ISR versus ISTAR: A Conceptual Crisis in British Military Intelligence

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Abstract: *Between 2009 and 2011 there was an intense debate in UK, Canadian and Australian military intelligence circles regarding two putatively competing doctrinal concepts. These were US-originated 'intelligence, surveillance and reconnaissance' (ISR) and the British-originated 'intelligence, surveillance, target acquisition and reconnaissance' (ISTAR). While the inclusion, or not, of 'target acquisition' (TA) might seem a marginal difference, in fact the TA question opened up wider and deeper range of existing concerns about the organisational and doctrinal relationships between intelligence and operations in a military command staff. In 2011, senior echelons in UK defence intelligence shut the debate down with a summary decision to abandon ISTAR in favour of ISR. Nonetheless, ISTAR persisted as the preferred term of art in a number of UK and allied defence quarters. This article argues that ISTAR persisted because there was a practical need for the concept. Furthermore, that need reflected significant changes in the basic relationship between intelligence and operations arising from a range of technological and doctrinal transformations evolving out of what is commonly referred to as the 'Revolution in Military Affairs'. The article concludes that these alterations in the intelligence-operations dynamic remain to be properly addressed in UK and allied intelligence doctrine.*

Introduction: Drawing the Battle Lines[1]

Over the first two decades of the Twenty First Century there has been a running within UK, Australian and Canadian defence circles over the relative merits of two supposedly competing, alternative doctrinal concepts intended to describe the role of intelligence in the Twenty First Century military. The two competing concepts were 'intelligence, surveillance and reconnaissance' (ISR) and 'intelligence, surveillance, *target acquisition* and reconnaissance' (ISTAR). That debate reached something of a crescendo between 2009 and 2011 when the tone of the argument became increasing pitched, at times verging on vituperative. Superficially, the crux of the debate was the location and significance of 'target-acquisition' (TA) in military intelligence doctrine. But, in fact, the 'TA piece' opened the door to much more fundamental concerns and schisms regarding the status and purview of intelligence in the contemporary military operating environment. As is so often the case, the working definitions of these concepts have always been a bit in flux, and the distinctions can easily seem arcane verging on the obscure. British doctrine prior to 2010 described ISR as 'the coordinated and integrated acquisition, processing and provision of timely, accurate, relevant, coherent and assured information and Intelligence to support commanders' conduct of operations'.[2] ISTAR was defined almost identically to ISR but reflected the 'TA' aspect by replacing 'commanders' conduct of operations' with 'the planning, and conduct of operations, targeting and the integration

of effects…'[3] However marginal the apparent difference in the two ideas might appear, the relative authoritativeness and suitability of the two concepts became a keenly fought dispute.

If the ISR-ISTAR debate proved both persistent and hard-fought, this was very much because the distinction between the two served as a lightning rod for a suite of wider interests, concerns and even anxieties about the direction military intelligence ought to take in the new century, with its new technologies and strategic environment of complex, almost intractable 'wicked problems'.[4] ISR and ISTAR were, respectively, American and British attempts to capture and articulate profound changes in the nature and role of intelligence in military operations ushered in by what has often been termed the 'revolution in military affairs' (RMA). The idea of RMA had emerged in the first half of the 1990s as an umbrella notion to cover a suite of dramatic technological changes in sensors, weapons, platforms carrying both, and information technology that promised to transform the conduct of military operations in the 21st Century.[5] Because ISR and ISTAR took shape in parallel and apparently independently of each other in Washington DC and London, a number of allied militaries across NATO and the so-called 5 Eyes 'special relationship' found themselves having to navigate between two different schools of thought emerging from the two principal military and intelligence powers in the two alliance structures.[6] Ironically, the British also found themselves struggling to locate their sovereign intelligence doctrine vis a vis that of their most powerful and most important single ally, the USA. On the whole, the debate entirely by-passed the US defence community where ISR was securely ensconced as the accepted doctrinal standard from the outset. But amongst America's allies, deciding what to do about the two alternative approaches proved a vexed and drawn-out affair.

More crucially, the question of target acquisition tapped into more fundamental and pervasive concerns about the relationship between intelligence and operations within a command staff. Those concerns were particularly pronounced with regards to intelligence support to targeting (IST). The targeting process exists to ensure that the right targets are engaged and in the right manner to achieve the desired effects, avoid collateral casualties, and comply with international Law of Armed Conflict (LOAC).[7] Perhaps with the exception of LOAC, almost all of these judgements will necessarily depend fundamentally on an intelligence input to the degree that NATO has described targeting as 'inextricably linked to the intelligence cycle and JISR [Joint ISR] process'.[8] Traditional boundaries between intelligence and operations were, therefore, becoming less clear cut and more ambiguous. Consequently treating target acquisition - finding, fixing and tracking targets – as an intelligence function simultaneously prompted two acute if seemingly self-contradictory concerns. The first was that intelligence might be straying into the bureaucratic 'turf' of operations and beyond its proper sphere of competence and responsibility.[9] The second was that intelligence was being

2

reduced from a means of understanding and predicting an adversary to merely acting as interlocutor between sensor and shooter.[10]

Consequently, when the UK set about a 'radical rethink' and rewrite of its joint intelligence doctrine in 2010, one of the main tasks laid on the doctrine's drafting team was to parse this debate.[11] They were instructed to find a conceptual and doctrinal solution to the vexed ISR-ISTAR matter, or at least come up with a *modus vivendi* that would be acceptable the doctrine's various stakeholders on either side of the argument.[12] By spring 2011, with the issue still undecided, there was an attempt to resolve the matter by *fiat* from above rather than collegial deliberation. ISTAR was to be done away with, and ISR retained as the authoritative concept with no reference to the former appearing in the new doctrine.[13] Even after the promulgation the new doctrine in late 2011, however, the issue continued to rumble on albeit in more subdued tones throughout the subsequent decade. Indeed, in some UK defence quarters, ISTAR has remained the preferred term of art while it continued to feature alongside ISR in NATO doctrine until late 2020.[14]

While the 2011 decision may have silenced the debate, it did not settle it. If ISTAR persisted as it has, this is because the real lesson from the ISR-ISTAR debate is that there is a significant on-going need for some concept like ISTAR. And that need has to properly understood if the driving forces and concerns behind it are to be effectively addressed in future British and allied intelligence doctrine.

Intelligence, Operations and the Command Staff

The underlying dynamics and tensions of the ISR-ISTAR debate were shaped by the distribution of responsibilities and authority in the contemporary military command staff. Amongst NATO and many other allied defence communities, it is common practice to employ some version of the 19th Century 'Continental general staff model'. While the idea of the command staff is commonly associated with the Prussian Army in the early decades of that Century, the convention of numbered headquarters branches concerned with things like personnel, intelligence, operations and so forth actually originated with the French General Staff in 1874.[15] In 1917, General John J. Pershing adopted the model for the US Expeditionary Force in 1917. It was subsequently adopted more generally across the US armed forces during and after the Second World War.[16] On this basis, it subsequently became the NATO standard for organizing any individual or joint headquarters. Current British practice follows NATO practice under which '1' is personnel, '2' intelligence, '3' operations, '4' logistics, '5' plans, '6' communications and information systems, '7' training and '8'

finance, and '9' for civil secretariat which covers everything from legal advice to local community relations.[17] In an Army context, the convention of the general staff is retained giving G1, G2, G3 and so forth, with Naval intelligence resulting in N1, N2, N3… and Air intelligence A1, A2… likewise. This is why the figure of the G2 looms so large in accounts of intelligence and military command, and the pre-1940 French military intelligence and de facto secret service was labelled the *Deuxième Bureau*.[18] In a joint command setting, the same numbers are preceded by a 'J' (i.e. J2, J3 etc.).

This convention provides a convenient shorthand for practitioners when discussing the various tasks of command staff divisions. Unfortunately, it also presents a slight problem when talking about these functions in the abstract from any specific service branch or the joint environment, in other words, when there is no applicable letter prefix. As a result, one sometimes finds awkwardly phrased discussion of, for example, 'the 2 function', the '2 cell' or just '2'.

