



Theater Land Operations—Relevant Observations and Lessons from the Combined Joint Land Force Experience in Iraq

戰區陸上作戰之分析

——對伊拉克聯軍陸上部隊作戰經驗觀察及省思

譯者簡介



鄧忻傑備役少校，管院專9期、國防大學政治作戰學院英文正規班、中原大學企管研究所碩士；曾任排長、連長、地區補給庫分庫長、教準部編譯官，現任特約翻譯、華語、英語專業領隊及導遊。

本文作者：美國陸軍中將Gary J. Volesky，曾歷練軍團以下各級指揮官，及路易斯-麥克喬德聯合基地指揮官，畢業於李文沃斯堡美國陸軍指參學院，以及位於阿拉巴馬州麥斯威爾空軍基地的空軍戰爭學院。此外，還擁有東華盛頓大學學士，及普林斯頓大學碩士學位。

澳洲陸軍少將Roger Noble，曾歷任美國陸軍太平洋副指揮官，及聯軍指揮單位多項作戰職務，擁有3個碩士學位，及1個一級榮譽學位。2017年在伊拉克擔任聯軍陸上部隊指揮部下轄作戰部門副指揮官。

本文出處：軍事評論月刊網路專用版，2017年7月出版

In 2016, the campaign to destroy the Islamic State as a fighting force while also pushing any remaining fighters out of Iraq was in full swing. The combined joint force land component command (CJFLCC) in charge of the joint fight during Operation Inherent Resolve was based on the headquarters of the 101st Airborne Division, but the mission differed notably from previous division-level efforts during the coalition-led counter insurgency fight in Iraq. As a combined joint land component, it was the lead agency for a nineteen-nation coalition that supported combat

operations across the entire country, and it was the principal interlocutor and liaison with the Iraqi Security Forces (ISF) leadership. The ISF consisted of a combination of Iraqi army, air force, special operations forces, and police who together provided the essential and decisive but finite ground-maneuver component. Throughout 2016, they conducted large-scale offensive maneuver-and-hold operations to clear Daesh (a derogatory Arabic language acronym for the Islamic State) from the Euphrates and Tigris River valleys with an emphasis on the principal urban areas including Fallujah and Mosul.

2016年時，戰鬥部隊摧毀伊斯蘭國，以及將伊拉克境內殘餘伊斯蘭戰士驅離的軍事行動，正如火如荼地同時進行。在代號為「堅定決心行動」中，聯合部隊陸上指揮部(CJFLCC)以101空降師為骨幹主導行動，但這次任務與以往在伊拉克執行的師級聯合反暴亂軍事戰役，有很大的不同。作為聯合作戰陸上部隊主導單位，CJFLCC不但要協調伊拉克境內19國聯軍的軍事行動，還得負責跟伊拉克安全部隊(ISF)指揮階層的聯繫與對話。ISF是由伊拉克陸軍、空軍、特戰部隊和警隊組成，負責執行重要、決定性與有限功能任務的陸上作戰單位。整個2016年，ISF執行了數次大規模攻擊性拘打配合行動，在幼發拉底河與底格里斯河谷肅清「達伊沙」(阿拉伯語中伊斯蘭國的同義詞，但有貶義)，其重點置於包括法魯賈和摩蘇爾等城市的主要城鎮地區。

The CJFLCC mission was focused on the military defeat of Daesh and required a diverse and active advise-and-assist network. Mission accomplishment necessitated the establishment of combined, joint, and supporting fires; intelligence, surveillance, and reconnaissance (ISR) capabilities; and logistical networks to enable ISF operations. This was supported by a force generation effort to prepare, train, and equip key units of the ISF for combat against Daesh. The CJFLCC was a principal integrating node at the upper tactical and operational levels inside Iraq, and it held and exercised significant authorities and influence over the coalition support to the ISF-led campaign. The CJFLCC operated across all domains and, to some extent, functioned as a key integrator across all domains. For example, even in this largely landlocked tactical fight, maritime ISR, fires, and strike effects launched from the sea made a significant and sustained contribution to the CFLCC mission.

