IR sensors, good haze penetration
Jt Fwd Interrogation Team (JFIT)	Land	ТА	Specialist Interrogation capability		
Laser Range Finder L2A2 (FR)	Land	1 per FR Recce sect (20 per FR Regt)	Laser Range finder & Binoculars	@6000m	Not eye safe.
LTD	Land	Held by FR Regts, TACPs, some FOO Parties, SF & 16 Air Asslt Bde Pathfinders	Laser Tgt Designator	Designator to 6,000m Tgt Acq to 10,000m	
Lynx (TITOW)	Land	1 per ac	TA system	TI/EO Detect Tks 6,000m Recognise Tks 3,750m Identify Tks 2,500m	
MILAN (TI sight)	Land	1 per firing post	Wpn sight	LOS beyond 1,990m	
MSTAR	Land	1 per AS90 FOO Pty. 3 per Cdo Fmn Recce Regts	Active radar for Tgt acquisition, surv & fall of shot	Veh 24,000m Man 3,000m Fall of shot 6,000m	
Nimrod MR2	Air	18 ac by 2005	Maritime Ptl (ASW/ASUW), Search & Rescue	Radar has some identification capability. (SAR/ISAR) Acoustics (Passive & Active). EW (ESM/Threat warning/DIRCM/TRD). Magnetic Anomaly Detector (MAD).	Good deep water, limited littoral capability.
Nimrod MRA4	Air		ISR, ASW/ASUW, Search & Rescue	Radar has identification capability (SAR/ISAR). Acoustics (Passive & Active). EW (ESM/Threat Warning/DIRCM/TRD). MAD.	Good deep water & littoral capability. ISR capability.
Nimrod R-1	Air	3 ac in service	Airborne long range multi-band SIGINT capability		

SYSTEM	COMPONENT	WHERE FOUND & NUMBERS AVAIL	ROLE	SENSOR RANGE	REMARKS
Odette	Land	14 (EW) Regt			
OTIS	Land	1 per AS 90 FOO Pty 1 per Fmn/Close Recce Sect	Tgt Acquisition & fall of shot	LOS beyond 3,500m	
Phoenix	Land	1 x Bty per MLRS Regt. Each Bty has 3 x flying Tps capable of having 1 x UAV on task & 1 in transit.	Reusable Unmanned Air Vehicle (UAV) for battlefield Surveillance and Target Acquisition.	Range 70 kms +. Sensor field of view varies between 150 x 150 m to 500 x 500m CEP of 100 m at 2 kms. Will recognise a MBT at 2 kms AV altitude 2000 m AMSL	Missions can be amended during flight. Sensor performance degraded by bad weather & multispectral smoke. Vulnerable to AD systems with optical tracking capability.
RAPTOR	Air	8 pods & 2 Gd Stations	Recce Pod for TORNADO	30NM swathes of imagery Medium level: Identify tks 50,000m	EO/IR capability. Good haze penetration
Scimitar/Sabre (II sight)	Land	1 per veh	Tgt Acquisition & Surv	Tank 1,200m Man 500m Dual fields of view (150 & 500 mils)	
Scimitar (E-SPIRE TI Sight/TNTLS)	Land	FR Regt SCIMITARS (12 per Sqn) Close Recce SCIMITARS (8 per BG) on Balkans operational tours.	TNTLS provides far tgt location using LRF, GPS & digitial compas TI & LRF STA system for gunner & commander. Sighting system for Rarden Cannon	Detection 3,500m Identification 1,500m LRF 9,999m	Primary role is ISTAR. LRF is not eye safe. Tac Nav & Tgt Loc Sys (TNTLS)
Sea Harrier	Navy			Single F-95 wet film camera fitted internally	
Sea King AEW	Navy		Naval AEW	Limited overland surveillance capability	
SIMRAD	Land	1 per AS90 FOO Pty	Laser Range Finder	6,000m	Used in conjunction with OTIS