Were this simply a question of a bureaucratic division of labour, the entire argument over ISTAR might not have generated the heat that it did. But the relationship between intelligence and operations represents a deeper division in military command. So significant is the difference between the interests and motives of intelligence and operations that Michael Handel has argued they are clearly divisible into 'two cultures', even when sharing a common uniform.[19] Handel also warned that 'As history has shown, the tendency of some military leaders responsible for operations can be very counter-productive'.[20] He characterises the G2 as 'usually accustomed to a detailed, "objective" and systematic analysis' and consequently being 'used to dealing with criticism and is therefore less inclined to take it personally.'[21] By contrast, his thumbnail sketch of the operational commander is of an individual who 'Having been long insulated from criticism through habit and experience … will view intelligence contradictory to his established plans or cherished aspirations as a personal challenge or even a threat'. Consequently, 'the danger is that the commanding general *and his* [operations] *staff* will solicit only those reports that confirm their wishful thinking and well-laid plans'.[22] Of course, to some degree Handel is drawing a worst-case scenario and caricature. One need not engage in 'wishful thinking' to become heavily committed to 'well-laid plans'. And he also acknowledges that intelligence needs to be fully engaged with, and comprehending of, operations priorities and exigencies.[23]

The tension between the ethos and interests of intelligence versus those of decision-making is one familiar to observers of the intelligence world, especially at the national level. A great deal of attention has been given to conceptualizing the balance between intelligence and policy. Central to this debate is the question of 'proximity', or the degree to which intelligence should be involved in, or air-gapped from, policy analysis and decision-making.[24] Arthur Hulnick has described the debate

4

as being between 'traditionalists' who believe in intelligence analysis being clearly separated from policy interests and decision-making and 'activists' who advocate close engagement with the policy-making decision process.[25] The relationship is more nuanced, of course, but essentially the problem is that of navigating between intelligence becoming too detached from policy to be relevant on the one hand, and having the integrity of factual judgements potentially compromised by partisan policy preference.[26]

Handel's image of two utterly different professional communities in the military world evinces very much the same anxieties.[27] Any question of the relative primacy of either intelligence or operations in a command staff risks can become entangled in more profound concerns about the fidelity and integrity of the intelligence process on the one hand, and the responsiveness of intelligence to operational exigencies on the other. As will become apparent below, the ISR-ISTAR debate played into many of those ambient, underlying concerns as much as it entailed more prosaic, doctrinal practicalities.

A Tale of Two Doctrines

ISR and ISTAR have been commonplace in the military intelligence lexicon for the better part of thirty years. Although both have conceptual roots that run back to conceptual and doctrinal discussions of the 1980s, their evolution was very much a response to the unprecedent rate and degree of change in the first decade after the Cold War that became known as the 'revolution in military affairs' (RMA). The dominant themes in RMA thinking included new generations of sensors, precision-guided or 'smart' munitions, new and often unmanned platforms carrying either or both of these, and global high-bandwidth information and communications technologies (ICTs) that wove the new capabilities together and connected them to command and control architectures. The integration of these new systems and capabilities became encapsulated in the notion of 'network enabled capabilities' (NEC).[28] At the same time, the centrality of networks and information forced a renewed attention to the opportunity and vulnerability represented by information as target in its own right prompting the notion of 'information warfare'.[29] This in turn prompted a shift in doctrinal focus from the traditional focus on kinetic operations to 'non-kinetic' information operations against computer networks, their content, and the thinking and conduct of the adversary. This wider agenda was described as that of securing 'effects' in which both kinetic and non-kinetic actions were aimed at modifying the adversary's conduct, a principle eventually termed the 'effects-based approach to operations' (EBOA).[30]

5

The impact of these new capabilities at the tactical and operational levels is hard to overstate. Historically, tactical and operational intelligence suffered severe limitations that did not necessarily apply to strategic command functions to the same degree. As Handel has noted, tactical intelligence entails a 'very short life span; mostly for immediate action' where the 'reliability is very low to medium' compared with operational intelligence requiring a 'mostly short time span' where the 'pressure for action [is] high to very high', still dogged by information whose reliability is 'very low to medium'. At both levels he notes that the 'quality of communication' is 'very difficult to good' (compared with strategic where it is expected to be 'good to very good') but the need for intelligence to be coordinated at the operational level is 'high or very high'.[31] The technologies involved in RMA made it possible to collect, collate, disseminate and integrate information into decision-making at every command level at precedented levels of agility, granularity and fidelity in real- and near-real time. Canadian intelligence doctrine of the period concluded of ISR that 'The synergy created by integrating the tasking and control of these traditional military tasks with focused dissemination of the fused product resulting from these activities creates an entirely new level of capability.'[32]

During the first decade of this transformation, military thinkers and doctrine writers on both sides of the Atlantic found the need to forge new concepts of operation to accommodate this transformation and its implications for military intelligence. In the United States defence community, the intelligence aspects of RMA were captured in the concept of 'intelligence, surveillance and reconnaissance' (ISR). ISR had already become the accepted conceptualisation of intelligence in US RMA thinking by 1994 and enjoyed sponsorship and advocacy at the level of the Joint Chiefs of Staff.[33] According to one laconic but influential expression, the essence of ISR was that 'Intelligence relies on surveillance and reconnaissance for its data and information. Conversely, we do not know what to surveil, where to reconnoiter, or when to do either without intelligence.'[34] John Ferris, however, has argued that ISR represented a significant change in US military thinking and practice that amounted to a new and particularly 'American way of war'.[35] And as a particularly American concept, it reflected chronic US frustration with interagency coordinate and integration in support of operational intelligence requirements as much as it did the challenges and opportunities of RMA. Common data networks for information sharing promised to, and often succeeded at, overcoming or at least attenuating institutional boundaries between intelligencers and operators. It might not have been the panacea the US national security community hoped for, but its potential was palpable.[36] Regardless of national issues in achieving and managing jointery, anything that might improve the connection between intelligence and operations would necessarily have a wider appeal. And so ISR found a receptive audience amongst many of America's NATO and 5 Eyes allies.

At roughly the same time, the UK defence community was trying to incorporate new technologies and capabilities into their own doctrinal thinking. During the first half of the decade, however, the preferred term of art was Reconnaissance, Intelligence, Surveillance and Target Acquisition (RISTA). Appearing so soon after the end of the Cold War, one can see in RISTA legacies of the Cold War and the keenly-felt residual impressions of the Falklands Islands conflict. Consequently, it was conceptualised at the strategic or 'national' as well as the operational and tactical levels when briefed to the House of Commons Defence Select Committee (hereafter referred to as the Commons Defence Committee) on Defence in 1995. 'National RISTA tasks' consisted of 'the identification of indicators and warnings to allow timely generation of forces at graduated states of readiness, the observation of crises to inform decision-making and the support of deployed forces'. On the other hand, 'At the tactical and operational levels of command, the main objectives are to maximise [sic] the coherence and tempo of operations relative to the opponent and to support the targeting and assessment of offensive action.'[37] Significantly, however, the Commons Defence Committee's discussion of tactical and operational RISTA was very much in terms of new UAV platforms, largely in support of land operations, with comparatively little attention to back-end information and communications technologies.[38]

By 1997, however, RISTA had been supplanted by ISTAR.[39] Indeed, the 1999 first edition of the UK's Joint Intelligence Doctrine was actually based entirely on ISTAR.[40] This change in branding, as it were, would prove to have an unexpected consequence later in the decade as the dispute over the relative merits of ISR and ISTAR gained momentum. RISTA had been largely forgotten by the end of the decade, while ISR had been in consistent use for at least five years prior to the 1999 Joint Intelligence Doctrine. Consequently, at the height of the ISR-ISTAR debate, there was an inclination to dismiss the latter as more recent artefact of 'the increasing prominence of unmanned aerial vehicles (UAVs)' and even as little more than a fashionable 'staff buzzword'.[41] In fact, the two concepts had taken shape, side by side, almost as if in lockstep.

Perhaps in part because the UK often views itself as less troubled on the interagency and stovepiping front[42], ISTAR was typically articulated more in terms collection capabilities than back-end processes of analysis, dissemination and coordination. This is not to say that NEC did not figure but, rather, that ISTAR was that constituent part of NEC responsible mainly for gathering data.[43] Consequently, when Parliament, through the House Commons Defence Select Committee, first took interest in ISTAR it was in the context of what were then termed unmanned aerial vehicles (UAVs or 'drones').[44] Only subsequently did the Committee take up wider significance of ISTAR.[45] Throughout the Defence Committee's investigations, the Ministry of Defence (MoD) focused its briefings chiefly on the new generation of systems being operated by the RAF (particularly the Reaper, or Predator 2,

7

UAV) and the Royal Artillery (Hermes 450 and Desert Hawk 3 UAVs), and then upon the eagerly anticipated delivery of the manned Sentinel Airborne Standoff Radar (ASTOR) aircraft and Watchkeeper UAV.[46] There was, to be sure, discussion of new supporting ICTs such as Defence Information Infrastructure[47] and DABINETT which was 'a software application that will allow intelligence that has been gathered from a whole range of different sources to be viewed, integrated and shared as a single whole'.[48] But these played a minor role in the discussion.