聯合部隊陸上指揮部的任務，主要是在軍事方面擊敗達伊沙，並獲得更多有效的建議和協助網絡。完成任務需要建構聯合與支援火力、情監偵能力，以及後勤網絡讓伊拉克安全部隊具備相關能力。這有賴投注心力來準備、訓練、裝配伊拉克安全部隊中的關鍵單位，以利對抗達伊沙。在伊拉克境內，聯合部隊陸上指揮部是戰術與作戰階層的整合



節點，對伊拉克安全部隊負責執行的聯合支援相關任務，有管制或放行的主要權力與影響力。聯合部隊陸上指揮部在作戰全境執行任務，有時其角色甚至擴大成全境軍事任務的關鍵整合者。舉例來說，在內陸的戰術行動中，有時都會動用到海上的情監偵、火力，以及從海上發起的打擊效能；對聯合部隊指揮部來說，這些都是達成任務的重要依靠。

In this situation, the CJFLCC came head-to-head with the nature of the modern battlefield as it operated against a capable, though not near-peer, enemy whose grasp of action across domains, including cyber and human, was notably high. The year 2016 saw the marked degradation of Daesh inside Iraq as the ISF successfully retook 60 percent of the ground previously lost. This fight has significant lessons for future warfare, including some that may inform the nascent multi-domain battle (MDB) concept.

在這種狀況下，聯合部隊陸上指揮部在現代戰場中，與有能力跨區域在網路和實體作戰中掌握行動，卻又與我軍戰力有些差距的敵人，當面對峙的機會就變得很高。2016年，在伊拉克安全部隊奪回先前失去的60%土地時，我們見識到伊拉克境內的達伊沙明顯潰敗的景象。這場戰鬥，對某些發展尚未完備的多領域戰鬥概念來說，是面對未來衝突很重要的一課。

Lessons Learned 經驗教訓

Success in 2016 was in part due to MDB-style cross-domain application of capabilities integrated with "old school" ISF-led close combat. To properly share significant lessons learned from this fight, we provide the following key observations.

2016年的光榮勝利，部分原因是伊拉克安全部隊主導的近接戰鬥只用「老式戰法」，卻能與多領域戰鬥型態下的跨領域戰力運用方式有效整合。為了分享該場戰鬥的經驗教訓，我們提出下列重要的觀察所得。

Observation 1: Global capability sourcing is now the norm. Geography is less of a constraint on sourcing capabilities than at any time in previous history. While physics still applies to constraints, particularly in air, land, and sea, the options to source a diverse range of capabilities globally is now a reality. The range and reach of the physical domain capabilities are at a historical high, and the cyber and human domains are not limited by time or space. Coalition

force contributions are also now more diverse and add value as multiple options exist across the domains. For example, some nations have different legal frameworks that enable action in cyberspace or in the information environment more quickly or with fewer constraints. This had a direct tactical and operational impact inside Iraq during 2016. Instant and ubiquitous modern communications and information technology have compressed the boundaries between the strategic, operational, and tactical levels. And, in some domains such as cyber and human, the boundaries can be meaningless or at least blurred.

觀察一：從全球各地獲得資源挹注於戰力已成常態作法。比起以往，地理因素對資源獲得來說，已經不再是多大的限制。雖然實體空間還是會造成限制，特別是空中、陸地和海上，但從全球大範圍獲致各種不同能力，目前已經成為現實。實體能力所及的射程或範圍，現在已是史上最遠，但不論是網路或人類所能企及的領域，都不會受時間和空間所限。當跨領域的諸多選擇成為事實，聯合部隊所能發揮的貢獻，不但更多元，價值也更高。舉例來說，許多國家都有不同的合法架構，在網路空間或資訊環境中，以更快速或更不受限制的方式採取行動。這在2016年的伊拉克，造成了戰術與作戰階層的直接衝擊。即時且無所不在的現代通訊、資訊技術，將戰略、戰術與作戰階層的範圍不斷壓縮。甚且，在某些領域，例如網路和人際，領域的概念逐漸失去意義，或至少是漸漸模糊。