SYSTEM	COMPONENT	WHERE FOUND & NUMBERS AVAIL	ROLE	SENSOR RANGE	REMARKS
Spyglass	Land	1 per Lt Gun Regt Tac P 1 per Inf Recce Sect. 1 per MFC Pty FR Regt Sp Tps	Tgt Acquisition & fall of shot	LOS beyond 2,000m	
STA Ptls (TA element also deployable)	Land	Reg: 1 Bty with 2 x Tps. Each Tp 6 x Ops TA: 3 Sqn each with 8 Ptls	Deployed to detect tgts in range 0-50kms beyond FLOT using natural & electronic sensors	Range approx 6 kms. Radius of action dependent on insertion means. Slow to re-deploy, ltd survivability. Ltd arcs dependent on topography. Active Comms	
Striker/CVR(T) Combined Sight.	Land	1 per STRIKER (12 per Regt)	TI/day sight	LOS beyond 4,000m	Not dismountable. Supports op of SWINGFIRE ACLOS ATGW.
Tornado (Infra Red System)	Air	Some ac only	IR Air Recce	Low level: Recognize tks 3,000m Identify tks 1,000m	Optimised for low level flight.
Warrior All variants except OPV (II sight Raven)	Land	1 per Warrior AFV 2 per Warrior BCV		Over 1,000m	
Warrior OPV (TI sight Osprey)	Land	1 per veh	Tgt Acquisition & fall of shot	Over 3,000m	

SYSTEMS UNDER DEVELOPMENT

SYSTEM	COMPONENT	WHERE FOUND & NUMBERS AVAIL	ROLE	SENSOR RANGE	REMARKS
Airborne STand Off Radar (ASTOR)	Land/Air	5 ac 2 Transportable Gd Stations 8 Mobile Transportable Gd Stations	Airborne Surveillance	SAR & MTI capability 250 kms +	ISD 2005
BLUH	Land		Battlefield Light Utility Helicopter		
COBLU	Navy		COMINT		Only mounted on DD or FF
COBRA	Land	5 Regt RA. 2 x Tps of 2 x Sects. 1 x radar per Sect.	Wpn Loc Radar (WLR) capable of detecting mors above 81 mm, guns & rockets above 100 mm	Range beyond 40kms Primary arc 1600 mils Capable of detecting up to 40 fire units within 2 minutes	ISD Jul 2003 Time into action 15 mins
EDDYSTONE	Navy		COMINT		Only mounted in attack subs
IBS	Joint		Strategic SIGINT CIS system		IOC 2005
INCE (Interim Comms Non- Comms ESM/EW Eqpt)	Land	14 (EW) Regt			ISD 2002
JAGUAR (Recce Replacement Pod)	Air				
LFAS (Low Frequency Active Sonar)	Navy		Sub-surface surveillance		
MAMBA (Mobile Artillery Monitoring Battlefield Radar)	Land	5 Regt RA. 1 x Tp of 2 x Sects. Each Sect has 2 x radars.	Wpn Loc Radar (WLR) capable of detecting guns & mors, with limited capability against rockets.	Range 20 kms	ISD 2003/04
PICASSO	Joint		Remote sensing capability for IMINT & geospatial info		IOC 2005
SAMPSON	Navy	Type 45 destroyers	Multi function radar		
SOOTHSAYER	Land	14 (EW) Regt	Integrated Comms & Non- comms ESM/ECM System	Veh mounted & "Light" capability	ISD 2006
UKINTELWEB	Joint		Web access capability for		IOC 2002

SYSTEM	COMPONENT	WHERE FOUND & NUMBERS AVAIL	ROLE	SENSOR RANGE	REMARKS
			national strat int databases across 4 security domains		Initially only available at Land Component Commander level
WATCHKEEPER	Land		Future UAV system	Planned to provide capability at Div, Bde and Unit levels	IOC 2005