So pronounced was the MoD's tendency to focus on collection systems that the Defence Committee found it necessary in 2010 to raise a concern about 'balance across the ISTAR chain' between collection on the one hand and processing and dissemination on the other.[49]

There was also an impetus to retain RISTA-era application of ISTAR to the strategic as well as operational and tactical levels. In its 2005 evidence to the Defence Committee, the MoD argued that ISTAR covered the full range command levels ranging from the 'lowest tactical level' such as 'individuals using their eyes and reporting what they see' to 'the collection, analysis and dissemination of a complex range of information from maritime, land, air and space-based platforms' at the strategic level.[50] Those strategic assets included 'the Fylingdales site which provides early warning of ballistic missile threats to the UK and is an integrated part of the US global early warning network; and the Nimrod R1 system which currently provides manned airborne electronic surveillance'.[51] However, as we shall see below, this perception of ISTAR was already being contested within UK military intelligence community.

At the heart of the distinction between ISR and ISTAR was the notion of *target acquisition* and its relationship with the intelligence function. Target acquisition as term had been around at least since the early 1970s, but by the turn of the century the idea had been expanded considerably to accommodate the effects-based ethos. A common point of reference in the debate was a purely kinetic 1971 NATO definition of it as 'The detection, identification and location of a target in sufficient detail to permit the effective employment of weapons.'[52] In 2003, however, the British Army noted that TA had 'evolved from simply supporting the employment of weapons' to countries, areas, installations, agencies or persons *against which intelligence activities are directed.*'[53] At the same time, the goal was no longer simply the 'effective employment of weapons' but providing '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'.[54] TA, they further explained that 'brings with it a specific level of detail … tied to the effect to be achieved against that target' in which '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

8

Information Operations may require an *understanding of the culture of the target*.'[55] Indeed, as the Intelligence Corps' Geraint Evans later pointed out, not only can TA generate 'intelligence to facilitate a strike against a pre-determined target' but it will also 'will inevitably gather data on potential targets that may never have been thought of, or suspected, in the first place'.[56] TA had clearly developed far beyond than the time-honoured forward observer role which was a favoured analogy in some MoD briefings.[57]

Just as the concept of target acquisition was being enlarged, there were signs that other aspects of the intelligence function were becoming narrower. Even the traditionally central concept of the intelligence cycle found itself being recast into a more effects-oriented shape.[58] It was not even represented as a cycle at all. Instead of looping consumers' direction (tasking), collection, processing (analysis) and disseminating back to consumers to revise their information needs in an on-going knowledge-building process, intelligence became a linear 'ISTAR chain'.[59] Paralleling the notion of a 'kill chain' that had acquired currency under RMA, the ISTAR chain started with a requirement and ended with the requested information being issued to 'the warfighter', which 'may well be a single troop in the field or it may well be somebody working back here in defence intelligence'.[60] The notion of dissemination to 'the war fighter' potentially at the tactical level of the 'single troop' with central Defence Intelligence added almost as afterthought could only reinforce a sense that the main role of intelligence was supporting specific interventions at the end of the kill chain rather than contributing to a longer-term and deeper knowledge base. The intelligence requirement would end with the kill, rather than feed into deeper, on-going understanding or situational awareness.[61]

Notwithstanding any uncertainty about the doctrinal essence of 'target acquisition', by the first decade of the Twenty-First Century a number of allied militaries clearly found ISTAR a concept that captured their post-Cold War commitments and experiences at least as effectively as ISR. In Canada, ISR had been the original term of art only to be displaced by ISTAR later in the decade.[62] ISTAR became the conceptual framework for intelligence for several NATO armed forces, notably Holland, Norway, and Belgium, who also established a range of dedicated ISTAR units.[63] At the Allied joint level, it was incorporated into NATO doctrine and concepts *alongside* ISR.[64] Nowhere in NATO doctrine was the distinction, or relationship, between ISR and ISTAR ever made clear. At most, there was a vague, ambient sense that perhaps ISR referred more to principles and methods and ISTAR to 'kit', that is, systems and technologies, but nowhere was this formally expressed.[65] As the UK

prepared to revise and update their intelligence doctrine for its third edition in 2009, the opposition to ISTAR also began to gather momentum.

The Case Against ISTAR

By the end of the decade there clearly two alternative, overlapping doctrinal concepts potentially competing for primacy. To make matters worse, even the British defence community did not speak with a single voice on the matter. At much the same time that the higher echelons of the MoD were briefing parliamentarians about the role of ISTAR at all three command levels, strategic, operational and tactical, intelligence doctrine at joint level was increasingly being framed in terms of ISR instead. Having formed the central concept in the 1999 first edition of British joint intelligence doctrine, the subsequent second edition of 2003 relegated ISTAR to a footnote in a section on ISR. According to that note:

> The term Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) is used by NATO and other nations, and by the UK at the tactical level. ISTAR is a tactical level function that is more centred on target acquisition in support of component tactical plans, while ISR is more focused on informing commanders at the military-strategic and operational levels, though the product has obvious applications at the tactical level.[66]

This inconsistency would have been a clear indication of an underlying divergence of opinion within British defence thinking for those aware of it. But participation in such discussions was limited by the fact that the joint intelligence doctrine was promulgated at RESTRICTED.[67]

Despite the growing controversy within defence quarters, very little of that internal debate made its way into the public domain because, like the joint intelligence doctrine, most ISR/ISTAR systems and operations and associated policy deliberations being subject to varying levels of secrecy.[68] Most open publications discussing either concept (such as those examined in the previous section) were 'on message' statements that uniformly avoided engaging with the existence, let alone substance, of any alternative approach.   In 2009, however, the Australian Air Power Development Centre published something of a polemic on the issue in its *Pathfinder* bulletin. Published without an author by-line, *Pathfinder* piece was representative of kind of arguments being made, and sentiments expressed, behind those closed doors amongst ISTAR's critics.[69] It provides a valuable window on a debate that was otherwise conducted entirely behind closed doors.

Pathfinder's hostility to ISTAR focused on three main issues. The first two complaints were concerned with the question of conceptual clarity, albeit on outwardly slightly contradictory

10

grounds. On the one hand, the author argued that there was a potentially confusing tendency to use ISR and ISTAR interchangeably.[70] On the other, they also asserted ISTAR was being presented as a doctrinal innovation despite adding nothing genuinely new, consequently further increasing the risk of confusion and woolly thinking. Finally, the very idea of target acquisition was seen as an invitation for intelligence to stray out of its natural sphere of competence and into the rightful domain of operations.

Both arguments from conceptual clarity rested in a large part on the common mistaken notion, discussed above, that ISR significantly pre-dated ISTAR. On the question of conceptual chronology, *Pathfinder* notes, quite reasonably, that 'ISR was coined in the 1990s and gained momentum as an enabler for ideas such as the Revolution in Military Affairs'. However, the author then asserts (in 2009) that '*Recently*, there has been an increased tendency to refer to Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) as distinct to ISR' and that 'There is no agreed joint Australian, US, UK or NATO definition for ISTAR'.[71] This latter assertion is a little surprising given that, as we have seen, there were fairly regularised definitions for ISTAR as far back as the second half of the 1990s. However, as noted above, the transition between RISTA and ISTAR created something of a doctrinal optical illusion of newness around ISTAR.

Pathfinder was reasonably correct about a tendency towards interchangeability. As we have seen NATO employed both with no clear distinction, and the definition of ISTAR offered to parliamentarians by the MoD in 2005 was almost indistinguishable from ISR.[72]   Also not entirely without reason, *Pathfinder* linked the rise of ISTAR to the rise of UAVs.[73] Underlying the rise of UAVs, the author argued, was 'The current pre-dominance of irregular warfare in combination with rapidly advancing technologies and concepts in placing greater demands on ISR and challenging its *traditional* understanding.' This supposedly prompted rise of ISTAR as a response to the need to go beyond the 'traditional' concept of ISR. 'While it is commonly argued that the target acquisition role of UAVs is new' *Pathfinder* continued 'and thus needs to be captured in a new doctrinal term, what a UAV does now for target acquisition is conceptually little different to what PAVETAC [sic] provided the F111 fifteen years ago or balloons provided artillery spotting in the US Civil War.'[74] ISTAR's novelty was, therefore, entirely notional and risked inadvertently muddying intelligence doctrinal waters. What was actually needed, *Pathfinder* concluded on this front, was not a new concept but to 'adopt a collective view within a modern, networked context that does not negate *the prime importance* and benefits that ISR offers'.[75]

ISTAR, however, presented a more fundamental problem beyond interfering with clarity and precedent. It also represented a significant compromise of the traditional distinction between

11

intelligence and operations. The problem was, *Pathfinder* argued, due to 'the ISTAR concept inferring [sic] target acquisition lying completely within the boundaries of ISR'. This was a fundamental error because 'Modern air power doctrine clearly identifies target acquisition as part of the immediate targeting process (Find, Fix, Track, Target, Engage, Assess) and not part of ISR.'[76] In other words, TA was part of targeting, and targeting was an operations not intelligence concern. This echoed a common complaint amongst UK critics of ISTAR that TA should rightly belong to J3 not J2 because, in British doctrine of the period, targeting was explicitly J3 led via Joint Effects.[77] By comparison, Australian doctrine located targeting as a joint staff division process (relying chiefly on J2,J3 and J5). It was, nonetheless, explicitly an operations function under the direct authority of the operational commander.[78] Regardless of whether J3 led or joint J2-J3-J5, targeting is treated in most military thinking is an operations function, with its concepts and processes firmly located in '3' doctrine.[79] Consequently, *Pathfinder* argued, target acquisition did not belong within ISR because 'The Targeting [sic] process is simply using an output from the ISR process.'[80] Locating target acquisition with intelligence risked the J2 cell trespassing on J3 territory.