Observation 2: The human domain is of preeminent importance, and it is the key to both victory and defeat. Operations in Iraq in 2016 once again confirmed the basic observation that wars are fought by people for human ends and purposes. This has long been a central tenet in both Eastern and Western theories of war; ultimately people (on both sides) decide whether they have won or lost, not platforms or systems.¹

觀察二：人際領域具備顯著的重要性，且是勝敗的關鍵。2016年發生在伊拉克的戰鬥，再次確認的基本觀察是，戰爭是人在執行的，結果與目的也要由人來定義。不論是東方或西方的戰爭理論，這已是長久以來的中心原則。最終是勝是敗，(東西方都認為)應該由人來決定，而不是取決於平台或體制。¹

The nature of the human relationships between the coalition force and the ISF (plus a diverse range of other stakeholders) was pivotal to mission success. While this is always important, the

1 Michael I. Handel, Sun Tzu and Clausewitz: The Art of War and On War Compared (Carlisle Barracks, PA: U.S. Army War College, 1991).



2016 situation served to drive home the criticality of human relationships. This time, the ISF was unequivocally in the lead, and only the Iraqis had the means and authority to close with and destroy the enemy on the ground in close combat, arguably the priority requirement for campaign success. This time, coalition forces could not do it themselves; they had neither the force nor the authority to do so. Therefore, the coalition advise-and-assist purpose was, at its heart, designed to assist the Iraqis to grow and field the levels of organizational confidence, trust, and respect necessary to win against this enemy on this ground. This was a human/cognitive objective. The innumerable daily connections and interactions that took place around the planning and execution of the campaign against an unconstrained, ruthless enemy were absolutely central to Iraqi success and confidence. We watched and engaged at multiple levels (battalion to Army) and in many places. Over nine months, we witnessed the Iraqis begin to understand and then firmly believe that they could and would win.

聯軍和伊拉克安全部隊（再加上其他多方利益團體）間的關係，對任務成功至關重要。雖然這種重要性一直存在，但以2016當年情勢而言，人際關係確實具有關鍵性。當時，伊拉克安全部隊無疑是行動主角，只有伊拉克人有管道和權力決定在陸上近接戰鬥中是否要摧毀敵人，以及完成任務的優先執行順序。如此一來，聯軍不能光靠自己力量去打仗，不但兵力不敷使用，也無法自行授權來執行任務。因此，聯軍將協助和建議的重點，擺在讓伊拉克人培養出在地面戰中擊敗敵人所需的組織信心、信任與重視程度。這是一種人際／認知層面的目標。在任務規劃與執行期間，無數次日常的聯繫與互動，確實在提升伊拉克人成功信念與信心，以擊敗不受規範又殘忍的敵軍這方面，發揮了非常關鍵的作用。這種改變，我們在許多階層（從營到軍團）、許多地方都執行過，也見證了其效果。在9個月的期間，我們看到伊拉克人開始瞭解並堅信他們可以，而且即將勝利。

The human network and the method of maneuvering and influencing across and through it to build a collective organizational outcome is dynamic and endless, and it is arguably more complex and difficult than any military technical synchronization challenge. Information and capabilities from all domains operated together to achieve this human, cognitive, and emotional outcome. Perhaps the ultimate marker of success was the Mosul counter attack plan and orders, written and issued in October 2016 by Iraqis to Iraqis with coalition commanders sitting respectfully to the side and listening. At this moment, we clearly knew they would take Mosul-no easy challenge-and defeat this enemy. If, as Carl von Clausewitz suggested, war is an act of violence to compel our opponent to do our will, then the Iraqis had reached a tipping point in their ability to compel that

had been building and growing since the recapture of Ramadi almost a year before.² The coalition contribution exercised a major influence on the rate, nature, and strength of this Iraqi human and organizational evolution.