GLOSSARY OF TERMS

TERM	ACRONYM	DEFINITION
Access		The function of drawing on available information
		and intelligence.
Acoustic Intelligence	ACINT	Intelligence derived from the collection and
		processing of acoustic phenomena (AAP-6).
All Source Intelligence		Intelligence produced using all available sources
		and agencies (AAP-6).
Analysis		In intelligence usage, a step in the processing phase of the Intelligence Cycle in which information or intelligence is subjected to review in order to identify significant facts for subsequent interpretation. See also - Intelligence Cycle (AAP-6).
Area of Intelligence Interest	AII	The area concerning which a commander requires intelligence on those factors and developments likely to affect the outcome of his current and future operations (AAP-6).
Area of Intelligence Responsibility	AIR	The area allocated to a commander for which he is responsible for the provision of intelligence within the means at his disposal (AAP-6).
Asymmetric Warfare		Those actions which employ levels of forces and technologies to achieve a degree of effectiveness out of all proportion to forces employed, by seeking to exploit the vulnerabilities of NATO's civil and military infrastructures (MC 161).
Avenue of Approach	AA	Ground that normally includes a number of Mobility Corridors, over which forces can advance to contact.
Basic Intelligence		Intelligence, on any subject, which may be used as reference material for planning and as a basis for processing subsequent information or intelligence (AAP-6).
Battlespace		The environment, factors, and conditions that must be understood to successfully apply combat power, protect the force, or complete the mission. This includes the air, land, sea, space environments, the included enemy and friendly forces, facilities, weather, terrain, the electromagnetic spectrum and the information environment within the operational areas and areas of interest.
Collation		In intelligence usage, a step in the processing phase of the Intelligence Cycle in which the grouping together of related items of information or intelligence provides a record of events and facilitates further processing. See also Correlation and Intelligence Cycle (AAP-6).
Collection		The exploitation of sources by collection agencies and the delivery of the information obtained to the

TERM	ACRONYM	DEFINITION
		appropriate processing unit for use in the production of intelligence (AAP-6).
Collection Management		In intelligence usage, the process of converting Intelligence Requirements into Collection Requirements establishing, tasking or co-ordinating with appropriate collection sources or agencies, monitoring results and retaking, as required (AAP-6).
Collection Plan		A plan for collecting information from all available sources to meet intelligence requirements and for transforming those requirements into orders and requests to appropriate agencies (AAP-6).
Combat Information		That frequently perishable data gathered in combat by, or reported directly to, units which may be immediately used in battle or in assessing the situation. Relevant data will simultaneously enter intelligence reporting channels (AAP-6).
Combined		In concert with the forces of another nation of the NATO Alliance.
Communications and Information Systems	CIS	Assembly of equipment, methods and procedures, and if necessary personnel, organised so as to accomplish specific information conveyance and processing functions (AAP-6).
Communications Intelligence	COMINT	Technical material and intelligence information derived from electromagnetic communications and communications systems (eg morse, voice, teleprinter, facsimile) by other than intended recipients (AAP-6).
Concept of Operations	CONOPS	A clear and concise statement of the line of action chosen by a commander in order to accomplish his mission (AAP-6).
Conventional Directed Activity	CDA	The gathering of information from human sources undertaken by manoeuvre units as part of their normal patrolling activity.
Correlation		In intelligence usage, the process which associates and combines data on a single entity or subject from independent observations, in order to improve the reliability or credibility of the information (AAP-6).
Counter-Espionage		Action designed to detect and counteract espionage (AAP-6).
Counter-Intelligence	CI	Those activities which are concerned with identifying and counteracting the threat to security posed by hostile intelligence services or organizations or by individuals engaged in espionage, sabotage, subversion or terrorism (AAP-6).
Counter-ISTAR		Activities undertaken to identify, quantify, determine the intent of, and counteract an adversary's ISTAR capability.