This did not mean that ISTAR did not have a role to play – but it could not and should not be treated as 'the same' as or 'interchangeable' with ISR.[81] It could not just be 'ISR with TA added.'[82] In *Pathfinder*'s view, ISTAR running roughshod over the basic command staff division of labour could only be tolerable (if at all) provided that it was confined to tactical intelligence. *Pathfinder* grudgingly acknowledged that 'ISTAR may have relevance at the tactical level with respect to UAV operations, but it has little application within air operations where ISR provides the means to effectively synchronise theatre wide ISR requirements and activities within the overall campaign plan, and in accordance with strategic and national intent.'[83] Underlying this unpalatable necessity was the aforementioned prevalence of 'irregular warfare' in recent operations

> …where one of the most difficult tasks is the finding, fixing, tracking and assessing of an unconventional adversary. The real issue has not been necessarily in finding an adversary or threat, but in identifying them as such, which requires the fusion of information from multiple sources and disciplines and then its transition into actionable intelligence … It is in this environment where ISTAR has value in the immediacy of finding, confirming and prosecuting a target.[84]

This was not merely Australian air power thinking reinventing the version of ISTAR adopted in the UK's 2003 intelligence doctrine. The *Pathfinder* piece was also an explicit and trenchant rejection of ISTAR's applicability above the tactical level. It should have no role at the operational level and, by extension, at the strategic or national levels of command.

Pathfinder's polemic had sympathizers even amongst those actively engaged in 'doing' ISTAR for a living in the British military. Geraint Evans, also in 2009, warned of the risks of misusing the concept. Sharing *Pathfinder*'s conviction that ISTAR was both a neologism and 'a tactical concern, which across many military structures is propagated without a coherent doctrinal basis'[85] he warned that 'tactical practices and phrases have blended throughout nations, services and theatres'. Consequently, a range of such tactical concepts 'used out of context and at new levels of command in warfare.' In the resulting conceptual muddle

> Will a commander, for example, expect too much of the ISTAR architecture he is given and so face inevitable disappointment? By the same token, will he waste time and energy in complaining when he believes he is deficient in 'ISTAR assets'? It is a recurring theoretical dilemma, complicated by a lack of coherent intellectual framework within which the ISTAR concept can be rationally applied. In the interim, it remains an area where buzzwords and associated definitions are growing without relation to common practices across different services, nations and theatres of operation.[86]

To be sure, Evans was not writing as an ISR advocate so much as in defence of return to pre-ISTAR basics such as the intelligence cycle, albeit a revised version thereof. But he shared *Pathfinder*'s concern about ISTAR leading to woolly doctrinal thinking.

ISTAR was also generating more muted but equally firm discontent from within the Canadian Army. In July 2011, J.A.E.K. Dowell raised serious concerns about the central role of ISTAR in Canadian military intelligence. He did not take issue with its focus on sensors and platforms or the prosecution of targets as such. Rather he was concerned about what he perceived to be a more fundamental weakening of the intelligence function that was an untended consequence of the ISTAR approach. The real problem, he argued, lay in a resulting ethos that approached intelligence as 'information management' rather than 'knowledge management'. The former, he argued, differed from the latter in its 'recognition of importance of the individual as well as the representation of the knowledge' instead of treating 'information as equivalent to a physical entity, to be created, stored and disposed of.'[87] 'By stressing information management concepts as the means to synchronize primarily observation-measurement capable sensors against the physical aspects of an adversary' the ISTAR ethos meant that 'the more nuanced knowledge problem of employing textual capable sensors against the moral, psychological or cognitive aspects of the adversary tend to get pushed to the side.'[88] Under ISTAR, Finding and fixing was supplanting understanding as the central mission of intelligence.[89]

Yes Repeat No

In the summer of 2009 Britain's defence and military intelligence community set about revising and updating their joint intelligence doctrine, six years after promulgating its second edition. The experience of Operation HERRICK in Afghanistan was driving home the realisation that an improved ability to 'put warheads of foreheads' (in a phrase popular at the time) was not sufficient to offset poor insight into the motivations and interests of belligerents and by-standers alike. The doctrine's authors were, therefore, instructed to undertake a 'radical' rethink of that doctrine.[90] Standard operating procedures were to be relegated to subordinate doctrine notes and publications, fundamental principles and clear concepts were to take priority.[91] One of the most important themes became fleshing out and building up the importance of the role of analysis and 'analytical competencies'.[92] On the one hand, this prompted the promulgation of an entirely new and novel top-level doctrine on 'understanding'.[93] On the other, analysis and assessment issues and methods were to become a more central and more closely examined feature of the actual intelligence doctrine itself.[94] With understanding and analysis being placed at the forefront of UK doctrinal innovation, the climate was an inclement one for ISTAR's technocratic ethos. Amongst the drafting teams tasks was an instruction to settle the ISR-ISTAR matter once and for all.[95]

The original approach adopted was to look for a *modus operandi* that might subsume the reasoned cases for both sides. In March 2010, the drafting team suggested a middle road that would re-conceptualize the matter in terms the growing emphasis on 'understanding', according to which:

    a.   ISR is the conduct of intelligence in support of situational-awareness;

        i.   Alternatively: ISR is intelligence activity in aid of *understanding*.

    b.   ISTAR is the conduct of intelligence in support of specific command decisions;

        i.   Alternatively: ISTAR is intelligence activity in support of *action*.[96]

On the basis of this distinction, new definitions were suggested. ISR became 'the co-ordinated and integrated acquisition, processing and provision of timely, accurate, relevant, coherent and assured information and intelligence to support commanders' conduct of operations through increased understanding of the battlespace'. ISTAR was recast as 'the co-ordinated and integrated acquisition, processing and provision of timely, accurate, relevant, coherent and assured information and intelligence to support commanders' conduct of operations through targeting and the integration of

effects.' This approach also left open the option of strategic and operation ISTAR rather than relegating it purely to the tactical.[97]

In the middle of this proposal being 'socialized' through meetings and workshops with the doctrine's stakeholders[98], the drafting team was informed 'from on high' within Defence Intelligence that they were to (as one member of the team put it) 'kill ISTAR'.[99] It was to have no future role in UK joint doctrine. And, to be sure, it was dropped entirely from the new intelligence doctrine when it was issued in late 2011. Likewise, where the 2010 Strategic Defence and Security Review talked about ISTAR[100], the subsequent 2015 UK National Security Strategy and Strategic Defence Review referred only to ISR.[101]

Such a Gordian knot solution achieved less traction than expected. Even as ISTAR was being expunged at the joint level, the Royal Air Force promulgated its own revised version of ISTAR termed 'Combat ISTAR' (C-ISTAR). The RAF had always reserved for itself a certain measure of exceptionalism with regards to joint doctrine.[102] Nowhere was this more apparent than in the timing and substance of C-ISTAR. According to the RAF, NEC and the pervasive presence of cyberspace in the operational environment was transforming air operations by 'blurring the edges' between the three principal roles of air power: control of the air, intelligence and situational awareness, and attack.[103] What was needed was a 'holistic', 'new philosophy' in which C-ISTAR would provide 'assured intelligence and situational awareness derived from the synergistic employment of networked air, space, and cyber systems in complex and contested operating environments, potentially in tandem with responsive kinetic and influence effects'.[104] The RAF has since continued to mortgage its future on C-ISTAR, often employed rather syncretically in tandem with ISR.[105]

The RAF was not the lone hold-out. In 2014 the Commons Defence Committee issued a new report on UAVS which pointedly referred to the UK's 'ISTAR force'.[106] By much the same token, the MoD retained an active and substantial ISTAR defence procurement programme.[107] As of spring 2020, the British Army was still brinding its 47th Regiment Royal Artillery, which operates Watchkeeper UAVs, as ISTAR even though it has moved to ISR in almost every other respect.[108] The uncertainty also endured for a at alliance level. Shortly after issuing the third edition of the joint intelligence doctrine, a member of the writing team was drafted into the effort to revise and update the NATO Allied Joint Intelligence Doctrine.[109] Despite borrowing extensively from the new British doctrine, that 2014 NATO doctrine retained both ISR and ISTAR, and just as vaguely as ever. Only in August 2020 did NATO finally abandon ISTAR in the new edition of its allied joint intelligence doctrine.[110]

ISTAR has also proven a useful concept beyond military doctrine and policy. For example, James Bosbotinis' recent discussion of current Russian and Chinese development work on hypersonic maritime anti-access and area denial (A2AD) systems notes that:

> Although a ballistic missile launched HGV [hypervelocity glide vehicle] or ASBM [anti-shipping ballistic missile] would provide a potent and hard-to-defend against threat, such systems are … critically dependent on a robust Intelligence, Surveillance, Target Acquisition and Reconnaissance [ISTAR] network … Targeting the supporting network kinetically and through means such as cyber and electronic attacks could significantly degrade the operational effectiveness of long range hypersonic weapons and ASBMs…[111]

Given the strategic significance of these systems and their intended targets, Bosbotinis' use of ISTAR is clearly not a purely tactical use of the concept.