人際網絡，與其操作和影響的方式，所造成的集體組織結果，不但時時變動，還是無休無止的。這無疑比任何軍事技術同步化挑戰，都要來得更為複雜。來自所有領域的資訊和能力共同運作，以獲致人際、認知和情感方面的成果。或許人們對這次成功的行動，記得的只是2016年10月，由伊拉克人和聯軍指揮官正襟危坐撰寫和批示的摩蘇爾反擊計畫與命令。在這一刻，我們清楚知道他們可以拿下摩蘇爾——這是相當困難的挑戰——並且擊敗敵軍。假使，正如克勞賽維茲所說，戰爭目的是以暴力手段迫敵追隨我之意志，可以想見伊拉克人在將近兩年以前收復拉馬迪之後，已經盡了最大努力，勉力經營並塑造相關形勢。² 在這段過程中，聯軍致力於對伊拉克的人員與組織在占比、類別和效度各方面進行改造，並獲致預期成就。

Observation 3: Multi-domain capabilities are now applied at every level from strategic to tactical. Gone are the days where a localized battalion or company attack relied almost exclusively on capabilities that were provided by the parent brigade or division (e.g., infantry, armor, artillery, engineers). It was common practice in 2016 for action at the lowest tactical level to be directly supported by nationally and coalition sourced multi-domain capabilities (e.g., ISR, information operations [IO], cyber, electronic warfare [EW], military deception, and others). Often this occurred without the direct knowledge or input of the tactical maneuver force itself. In one attack against Daesh forces near the town of Sharquatt in late 2016, a multinational full-spectrum application of strike, IO, EW, cyber, public affairs, and military deception around a small "economy-of-force" Iraqi ground maneuver force caused the enemy to break and run without fighting. Kinetic fires were comprehensively integrated, and the result approached very close to the MDB ideal. The fires solution was effectively "service agnostic," and was often selected from a range of options sourced from across a coalition joint force.

觀察三：從戰略到戰術各層級，都在運用多領域能力。以往，派駐各地的營或連進行攻擊時，大多倚賴其直屬上級旅或師級單位(例如步兵、裝甲、砲兵、工兵)的協助支援。2016年的行動中，最低階戰術單位，都是直接由國家級或聯軍為主體的多領域能力(例如情

2 Carl Von Clausewitz, *On War*, trans. Michael Howard and Peter Paret (New York: Oxford University Press, 2007), 31.



監偵、資訊戰、網路、電子戰、軍事欺敵與其他)直接支援。這種支援方式，戰術執行部隊本身對細節不見得知情。2016年底，在沙夸特鎮附近，對達伊沙部隊進行的一次攻擊行動中，來自多國全方位的作戰挹注，包括火力打擊、資訊戰、電子戰、網路、民事，以及軍事欺敵全都來幫助一個伊拉克小型簡裝陸上部隊，讓敵人不戰而逃。各方面的活躍攻擊經過充分整合，所造成的戰果非常接近多領域戰鬥(MDB)的理想狀態。這類的火力方案是很有效的所謂「跨系統通用支援」，經常是由多國聯軍從諸多選項之中，挑選出來運用。

A large scale, comprehensive, and successful example of MDB was evident in the advance to secure Qayyarah Airfield West, which involved a multi-division advance by the ISF and a contested river crossing of the Tigris using, at the time, all available Iraqi major tactical bridging assets. This advance and attack was enabled and supported by the application of capabilities in all domains drawn from organizations and sources from the strategic to tactical levels. Comprehensive IO, EW, PA, counter-improvised explosive device, and military deception assets integrated with a multi-target strike sequence, drawing on the full set of lethal and nonlethal capabilities to destroy, degrade, and influence enemy target sets in depth. This package of capabilities was integrated and synchronized around the ISF maneuver plan and aimed directly at the full range of threat vulnerabilities.

多領域戰鬥有一個大規模、全面性的成功案例，發生在摩蘇爾附近夸亞拉空軍基地保衛戰的先期部署。這是伊拉克安全部隊為爭奪底格里斯河流域，所採取的多重分區部署規劃，所有能派上用場的伊拉克主要戰術單位都投入了。這次機動與攻擊，由各個領域的各組織與各種資源，從各種專業加以挹注，範圍包括戰略到戰術各階層。全面性的資訊戰、電子戰、民事作為、簡易爆炸裝置反制措施，以及軍事欺敵都整合到多目標打擊序列之中，引入一整套致命與非致命火力，對敵人縱深目標加以摧毀、削弱與牽制。我們必須全面掌握敵人弱點，並以伊拉克安全部隊兵力運用計畫為主軸，尤其要注重整合與同步作業，才能具備這種全方位作戰能力。

Observation 4: Expanded capability options are now drawn from beyond traditional military and national boundaries. The traditional military maneuver means and fires are as critical as ever, but they can now be augmented and amplified in ways that are quite literally only limited by the imagination. Many of these capabilities are delivered by nonmilitary agencies and by other countries or actors. The net effect is that options to exploit enemy vulnerabilities-directly or indirectly, lethally or non-lethally-have expanded. Their combined and synchronized application

offers a way to exponentially amplify the overall effect on an adversary.