TERM	ACRONYM	DEFINITION
Counter-Sabotage		Action designed to detect and counteract sabotage (AAP-6).
Counter-Subversion		Action designed to detect and counteract subversion (AAP-6).
Counter-Surveillance		All measures, active or passive, taken to counteract hostile surveillance (AAP-6).
Counter-Terrorism		Action designed to detect and counteract terrorism.
Current Intelligence		Intelligence which reflects the current situation at either strategic or tactical level (AAP-6).
Deception		Those measures designed to mislead the enemy by manipulation, distortion or falsification of evidence to induce him to react in a manner prejudicial to his interests (AAP-6).
Decision Line	DL	A line on the ground where a commander must make a decision if he is to effect a result at a particular Target Area of Interest.
Decision Point	DP	A point on the ground where a commander must make a decision if he is to effect a result at a particular Target Area of Interest.
Decision Support Overlay	DSO	The DSO is the end product of the integration process within IPB and is essentially a combined intelligence and operational estimate in graphical form.
Direction		Determination of intelligence requirements, planning the collection effort, issuance of orders and requests to collection agencies and maintenance of a continuous check on the productivity of such agencies (AAP-6).
Dissemination		The timely conveyance of intelligence, in an appropriate form and by any suitable means, to those who need it (AAP-6).
Electronic Counter Measures	ECM	That division of EW involving actions taken to prevent or reduce an enemy's effective use of the EMS through the use of electromagnetic energy (AAP-6).
Electronic Intelligence	ELINT	Technical material and Intelligence Information derived from electromagnetic non-communications transmissions (eg radar, navigational aids, jamming transmissions) by other than intended recipients (MC 101).
Electronic Protection Measures	EPM	That division of EW involving actions taken to ensure effective friendly use of the EMS despite the enemy's use of electromagnetic energy (AAP-6).
Electronic Support Measures	ESM	The division of EW involving actions taken to search for, intercept and identify electromagnetic emissions and to locate their sources for the purpose of immediate threat recognition. It provides a source of information required for immediate decisions

TERM	ACRONYM	DEFINITION
		involving electronic countermeasures, electronic protective measures and other tactical actions (AAP-6).
Electronic Warfare	EW	Military action involving the use of electromagnetic energy to determine, exploit, reduce or prevent hostile use of the electromagnetic spectrum and action to retain its effective use by friendly forces (AAP-6).
Emission Control	EMCON	Selective control of emitted electromagnetic or acoustic energy (AAP-6).
Espionage		The collection of information by secret means for intelligence purposes
Evaluation		In intelligence usage, a step in the processing phase of the intelligence cycle constituting appraisal of an item of information in respect of (a) the reliability of the source and (b) the credibility of the information.
Field HUMINT Team	FHT	A small team of HUMINT specialists
Force Protection		Force protection is the means, resources and measures available to the commander to protect his assets. It is a national responsibility which commences at the strategic level and extends down to the operational level, through to the tactical. The Joint Force Commander applies force protection within his area of responsibility in cooperation with the host country and allied forces. Means, resources and measures of security are essential in achieving force protection.
Hostile Intelligence Services	HIS	These are the enemy's or the potentially hostile forces intelligence services.
Human Intelligence	HUMINT	A category of intelligence derived from information collected and provided by human sources (AAP-6). HUMINT can be achieved either in a covert (clandestine) or in a non-covert operation.
Imagery Intelligence	IMINT	Imagery intelligence is derived from imagery acquired by photographic, radar, electro-optical, infra-red and thermal sensors, which can be ground based, sea borne or carried by overhead platforms.
Indicators		In intelligence usage, an item of information which reflects the intention or capability of a potential enemy to adopt or reject a course of action (AAP-6).
Information		Unprocessed data of every description which may be used in the production of intelligence. See also Intelligence Cycle (AAP-6).
Information Operations	Info Ops	Actions taken to influence decision makers in support of political and military objectives by affecting other's information and/or information systems (NATO).