Conclusion

While one might be inclined to attribute the persistence of ISTAR to sheer bureaucratic inertia, or the fact that ISTAR had 'a cooler acronym'[112], it is clear that ISTAR spoke – and continues to speak - to a very specific, powerful and persistent conceptual and doctrinal need. The source of that need is perhaps encapsulated most clearly in a NATO description of targeting intelligence as 'The process of selecting targets and matching the appropriate response to them taking account of operational requirements and capabilities.'[113] In terms of proximity theory, this reads as remarkably close to recommending decisions rather than merely informing them. But what it actually encapsulates is the transformation in the relationship between intelligence and operations that has arisen from the dramatic technological evolution in systems and capabilities for which the revolution in military affairs was essentially the starting pistol. The 'blurred edges' the RAF detected between its three core missions – air superiority, strike and intelligence – can be seen though the ISR-ISTAR debate as a special case of a more profound blurring of the edges between intelligence and operations. That blurring may not affect basic technical and professional differences between the two functions, but it does affect their interaction. Intelligence and operations in the contemporary operating environment have become increasingly interwoven and interdependent, both in scale and in granularity of detail.

It is important to keep in mind that this discussion deals with conceptual attempts to articulate intelligence and its relationship with targeting and operations rather than a study of the practicalities of intelligence support to targeting 'on the ground' so to speak. And yet those

16

doctrinal struggles reflect some very real trends and challenges with which the defence community must deal. The closer integration of intelligence and operations is affecting the work of both fields in ways that we have not yet fully identified and do not completely understand. To be sure, there was a tendency in ISTAR discourse towards and collection-focused technocracy such as that identified by Dowell at the height of the debate. But, in fairness, John Ferris had identified a similar disposition in US thought on ISR some years earlier.[114] This strongly suggests that both were second order effects of the underlying, on-going and accelerating evolution of wider military technology and capabilities and higher operational tempo for which RMA was just the starting pistol. Indeed, by contrast, we can also see an increased awareness in ISTAR discussion of the greater analytical intensiveness in target acquisition. Even amongst some of ISTAR's critics there is an awareness of a deeper intelligence analytic effort being essential for confident identification, characterization and confirmation of potential targets in a complex, fluid and nuanced environment. And that identification and characterization in turn drives assessment the most appropriate interventions required to achieve any desired effects. *Pathfinder* may well have found this most apparent at the tactical level in counterinsurgencies. However, the current security environment is one increasingly characterised by 'hybrid' or 'full spectrum' conflict where 'war' is but one instance a larger and more nuanced continuum of conflict and engagement that spans disinformation, deniable paramilitary operations and proxy conflict as well as conventional military operations.[115] In such an arena, irregular warfare becomes the norm rather than the exception. Consequently, the kind challenges of identification, characterization, attribution and confirmation that require the kind deeper intelligence analytical support to targeting increasingly afflict every command level and in every operating environment. The principle of ISTAR at all command levels, if not the actual concept, is far from going away.

In the last analysis, the real lesson of the ISR-ISTAR debate is that Handel's image of intelligence and operations as two disparate and slightly mutually suspicious cultures has had its day. It may even serve as a warning of the more general obsolescence of a 19th Century command staff model that may no longer be fit for purpose in the current operating environment. No more can intelligence and operations thought of as sealed bureaucratic boxes, talking to one another as and when necessary. The whole question of target acquisition and intelligence support to targeting must be seen as a litmus test of the intelligence-operations dynamic evolving into one of integrated, shared responsibility and decision-making instead of one of separate but complimentary and interlocking responsibilities. What remains to be seen now is whether the UK and her allies can articulate the kind of conceptual and doctrinal framework, and the consequent systems and processes, necessary

17

to effectively implement and leverage this new relationship between intelligence and operations in

the Twenty-First Century battlespace.

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[1] I am indebted to advice from peer reviewers and a number other of people who generously provided advice and assistance in the preparation of this article, not all of whom are in a position to be named in print. However I can note here my gratitude to two able former students of mine helped clarify some arcane matters for me, Kevin Gorman and Sean Jackson.

[2] See, e.g., Development Concepts and Doctrine Centre (DCDC) *Joint Doctrine Note 1/10: Intelligence and Understanding* (Shrivenham, UK: DCDC 2010) p.3-11.

[3] DCDC JDN 1/10 pp.3-11 – 3-12. The definition of ISR employed in Australia differed significantly, while the Canadian definition of ISTAR also deviated substantially. See, e.g. N.A. 'What is ISR: Clarifying ISR and ISTAR in Air Power Terms', Issue 117, August 2009 p.1., downloadable pdf at:
http://airpower.airforce.gov.au/APDC/media/PDF-Files/Pathfinder/PF117-What-is-ISR-Clarifying-ISR-and-ISTAR-in-Air-Power-Terms.pdf, p.2 and J.A.E.K. Dowel *Intelligence for the Canadian Army in the 21st Century: JADEX Papers 5* (Ottawa: Directorate of Land Operations and Designs, 2011) *passim*.

[4] The concept of 'wicked problems' was a particularly formative idea during the production of the current UK Joint Intelligence Doctrine, see DCDC *Strategic Trends Programme: The Future Character of Conflict* (Shrivenham, UK: DCDC, 2010) p.38.

[5] See, e.g. John Ferris' seminal 'Netcentric Warfare, C4ISR and Information Operations:
Towards a Revolution in Military Intelligence?' *Intelligence and National Security* Vol.19, No.2, Summer 2004, pp.199 – 225.

[6] The '5 Eyes' intelligence alliance draws together the intelligence communities of the USA, UK, Canada, Australia and New Zealand. While it has its roots in the UKUSA network of bilateral signals intelligence (SIGINT) cooperation treaties, the relationship extends well beyond SIGINT and the national agencies and includes, for example, US-UK military intelligence cooperation covered by the Burns-Templer Agreements. See, e.g James Cox *Canada and the Five Eyes Intelligence Community* (Ottawa: Canadian Defence & Foreign Affairs Institute and Canadian International Council, 2012) esp. pp.4-6, and on Burns-Templer, Philip H.J. Davies 'Justice for JARIC' *The Medmenham Association Newsletter* (Autumn 2016) p.15.

[7] See, e.g NSO *AJP 3.09 Allied Joint Doctrine for Joint Targeting* pp.1-4 – 1-11.

[8] NSO *AJP 3.09 Allied Joint Doctrine for Joint Targeting* p.2-2/

[9] N.A. 'What is ISR?' *passim*.

[10] Writing about ISR rather than ISTAR, Ferris notes in warning one senior US officer's reduction of the role of intelligence to no more than a sophisticated 'gun director', 'Net-Centric Warfare' p.204 *infra*. On ISTAR, Dowell *Intelligence for the Canadian Army in the 21st Century passim*.

[11] Philip H.J. Davies and Kristian Gustafson 'Intelligence and Military Doctrine: Paradox or Oxymoron?' *Defence Studies* Vol. 19 No.1 (January 2019) p.21. The present author was part of the main intelligence doctrine drafting team, and the following discussion draws in a large part on that first-hand experience the drafting process, and consequently the associated discussions of the role and merits of the concepts of ISR and ISTAR.

[12] In practical terms, this meant more than just career intelligence-trade specialists in the Royal Navy, British Army and Royal Air Force who were likely to J2 cell secondees, and their operational commanders. A significant number of central Ministry of Defence entities, mostly but not entirely under the authority of the Chief of Defence Intelligence and civilian intelligence MoD practitioners were also included, plus interagency joint fusion bodies housed in the UK's national Security and Intelligence Agencies were expected to have an interest in the final product.