觀察四：廣泛的戰力運用方案，已不在原有軍事與國家之控制範圍以內。傳統的軍事作戰方式與火力，還是與以往一樣重要，但是現在它能擴展、放大到超越我們的想像力。這些能力之中，許多都來自非軍事機構、其他國家或利益團體。淨效應就是這些方案可以充分利用敵人的弱點—直接或間接、以致命或非致命方式—並加以擴大。聯合並同步運用這些方案，對敵人可以造成幾何級數的破壞效果。

The MDB focus on joint integration is entirely correct but needs to be further expanded beyond military and national boundaries. This requires finding new ways to access and apply the full range of available capabilities. The premier example of this in Iraq 2016 was the evolution of a "new," holistic way of looking at targeting that evolved to encompass and apply all possible means to defeat the enemy. The "old" ideas of kinetic and non-kinetic, and lethal and nonlethal, proved inadequate to capture the full range of options available. Traditional kinetic targeting was merged with the application of "all available means" capable of informing and influencing the enemy and the operating environment. This had to be founded on a comprehensive understanding of the enemy, the operational environment, and the friendly force set. Systemically, it also led to the breaking down of traditional specialty "silos" to build an "all means" approach to targeting enemy vulnerabilities through all domains. This is likely to remain one of the pivotal skills on any future multidimensional battlefield.

多領域戰鬥置重點於共同整合完全沒錯，但還是需要突破軍事與國家的界線，進一步加以擴大。這需要尋求新方法去獲得並運用所有可用能力。2016年伊拉克的例子，就是利用新的方式尋求並標定、運用所有可能方法擊敗敵人。許多老方法不論是動能或非動能、致命性或非致命性，經證明並無法有效將所有可能選項納入使用。傳統的動能標定方式，是將「所有可用方法」加以融合運用，通報及影響敵情與作戰環境。這有賴於對敵人、作戰環境，以及相關友軍全面的瞭解。從整個系統上來說，這種改變將會導致傳統辦法失效，轉而尋求建立全方位方式，從各個不同領域找出敵人弱點。這有可能讓未來多維度戰場的掌控，成為最重要的操作技巧。

Observation 5: Federated planning, trusted information sharing, and decentralized action-is the new norm. Most practitioners in complex, contemporary land operations can relate to the expression "herding cats." One look at the coalition and "other" liaison officer set in Erbil, the capital of Iraqi Kurdistan, at any time during 2016 would cement this image. There is a now a



need to do even more and find a way to get those same "cats" to run as a pack of wolves.

觀察五：運用同盟聯合規劃、可靠資訊分享與授權行動已成為新的作戰趨勢。大部分在複雜的當代地面作戰中的參與者，都會讓人聯想到一個形容詞——「牧貓」（譯註：因為貓的個性獨來獨往不合群，美國人用「herding cats」這個俚語來形容難搞的任務，有別於輕鬆的牧羊工作，或形容某些人孤僻不合群，難以管理）。任何一位聯軍成員，看到其他2016年駐防在庫爾德斯坦首府埃爾比勒的連絡官，都會同意這種說法。時至今日，情況更為惡化，要做的事情更多，還得找到方法將以往這群貓當成一群狼來管理。

Given the Daesh enemy, our range of modern capabilities, and the nature of the Iraq mission, a federated planning and decentralized execution model within a common mission framework proved essential.³ There was no centralized, detailed control option on the table; the world was just not like that. We learned one may not own or even see those who apply a particular capability in support of an operation. They may not be military or even in your national force structure. They may not have identical mission end states but rather carry an overlap in interests or a discrete set of limited common objectives. You may have limited or no authorities over their employment. In this environment, it is the commander's priorities combined with the mission objectives, extant authorities, and a federated planning approach applied around a common battlefield framework that enables effective decentralized action by multiple actors. This in turn allows for the widest range of capabilities to be applied in real time without detailed centralized direction or control. (This is not to undersell the ongoing essential requirement for command-directed, relentless synchronization and orchestration by the staff, especially in the traditional military capability lanes.)