TERM	ACRONYM	DEFINITION
Information	IR	Those items of information regarding the enemy
Requirements		and his environment which need to be collected and
		processed in order to meet the intelligence
		requirements of a commander (AAP-6).
Integration		In intelligence usage, a step in the processing
		phase of the intelligence cycle whereby analysed
		information and/or intelligence is selected and
		combined into a pattern in the course of the
		production of further intelligence See also Fusion
		(AAP-6).
Intelligence		The product resulting from the processing of
		information concerning foreign nations, hostile or
		potentially hostile forces or elements, or areas of
		actual or potential operations. The term is also
		applied to the activity which results in the product
		and to the organizations engaged in such activity
		(AAP-6).
Intelligence Cycle		The sequence of activities whereby information is
		obtained, assembled, converted into intelligence
		and made available to users (AAP-6). This
		sequence comprises the four phases of Direction,
		Collection, Processing and Dissemination.
Intelligence Estimate		The appraisal, expressed in writing or orally, of
		available intelligence relating to a specific situation
		or condition with a view to determining the courses
		of action open to the enemy or potential enemy and
Intelligence Drenevation	IPB	the order of probability of their adoption (AAP-6).
Intelligence Preparation	IPB	A systematic and continuous process of analysis of
of the Battlefield/space		adversary/targeted force doctrine, order of battle,
		weather and terrain matched against the friendly commander's mission in order to determine and
		evaluate the threat's/targeted force's capabilities, intentions and vulnerabilities.
Intelligence		Those items of intelligence required by a
Requirements		commander in order to conduct current operations
riequirements		and to plan future ones.
Intelligence,	ISTAR	The co-ordinated acquisition, processing and
Surveillance,	1017111	dissemination of timely, accurate, relevant and
Reconnaissance and		assured information and intelligence which supports
Target Acquisition.		the planning, and conduct of operations, targeting
		and the integration of effects.
Interpretation		In intelligence, the final step in the processing
1		phase of the intelligence cycle in which the
		significance of information and/or intelligence is
		judged in relation to the current body of knowledge.
		The term can also be used in its more usual sense
		of translating raw data into a more intelligible form -
		for example as in imagery interpretation. See also

TERM	ACRONYM	DEFINITION
		Intelligence Cycle
	UDTI	(AAP-6).
Joint Integrated Prioritised Target List	JIPTL	Once the JTL is expanded with the addition of targets drawn from the component operations plans, it becomes the Joint Integrated target List (JITL). Once the JITL has been approved, it is prioritized and becomes the JIPTL. The JIPTL is the basis for the weaponeering process that links weapons to targets.
Joint Target List	JTL	The JTL is the primary target list for supporting a particular operation. It represents the compendium of available targets for the achievement of strategic and operational effects that could be attacked in pursuit of the operational objectives.
Measurement and Signature Intelligence	MASINT	Scientific and technical intelligence derived from the analysis of data obtained from sensing instruments for the purpose of identifying and distinctive features associated with the source, emitter or sender, to facilitate the latter's measurement and identification (AAP-6).
Mobility Corridor	MC	An area of ground which the manoeuvre capability of particular forces being considered can equate to its doctrinal norms.
Named Area of Interest	NAI	An area or point from which intelligence could confirm or deny the threat's intentions or limitations.
Observation Posts	OP	A post from which military observations are made, or fire directed and adjusted on the basis of observation (AAP-6).
Open Source Intelligence	OSINT	Intelligence derived from publicly available information, as well as other unclassified information that has limited distribution or access (AAP-6).
Operational Command	OPCOM	The authority granted to a commander to assign missions or tasks to subordinate commanders, to deploy units, to reassign forces, and to retain or delegate operational and/or tactical control as may be deemed necessary. It does not of itself include responsibility for administration or logistics (AAP-6).
Operational Control	OPCON	The authority delegated to a commander to direct forces assigned so that the commander may accomplish specific missions or tasks which are usually limited by function, time or location; to deploy units concerned, and to retain or assign tactical control of those units. It does not include authority to assign separate employment of components of units concerned. Neither does it, of itself, include administrative or logistic control (AAP-6).