[13] Development, Concepts and Doctrine Centre (DCDC) *Joint Doctrine Publication 2-00: Intelligence and Understanding Support to Joint Operations* (Shrivenham, UK: DCDC, 2011).

[14] See, e.g. UK Ministry of Defence (MoD). 'MoD Signs £65-million Contract for Protector Aircraft'
https://www.gov.uk/government/news/mod-signs-65-million-contract-for-protector-aircraft; NATO Standardization Office (NSO) *AJP-2 Allied Joint Doctrine for Intelligence, Counterintelligence and Security* (Brussels: NSO, 2016) *passim*.

[15] Eugene O. Porter 'The Evolution of the General Staff' *The Historian* Vol.8 No.1 (Autumn 1945) esp. pp.32-33 (on the Prussian General Staff) 34-35 (for the French).

[16] Porter 'The Evolution of the General Staff' pp.41-43.

[17] Exact designations and titles vary somewhat between service branches, specific headquarters and different national militaries, these designations are taken from the contemporaneous DCDC *Joint Doctrine Publication 3-00 Campaign Execution* 3rd Edition (Shrivenham, UK: DCDC, 2009) pp.1-9 – 1-11. Note that (a) Civil Secretariat would subsume legal and compliance matter as well as interagency and external links and (b) J8/J9 would often be combined. Please also note that the UK has since replaced its sovereign campaigning doctrine with the equivalent NATO Allied Joint Doctrine

[18] More properly the *Deuxième Bureau de l'Etat-Major General*, Second Department of General Staff. See, e.g. Sebastien Laurent 'The Free French Secret Services: Intelligence and the Politics of Republican Legitimacy' *Intelligence and National Security* Vol.15 No.4 (Winter 2000) pp.19-41, *passim.*

[19] Michael I Handel 'Intelligence and Military Operations' in Michael I Handel ed. *Intelligence and Military Operations* (London: Frank Cass, 1990) pp.21-32.

[20] Michael I Handel 'Intelligence and Military Operations' p.24.

[21] Handel 'Intelligence and Military Operations' p.26.

[22] Handel 'Intelligence and Military Operations' p.27, emphasis added.

[23] Handel 'Intelligence and Military Operations' p.31.

[24] Stephen Marrin '"At Arm's Length or At the Elbow?: Explaining the Distance between Analysts and Decisionmakers," *International Journal of Intelligence and CounterIntelligence*, Vol. 20, No. 3 (Fall 2007) pp.401-414.

[25] Arthur Hulnick "The Intelligence Producer-Policy Consumer Linkage: A Theoretical Approach*," Intelligence and National Security*, Vol. 1, No. 2, (May 1986), pp. 212–214 *passim.*

[26] Mark Lowenthal has described the relationship as 'a semi-permeable membrane' , *Intelligence: From Secrets to Policy* (Washington, DC: CQ Press, 2000), p. 90, while erstwhile JIC Chair Sir Percy Cradock has famously likened it to rooms 'in a cheap hotel' 'with communicating doors and thin partition walls', *Know Your Enemy: How the Joint Intelligence Committee Saw the World* (London: John Murray 2002) p.296. The quintessential statement of the 'trade-off' approach remains Marrin 'At Arm's Length or at the Elbow?'.

[27] Interestingly, Handel's account of the 'two cultures' of intelligence and operations made no reference to the intelligence-policy literature but rested instead on the post-war recollections of British Naval Intelligence officer Donald McLachlan from his

[28] Heralded in the UK in the Ministry of Defence White Paper *Delivering Security in a Changing World* Volume 1 Cm 6041-I (London: The Stationery Office, 2003) pp.3, 19.

[29] The term was initially popularized by Winn Schwartau *Information Warfare: Cyberterrorism: Protecting Your Personal Security in the Electronic Age* (New York: Thunder's Mouth Press, 1994), but was quickly taken up by the defence community see, e.g. the essays compiled by John Arquilla and David Ronfeldt in their *In Athena's Camp: Preparing for Conflict in the Information Age* (Santa Monica CA: RAND Corporation, 1997). On ISR, see Ferris 'Netcentric Warfare, C4ISR and Information Operations' pp.200-201.

[30] See, e.g. David A. Deptula and Greg Brown 'A House Divided: The Indivisibility of Intelligence, Surveillance and Reconnaissance' *Air & Space Power Journal* 22: 2 (Summer 2008) pp.9, 14. In the UK the notion EBO or EBOA was similarly central but appeared less in doctrine by name but in the form of a central and recurrent concern with 'effects' and especially 'joint effects'. See, e.g., the UK's operations doctrine at the time of the ISR-ISTAR debate JDCC *Joint Warfare Publication 3-00: Joint Operations Execution* 2nd Edition (Shrivenham, UK: JDCC, 2004) p.2E-1 and *passim*.

[31] Handel 'Intelligence and Military Operations' pp.26-27.

[32] Department of National Defence (DND). *Joint Doctrine Manual: Joint Intelligence Doctrine* B-GJ-005-200/FP-000 (Ottawa: DND, 2003) p.5-4. The doctrine in question was articulating a notion of ISR although, by the end of the decade (as we will see below), ISTAR was preferred concept.

[33] See, for example, William A. Owens 'JROC: Harnessing the Revolution in Military Affairs' *Joint Force Quarterly* (Summer 1994) no.5 pp.55-57 and 'The US System of Systems' *Strategic Forum* No.63 (February 1996) (Washington DC: National Defence University, 1996).

[34] Deptula and Brown 'A House Divided' p.6.

[35] See, e.g. John Ferris 'A New American Way of War? C4ISR, Intelligence and Information Operations in Operation "Iraqi Freedom": A Provisional Assessment' *Intelligence and National Security* Vol.18, No.4 (Winter 2003), pp.155–174.

[36] John Ferris 'Netcentric Warfare, C4ISR and Information Operations: Towards a Revolution in Military Intelligence?' *Intelligence and National Security* Vol.19 No.2 (Summer 2004) pp.199-225, *passim*.

37 Commons Defence Committee *Seventh Report, Session 1994-1995: Reconnaissance, Intelligence, Surveillance and Target Acquisition* (London: HMSO, 1995) pp.v, 19.

38 Commons Defence Committee *Seventh Report 1994-1995 passim*.

39 J.A.E.K. Dowel *Intelligence for the Canadian Army in the 21st Century* pp.17, 52 n.72.

40 Joint Doctrine and Concepts Centre (JDCC). *Joint Warfare Publication 2-00: Joint Operational Intelligence* 1st Edition. (Shrivenham, UK: JDCC, 1999) *passim*. Released at RESTRICTED, this and its 2003 successor were released by DCDC in 2018. See Davies and Gustafson 'Intelligence and Military Doctrine' p.33.

41 N.A. 'What is ISR', p.1; Geraint Evans 'Rethinking Military Intelligence Failure: Putting the Wheels Back on the Intelligence Cycle' *Defence Studies* Vol.9 No.1 (March 2009) p.30.

42 Michael Herman has, of course, provided the quintessential expression of this view in his *Intelligence Power in Peace and War* (Cambridge: Cambridge University Press, 1996) p.278.

43 House of Commons Select Committee on Defence (hereafter Commons Defence Committee) *Thirteenth Report of Session 2007-08: The Contribution of Unmanned Aerial Vehicles to ISTAR Capability* HC 535 (London: The Stationery Office [hereafter TSO], 2008) pp.6-8.

44 Commons Defence Committee *The Contribution of Unmanned Aerial Vehicles to ISTAR Capability passim*. By 2014 the term 'Unmanned Air Systems' (UAS) had supplanted UAV, but for consistency and because UAS was not adopted until after the main developments of ISR-ISTAR debate, UAV will be retained throughout the article. On the use of UAS, see House of Commons Select Committee on Defence *Tenth Report of Session 2013-14: Remote Control: Remotely Piloted Air Systems* HC 772 (London: The Stationery Office, 2014) p.1 and *passim*.

45 Commons Defence Committee *Eighth Report of Session 2009-10: The Contribution of ISTAR to Operations* HC 225 (London: TSO, 2010).

46 Commons Defence Committee *The Contribution of Unmanned Aerial Vehicles to ISTAR* pp.7, 14. For an overview of the development of Sentinel ASTOR see e.g. Philip H.J. Davies *Intelligence and Government in Britain and the United States: Volume 2: Evolution of the UK Intelligence Community* (Santa Barbara, CA: Praeger Security International, 2012) pp.252-253, 303, 308.