就達伊沙敵軍、我方現代能力可及範圍，以及伊拉克境內任務本質等諸多因素考量，在一個通用任務架構下，證明同盟聯合規劃與分權行動的模式是非常重要的。³ 檯面上並沒有所謂集中式細節管制的選項，真實狀況不會是這樣的。我們都知道，沒有誰能擁有或能

3 American Heritage Dictionary online, s.v. "federate," accessed 31 May 2017, <https://www.ahdictionary.com/word/search.html?q=federate>. Federate is defined as "to cause to join into a league, federal union, or similar association." Federated planning is defined here as planning and analysis for the achievement of a common purpose by a diverse range of multiple actors and entities drawn from both within and without the lead planning organization. Federated planning in Iraq would regularly be led by the combined joint land component but would involve and draw inputs from a diverse range of coalition, Iraqi, national, interagency, international, and nongovernment actors, entities, and organizations.

運用單一能力，就可以支援作戰。如果有，這應該不是軍方人員，或是在你的國家部隊架構之下。他們或許有不同的任務目標，只是有部分相同的利害關係，或是某些共同目的，但終究你在他們的任務過程中使不上力。在這種狀況下，身為指揮官就要以整合任務為優先，在多方陣營中，運用其本身權力，在通用戰場架構下執行同盟聯合規劃，使分權行動達成預期效果。能做到這樣，就可以將相關能力最大程度加以即時運用，不必受限於枝枝節節的集中指導與管制（這並不是對執行重要指揮任務，或是兢兢業業投入同步協調的幕僚工作有所貶損，尤其是傳統軍事專業這一部分）。

Ultimately, all stakeholders will act either as directed or because it is in their mutual interest to do so, and they must all be enabled through federated planning, a common intellectual framework, and constant communication and information sharing. Only then are they free and able to run as members of a pack.

最終，所有各方陣營為了可能是經上級指導，或基於彼此共同利益考量，在聯合規劃、共同知識架構、即時溝通與資訊分享的條件之下，才能做好他們的事。只有這樣，大家才能稱作一個自由共同運作的團隊。

Observation 6: Nontraditional command-and-control solutions are the new way to do business, and self-synchronization is increasingly important. Falling directly from **Observation 4** is a need to rethink command and control (a military idea) for the multi-domain battle-space. The standard Army solution is to "own" a capability through traditional command and control (C2) arrangements such as operational or tactical control, or to have direct authorities over its employment. Plans are nested and initiated by formal orders based on a hierarchy of authority. Throughout 2016, this traditional approach remained critical, especially in relation to the execution of the decisive ground maneuver fight. The highest risks were incurred in the close combat maneuver fight, and the CJFLCC focus was supporting the ISF's effective application of their finite ground combat force inside an enabling "bubble" of multi-domain shaping support. A principal function of the CJFLCC remained the careful synchronization of effects in support of the main effort ISF close combat force.

觀察六：非傳統指管是執行任務的新方向，而自我同步的重要性越來越高。在觀察四裡面發現，（從軍事思維）重新思考傳統軍事的指揮與管制，對於多領域戰鬥空間的任務執行很重要。標準的陸軍看法，認為一定要「擁有」傳統指揮管制的的能力，如作戰、戰術管制，或必須對用兵指揮有直接權力，方能為之。作戰計畫還是要透過命令下達，與層層節



制的方式來規劃或制定。由2016一整年經驗來看，這種傳統方式雖然還是很重要，尤其在執行決定性陸上機動作戰時。不過這當中，特別是在近接戰鬥機動作戰時還是有風險。聯合部隊陸上指揮部(CJFLCC)置重點於支援伊拉克安全部隊能有效運用境內有限的地面部隊，並確保有限空間內的多領域形塑支援可以發揮功效。聯合部隊陸上指揮部主要功能，還是在支援伊拉克安全部隊主力近接戰鬥單位時，小心維持住同步效力。