TERM	ACRONYM	DEFINITION
Operational Level of		The level of war at which campaigns and major
Command		operations are planned, conducted and sustained to
		accomplish strategic objectives within theatres or
		areas of operations (AAP-6).
Operations Security	OPSEC	The process which gives a military operation or
		exercise appropriate security, using passive or
		active means, to deny the enemy knowledge of the
		dispositions, capabilities, and intentions of friendly
D 0 .	500	forces (AAP-6).
Peace Support	PSO	Multi-functional operations involving military forces
Operations		and diplomatic and humanitarian agencies. They
		are designed to achieve humanitarian goals or a
		long term political settlement and are conducted
		impartially in support of an appropriate mandate.
		Includes peacekeeping, peace enforcement, conflict prevention, peacemaking, peace building and
		humanitarian operations (UK definition).
Physical Security		That part of security concerned with physical
1 Trysical Security		measures designed to safeguard personnel, to
		prevent unauthorized access to equipment,
		installations, material and documents, and to
		safeguard them against espionage, sabotage,
		damage and theft (AAP-6).
Priority Intelligence	PIR	Those intelligence requirements for which a
Requirements		commander has an anticipated and stated priority in
		his task of planning and decision making (AAP-6).
Processing		The conversion of information into intelligence
		through collation, evaluation, analysis, integration
		and interpretation (AAP-6).
Protective Security		The organised system of defensive measures
		instituted and maintained at all levels of command
		with the aim of achieving and maintaining security
D		(AAP-6).
Reconnaissance		A mission undertaken to obtain, by visual
		observation or other detection methods, information
		about the activities and resources of an enemy or
		potential enemy; or to secure data concerning the meteorological, hydrographic or geographic
		characteristics of a particular area (AAP-6).
Sabotage		The intentional destruction, disruption or disabling of
Jasolago		equipment, material or facilities by or for a hostile
		element.
Security		The condition achieved when designated
		information, materiel, personnel, activities and
		installations are protected against espionage,
		sabotage, subversion and terrorism, as well as
		against loss or unauthorized disclosure. The term is
		also applied to those measures necessary to

TERM	ACRONYM	DEFINITION
		achieve this condition and to the organizations
		responsible for those measures (AAP-6).
Security Intelligence	SI	Intelligence on the identity, capabilities and
		intentions of hostile organizations or individuals who
		are or may be engaged in espionage, sabotage,
		subversion or terrorism (AAP-6).
Signals Intelligence	SIGINT	A generic term used to describe COMINT and
		ELINT when there is no requirement to differentiate
		between these two types of intelligence, or to
		represent fusion of the two (MC 101).
Situational Awareness	SA	The understanding of the operational environment
		in the context of a commander's (or staff officer's)
		mission (or task) (UK definition).
Source		In intelligence usage, a person from whom, on thing
		from which, information can be obtained (AAP-6).
Strategic Intelligence		Intelligence which is required for the formation of
		policy and military plans at national and
		international levels (AAP-6).
Subversion		Action designed to weaken the military, economic or
		political strength of a nation by undermining the
		morale, loyalty or reliability of its citizens (AAP-6).
Strategic Level of		The level of war at which a nation or group of
Command		nations determines national or multinational security
		objectives and deploys national, including military,
		resources to achieve them (AAP-6).
Surveillance		The systematic observation of aerospace, surface
		on subsurface areas, places, persons or things by
		visual, aural, electronic, photographic or other
- · · · · ·		means (AAP-6).
Tactical Command	TACOM	The authority delegated to a commander to assign
		tasks to forces under his command for the
		accomplishment of the mission assigned by higher
Tarifacil Cardad	TACONI	authority (AAP-6).
Tactical Control	TACON	The detailed and, usually, local direction and control
		of movements or manoeuvres necessary to
Tactical Level of	_	accomplish missions or tasks assigned (AAP-6).
		The level of war at which battles and engagements
Command		are planned and executed to accomplish military
		objectives assigned to tactical formations and units (AAP-6).
Torget		In intelligence usage, a country, area, installation,
Target		
		agency or person against which intelligence activities are directed (AAP-6).
Target Acquisition	TA	
Target Acquisition	'^	The detection, identification and location of a target in sufficient detail to permit the effective
		·
Target Area of Interest	TAI	employment of weapons (AAP-6). An area where the commander can influence the
Target Area of Interest	101	
		battle by destroying, delaying or disrupting threat or

TERM	ACRONYM	DEFINITION
		targeted forces.
Target Intelligence		Intelligence which portrays and locates the components of a target or target complex and indicates its vulnerability and relative importance (AAP-6).
Targeting		The process of selecting targets and matching the appropriate response to them taking account of operational requirements and capabilities.
Terrorism		The unlawful use or threatened use of force or violence against individuals or property in an attempt to coerce or intimidate governments or societies to achieve political, ethnic, religious or ideological objectives (AAP-6).
Unmanned Aerial Vehicle	UAV	A powered aerial vehicle that does not carry a pilot, uses aerodynamic forces to provide vehicle lift and can fly autonomously or be piloted remotely (UK definition).