47 DII became the subject of running concerns about delays in its eventual delivery in the middle of the 2010s. See e.g. National Audit Office *Ministry of Defence: The Defence Information Infrastructure* HC 788 (London: TSO, 2008) and House of Commons Public Accounts Committee *First Report of Session 2008-09: Defence Information Infrastructure* HC 100 (London: TSO, 2009)

48 Commons Defence Committee *The Contribution of ISTAR to Operations* p.13. Despite its appearance, DABINETT was a codename rather than an acronym (a dabinett is a variety of apple used in cider making). It was described as an 'incremental' component of the more comprehensive Defence Information Infrastructure project. See variously Commons Defence Committee *The Contribution of UAVs to ISTAR* pp.3, 7-9. 20-21; *The Contribution of ISTAR to Operations* pp.3, 12-13 and *passim*. DABINETT was subsequently rechristened, and delivered as, SOLOMON; Commons Defence Committee *Second Special Report of Session 2010-11: The Contribution of ISTAR to Operations: Government Response to the Committee's Eight Report of Session 2009-2010* pp.3-4.

49 Commons Defence Committee *The Contribution of ISTAR to Operations* pp.9-11, see also *Government Response to the Committee's Eighth Report* p.2.

50 Commons Defence Committee *The Contribution of Unmanned Aerial Vehicles to ISTAR* pp.5, 6.

51 Commons Defence Committee *The Contribution of Unmanned Aerial Vehicles to ISTAR* p.8. Nimrod was, of course, scrapped under the 2010 Strategic Defence and Security Review. The three Nimrod R1s undertaking strategic SIGINT were replaced with three RC-135W RIVET JOINT and then, slightly later, the remainder of the fleet (initially intended for conversion from MR 2 to MRA 4 maritime reconnaissance standard) was scrapped in favour of a force P8 Poseidon. See, variously, Andy Evans *The Nimrod: Mighty Hunter* (Stamford, UK: Dalrymple & Verdun Publishing, 2007) pp.28-31, 43-46; Her Majesty's Government *Securing Britain in an Age of Uncertainty: The Strategic Defence and Security Review* CM 7948 (London: The Stationery Office, 2010) p.26 and *A Secure and Prosperous United Kingdom: National Security Strategy and Strategic Defence Review 2015* CM 9161 (London: Her Majesty's Stationery Office, 2015) pp.32, 51. The UK RIVET JOINTS operate their US counterparts as part of an integrated RC-135W fleet, George Allison 'British RC-135 Rivet Joint surveillance aircraft operational after upgrades' *UK Defence Journal* https://ukdefencejournal.org.uk/british-rc-135-rivet-joint-surveillance-aircraft-operational-after-upgrades/.

52 NATO Standardization Agency (NSA). *NATO Intelligence, Surveillance, and Reconnaissance (ISR) Interoperability Architecture Volume 4: NIIA Terms and Definitions*. (Brussels: NSA, 2005) A-92. This definition remains in current use and is attributed to the 1971 NATO *Glossary of Terms and Definitions*, see NATO

20

Standardization Office (NSO) *Allied Administrative Publication 006 NATO Glossary of Terms and Definitions (English and French)* (Brussels: NSO, 2019) p.126.

[53] Directorate General of Development and Doctrine (British Army) *Field Army Manual Volume 1: Combined Arms Operations Part 3: Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR)* (Shrivenham, UK: DGD&D, 2003) p.1-3, downloadable pdf at:
https://wikileaks.org/wiki/UK_Intelligence,_Surveillance,_Target_Acquisition_and_Recon_ISTAR_handbook_2007. Emphasis added.

[54] Directorate General of Development and Doctrine *Intelligence, Surveillance, Target Acquisition and Reconnaissance* p.1-3 *infra.*

[55] Directorate General of Development and Doctrine *Intelligence, Surveillance, Target Acquisition and Reconnaissance* p.4-6, emphasis added.

[56] Evans 'Putting the Wheels Back on the Intelligence Cycle' pp.33-34. It is important to stress, for those unfamiliar with military conventions, that the operations function of *targeting* is a separate concept and process from *target acquisition*. For detailed explanation see e.g. JDCC *Joint Operations Execution* p.2E1-1

[57] The link between TA and the traditional forward observer frequently appears in evidence given to the Commons Defence Committee on UAVs and their role in ISTAR, see *The Contribution of Unmanned Aerial Vehicles to ISTAR* pp.30, 31, Ev.57, Ev.83.

[58] For an overview of the *longue durée* of the intelligence cycle debate, see Mark Phythian *Understanding the Intelligence Cycle* (London: Routlege, 2013).

[59] It is important to stress that this was confined to the ISTAR discourse as it was shaping up in mid-decade. Both the 1999 and 2003 versions of the Joint Intelligence Doctrine relied on the NATO version of the intelligence cycle, JDCC *JWP 2-00 Joint Operational Intelligence* pp.2-1 – 2-14, JDCC *JWP 2-00 Intelligence Support to Joint Operations* pp.2-1 – 2-19.

[60] Commons Defence Committee *The Contribution of Unmanned Aerial Vehicles to ISTAR Capability* p.9. The concept of the 'kill chain' is generally attributed, directly or indirectly, to USAF General John Jumper circa 1996, see e.g. Mike Benitez 'It's About Time: the Pressing Need to Evolve the Kill Chain' *War on the Rocks* blog 17 May 2017 https://warontherocks.com/2017/05/its-about-time-the-pressing-need-to-evolve-the-kill-chain/

[61] To a very real degree, Evans' 'Putting the Wheels Back on the Intelligence Cycle' can be read as a response, and challenge, to the idea of an ISTAR chain supplanting the intelligence cycle.

[62] Compare DND *Joint Doctrine Manual: Joint Intelligence Doctrine* pp.4-8 – 4-9 and *passim* in 2003 with Dowell's 2011 *Intelligence for the Canadian Army* pp.17-18 and *passim*.

[63] Besides employing ISTAR in doctrine, a range of dedicated intelligence units were branded as ISTAR. For example, The Royal Netherlands Army established both an ISTAR Battallion in the early 2000s, Matthijs Moorkamp *Operating under High-risk Conditions in Temporary Organizations* (London: Routlege, 2019); the Norwegian Army established an ISTAR unit, Norwegian Ministry of Defence *Norwegian Defence 2008* (Oslo: Norwegian Ministry of Defence, 2008) p.19; and Belgium established an ISTAR Battalion, the ISTAR-*Bataljon Jagers te Paard*, see e.g. Cis Spook 'Brussels MPs Get the Most Out of Their Assignment Here' 10 April 2017 https://www.army.mil/article/185543/brussels_mps_get_the_most_out_of_their_assignment_here.

[64] For examples, see NSA *Allied Engineering Documentation Publication 2: NATO Intelligence, Surveillance, and Reconnaissance (ISR) Interoperability Architecture (NIIA)* (Brussels: NSA, 2005) p.A-50, Multi-sensor Aerospace-Ground Joint ISR Interoperability Coalition (MAJIIC) Operations Working Group (OWG) *Coalition Interoperable ISTAR System: Concept of Employment* (The Hague: NATO Consultation, Command and Control Agency 2007). Note that the latter was produced by the MAJIIC/OWG even though MAJIIC itself employed ISR as its core concept.

[65] This is particularly notable in. e.g. MAJIIC/OWG *Coalition Interoperable ISTAR System: Concept of Employment*.

[66] JDCC *Joint War Publication 2-00: Intelligence Support to Joint Operations* 2nd Edition (Shrivenham, UK: JDCC, 2003) p.2-10.

[67] The 3rd edition was published at UNCLASSIFIED and the two earlier editions eventually declassified and released by DCDC in 2013. Davies and Gustafson 'Intelligence and Military Doctrine' p.33.

[68] The first two editions of the UK Joint Intelligence Doctrine were produced at RESTRICTED (equivalent to today's OFFICIAL USE classification) with much of the detailed conceptual and doctrinal work taking place at SECRET.

[69] The author was a party to a number of discussions on this matter with similar sentiments expressed during the production of JDP 2-00.

[70] N.A. What is ISR? p.2.

21

[71] N.A. 'What is ISR?' p.1, emphasis added.

[72] This was particularly striking in MoD evidence to the Parliamentary Defence Committee which described ISTAR as 'the co-ordinated direction, collection, processing and dissemination of timely, accurate, relevant and reliable information and intelligence.', see Commons Defence Committee *The Contribution of Unmanned Aerial Vehicles to ISTAR* p.6

[73] N.A. 'What is ISR?' p.1 and *passim*.

[74] N.A. 'What is ISR' p.1; Pave Tac, also often given as Pave Tack, was an electro-optical reconnaissance pod carried by the F-111. See, e.g. Carlo Copp 'Pave Tack and the GBU-15 Greatly Expand RAAF Strike Capabilities' *Australian Aviation* June 1984, currently archived at *Air Power Australia* https://www.ausairpower.net/TE-AVQ-26-GBU-15.html.