The Iraq 2016 experience also revealed that traditional C2 is not the only way to do business in the modern multi-domain battle-space. Unity of effort remained the essential requirement and needed to be achieved even when traditional unity of command was incomplete, imperfect, or not possible. Command relationships (the human dimension) proved critical and were founded on close personal interaction and open communication between the critical actors regardless of the stated formal C2 status or line diagram. One look at most C2 diagrams of the last fifteen years tells you it is not a simple matter of "working for the boss." For example, no tactical commander will ever own another nation's offensive cyber capability or special IO capabilities, but you can set conditions for their integrated employment via inclusive federated planning and clear communication. This allows those stakeholders with similar objectives to independently operate in a way that amplifies and reinforces your organic capabilities. In short, it allows for self-synchronization to achieve a unity of effort around common objectives and established priorities.⁴ At its most limited level, it can actively defend against inadvertent friendly fratricide.

2016年在伊拉克的經驗也顯示，傳統指揮管制在現代多領域戰鬥空間中，並非執行任務唯一方式。相互協同仍是重要的要求標準，即使傳統式指揮的一致性並不完備、不完整，甚至不可能達成，這個標準還是要努力追求。指揮關係(從人的角度來說)在緊密的人際

4 Vice Admiral Arthur K. Cebrowski and John J. Garstka, "Network-Centric Warfare: Its Origins and Future," Proceedings 124, no. 1 (January 1998): 28-35. The authors defined self-synchronization as "the ability of a well-informed force to organize and synchronize warfare activities from the bottom up. The organizing principles are unity of effort, clearly articulated commander's intent, and carefully crafted rules of engagement. Self-synchronization is enabled by a high level of [knowledge of] one's own forces, enemy forces, and all appropriate elements of the operating environment. It overcomes the loss of combat power inherent in top-down command directed synchronization characteristics of more conventional doctrine and converts combat from a step function to a high-speed continuum." Self-synchronization is defined here as doing the right thing at the right time for the right reason without having to be directed by someone higher in a/the chain of command.

互動與開放式溝通中，已經證明非常關鍵，即使重要利益團體之間並不理會正式的指揮管制規範。我們發現最近15年來，大部分指揮管制關係已經不再是單純的「為老闆工作」。舉例來說，沒有一位戰術指揮官曾經掌握另一個國家的網路攻擊能力或特殊資訊戰能力，但情況需要時，可以透過包含同盟聯合規劃以及明確的溝通，達成行動整合。這也讓那些有相同利益的不同陣營在獨立運作時得以強化其具有的力量。簡單來說，各陣營可以靠著自發同步，在共同目標和優先次序上齊心協力。⁴至少，這樣可以主動避免同陣營間，造成誤擊友軍事件。

Authorities always remain critically important because they set the control and influence held by a commander by function or in time and space, and they provide great leverage to encourage and regulate the actions of other organizations over which the commander may have little or no direct control. The importance of C2 and authority design and the level of delegation cannot be overstated. For example, the vesting of deliberate strike authority inside Iraq with the CJFLCC commander served as a forcing function for cooperation and drew many actors into a conversation about objectives and mutual interest. The absence of an authority at your level does not mean that capabilities cannot be sourced but rather reemphasizes the importance of federated planning and trusted information sharing. Where authorities are held higher, work needs to be done to ensure the necessary capabilities can be accessed and synchronized in a timely manner. For example, one smart colonel observed, "It is far easier to drop a bomb in this theater than it is to send a tweet."⁵ He was right, and we need to work on either the delegation of authorities or establishing mechanisms where capabilities can be appropriately and effectively accessed through the directed authorities structure.