[75] N.A. 'What is ISR' p.1, emphasis added.

[76] N.A. 'What is ISR' p.1.

[77] JDCC *Joint Warfare Publication 3-00 Joint Operations Execution* 2nd Edition (Shrivenhan, UK: JDCC 2004) p.2-14 and This DCDC *Joint Doctrine Publication 3-00 Campaign Execution* 3rd Edition p.3B-5.

[78] Australian Department of Defence *Australian Defence Doctrine Publication 3.14 Targeting* Second Edition. (Canberra: Defence Publishing Service 2009). The UK has since abandoned a sovereign operational doctrine in favour of NATO doctrine and has consequently moved to an approach largely similar to Australia's.

[79] See, e.g. NATO Standardization Office (NSO) *Allied Joint Publication 3.9 Allied Joint Doctrine for Targeting* (Brussels: NSO, 2016) p.2-5.

[80] N.A. 'What is ISR' p.1.

[81] N.A. 'What is ISR?' p.2.

[82] N.A. 'What is ISR?' p.2.

[83] N.A. 'What is ISR' p.2.

[84] N.A. 'What is ISR' p.2

[85] Geraint Evans 'Putting the Wheels back on the Intelligence Cycle' p.31. It is also worth noting that, like Dowell, Evens is not writing specifically as an ISR advocate.

[86] Geraint Evans 'Putting the Wheels back on the Intelligence Cycle' p.32.

[87] Dowell *Intelligence for the Canadian Army* p.12.

[88] Dowell *Intelligence for the Canadian Army* p.19. It should be noted that Dowell was not writing specifically as an ISR advocate but, rather, expressing concern about doctrinal syncretism amongst militaries navigating their way between British and American influence.

[89] It is also worth noting that Dowell, like Evans, wrote as a critical of ISTAR but not explicitly as an advocate of ISR.

[90] Davies and Gustafson 'Intelligence and Military Doctrine' p.20.

[91] Davies and Gustafson 'Intelligence and Military Doctrine' p.29; UK doctrine writing convention distinguishes between joint doctrine *publications* (JPD) which are authoritative statements of current concepts and practice, and joint doctrine *notes* which serve a more diverse range of tasks such as scoping reports on a specific doctrine issue, or guidance and background statements about structures and processes relevant to military practice but not actually expressions of doctrine as such.

[92] See, e.g., David T. Moore and Lisa Krizan 'Core Competencies for Intelligence Analysis at the National Security Agency' in Russel G. Swenson ed. *Bringing Intelligence About: Practitioners Reflect on Best Practice* (Washington DC: Joint Military Intelligence College Press, 2003) pp.95-132.

[93] DCDC *Joint Doctrine Publication 04: Understanding* 1st Edition. (Shrivenham, UK: DCDC 2010). See also Christian Tripodi's slightly confused account of the origins of JDP 04 'The British Army, "Understanding" and the Illusion of Control' *Journal of Strategic Studies* Vol.41 No.5 (2018) pp.632-658. JDP 04 has since been substantially revised, and much of the emphasis on understanding of adversaries, allies and non-belligerents reduced in favour of an emphasis on commanders' decision-making processes, DCDC *Joint Doctrine Publication 04: Understanding and Decision-Making* 2nd Edition (Shrivenham: DCDC, 2016).

[94] Davies and Gustafson 'Intelligence and Military Doctrine' p.29 and *passim*.

[95] Davies and Gustafson 'Intelligence and Military Doctrine' p.21.

[96] Philip H.J. Davies & Kristian C. Gustafson. *BCISS-JDP-2 Note Number 2: The ISR-ISTAR Debate: Rethinking the Problem* 30 March 2010, pp.2, 4. Distributed unclassified. From the author's papers. Emphasis in the original.

[97] Philip H.J. Davies & Kristian C. Gustafson. *The ISR-ISTAR Debate: Rethinking the Problem*, pp.2, 4 *infra*.

[98] JDP 2-00 was drafted on an interagency as well as joint, quad-service approach following the precedent of DCDC's influential doctrine on stabilisation and reconstruction; Davies and Gustafson 'Intelligence and Military Doctrine' p.20.

22

[99] The author was in the room on the occasion that this missive arrived.

[100] Her Majesty's Government *Securing Britain in an Age of Uncertainty* esp. p.16 and *passim*.

[101] UK Government *A Secure and Prosperous United* Kingdom pp.38, 51.

[102] Peter W. Gray 'Air Power and Joint Doctrine: an RAF Perspective' *Air Power Review* Vol.3 No.4 (Winter 2000) pp.6-8.

[103] Stuart Evans 'Combat ISTAR' *Air Power Review* Vol.14 No.2 (April 2011) pp.2-3; see also Evans 'Combat-ISTAR: A New Philosophy on the Battle for Information in the Future Operating Environment' *Air Power Review* Vol.14 No.3 (Autumn 2011) pp.1-10.

[104] Evans 'Combat ISTAR' p.3 and 'Combat-ISTAR: a New Philosophy' *passim*.

[105] See, e.g. N.A. "ISTAR firmament: the future of the RAF's combat air reconnaissance assets", extracted from *Jane's Defence Weekly*, 28 June 2017, https://www.janes.com/images/assets/332/72332/ISTAR_firmament_the_future_of_the_RAFs_combat_air_reconnaissance_assets.pdf. The RAF continues, as of May 2020, to brand its intelligence platforms as 'ISTAR' on its public website, see 'Aircraft' and 'ISTAR' at https://www.raf.mod.uk/aircraft/.

[106] House of Commons Select Committee on Defence *Tenth Report of Session 2013-14: Remote Control: Remotely Piloted Air Systems* (London: The Stationery Office, 2014) pp.29-33 and *passim*

[107] See, e.g. N.A. 'Tag: Target Acquisition and Reconnaissance (ISTAR) missions' N.D. but internal evidence indicates publication post-2015 https://www.contracts.mod.uk/tag/target-acquisition-and-reconnaissance-istar-missions/.

[108] N.A. 'Royal Artillery: 47 Regiment Royal Artillery' https://www.army.mod.uk/who-we-are/corps-regiments-and-units/royal-artillery/47-regiment-royal-artillery/; the newly acquired fleet of Ajax armoured reconnaissance vehicles are also being branded ISTAR, even as many of the Army's principal intelligence units have been amalgamated into a new 1st Intelligence, Surveillance and Reconnaissance Brigade. See, variously Commons Defence Committee *Eighth Report of Session 2015-16: SDSR 2015 and the British Army* HC 108 (London: HMSO 2017) pp.20, 42; British Army *Force Troops Command: Overview and Brigades* p.10 https://britisharmedforcesreview.files.wordpress.com/2013/11/force-troops-command-overview-and-brigades.pdf.

[109] Davies and Gustafson 'Intelligence and Military Doctrine' pp.31-32.

[110] See NSO *Allied Joint Publication 2: Allied Joint Doctrine for Intelligence, Counterintelligence and Security* Edition A Version 2 (Brussels: NSO, 2016) p.3-8, and NSO *Allied Joint Publication 2: Allied Joint Doctrine for Intelligence, Counterintelligence and Security* Edition A Version 2 (Brussels: NSO, 2020).

[111] James Bosbotinis 'Hypersonic Missiles to Make Surface Ships Extinct?' *Warships: International Fleet* Review February 2018 pp.11-12. Bosbotinis evan-handedly opted for ISR instead in a subsequent article specifically on Chinese systems 'China Gears Up for a Hypersonic Future' *Warships: International Fleet Review* October 2019 p.10.

[112] This was a recurrent witticism from several quarters during the production of JDP 2-00. A minor point made by *Pathfinder* is the assertion that, unlike ISTAR, 'ISR has become a word – not an acronym' in a manner 'much like RADAR' ('What is ISR' p.2). To the contrary, ISTAR was clearly 'a word' *exactly* like RADAR from the day it was coined in the mid-1990s. A popular quip in response to RAF pronouncements on C-ISTAR during the production of JDP 2-00 was: 'But what would *non*-combat ISTAR look like?'

[113] NSA *NIIA Terms and Definitions* A-92 *infra*.

[114] Ferris' seminal 'Netcentric Warfare, C4ISR and Information Operations' p.204.

[115] On the evolution and increasingly significance, see e.g. David E. Johnson *Military Capabilities for Hybrid War Insights from the Israel Defense Forces in Lebanon and Gaza* (Santa Monica: RAND Corporation, 2010) and Kier Giles *Russia's 'New' Tools for Confronting the West Continuity and Innovation in Moscow's Exercise of Power* (London: The Royal Institute Of International Affairs, 2016).

23