權力很重要，因為它對指揮官所專有的控制和影響力，經由職權行使，或時間、地點的分配與選擇，對那些難以直接掌控的單位，可以有效的鼓動或規範其作為。指揮管制及職權制度的重要性與授權的程度，必須小心拿捏。舉例來說，伊拉克境內只要涉及周密打擊計畫的分權，聯合部隊陸上指揮部指揮官會將其視為強制性的合作事項，邀集各方陣營商討任務目標和共同利益。權力所及，就必須確保工作能順利完成，必要的戰力也能在所望時間同步到達。比如說，曾有一位聰明的上校觀察到「在這個戰區丟下一枚炸彈，遠比發一則推特要簡單得多」。⁵他說得沒錯。我們必須做到要嘛就是妥適分權，不然就在直接

5 J5 combined joint force land component command, comment to author Maj. Gen. Roger Noble, June 2016, Baghdad.



職權架構下，適切有效的發揮功能。

Observation 7: A disciplined, systematic framework that binds the strategic to the tactical is as important as ever. Given the complexity of multiple actors and capabilities operating from the strategic to the tactical levels, the importance of a clear, disciplined framework around which capabilities can be effectively and efficiently applied, organized, coordinated, and self-synchronized is paramount. This is not a new idea, but the experience of Iraq 2016 has served to reinforce this as a fundamental requirement in future multi-domain battle. There is a need to define fights at echelon and for shaping operations in a way tailored to each mission.

觀察七：透過周密嚴謹及系統化的作戰架構鏈結到戰略、戰術所有階層，仍是當前備受重視的觀念。從戰略到戰術各層級，多方陣營所具備的不同能力，有一個明確、紀律嚴明的架構來確保各種能力都能有效的投入、組織、協調與自我同步，其重要性無可取代。這並不是個新想法，但2016年在伊拉克的經驗顯示，在未來多領域戰鬥中，這個基本要求相當重要。這是因為有必要區分出每一次戰鬥適合哪個階層來執行，並將任務妥適分派。

The development of a battlefield framework in Iraq in early 2016 based on the doctrinal close, deep, and rear construct was central to creating a common targeting picture that enabled federated target development and the application of multiple means-lethal and nonlethal-in a coherent way. It also allowed a nesting of inform-and-influence efforts by multiple actors from across the coalition and those who were operating from both inside and outside of Iraq. Even without direct interaction between actors, the framework allowed self-synchronization and de-confliction. This also provided a mechanism through which the employment of scarce assets such as ISR and strike could be regulated and applied. Also pivotal to dealing with the complexity and range of cross-domain action by multiple actors was the development and employment of a purpose-designed assessment methodology that was tailored to mission and grounded in a systematic analysis of measures of both effectiveness and performance tied tightly to mission objectives.⁶ This is another example of difficult but essential work that remains, probably forever, a mix of art and science.

6 於下頁。

2016年初，伊拉克作戰的戰場框架發展，是按照準則律定的近接作戰地區、縱深作戰地區與敵後方作戰地區架構，使得同盟目標發展，以及多手段運用成為可能——不論是致命或非致命——但都要在協調一致狀況下。它也允許聯盟各國，以及伊拉克境內境外各不同陣營，將其能力與資訊分享出來。即使各方勢力並沒有直接交流，這個架構也能讓各方自我同步，藉以減少衝突。該架構也提供了一個機制，當資源缺乏的一方，例如伊拉克安全部隊要實施打擊時，可以依照規定實施申請。與多方勢力處理跨領域行動的複雜性與廣闊範圍同樣重要的，是以目的為導向的評估方式，並以系統性分析為依歸，在兼顧效能與結果的雙向要求下部署與執行，確實完成任務目標。⁶ 這是困難但重要的工作，可能永遠是融合藝術與科學的標準案例。

Based on the Iraq experience, there is an unequivocally clear need for the multi-domain battle-space to operate around a battlefield architecture and systematic framework that allows and supports the effective and efficient application of all capabilities.

以伊拉克經驗為基礎，可以明確看出具備戰場組成與系統性架構特性的多領域戰鬥空間，不但允許，甚且需要所有具備效能的技術與能力，有效予以支援。

Observation 8: Policy, procedures, and systems have a critical impact on mission accomplishment. What can practically be done is heavily influenced by an organization's policy, procedures, and systems. By their nature, these things are historical. In the case of command, control, communications, computers, and intelligence systems, they are complex, extensive, and expensive. One primary lesson from Iraq 2016 is that there is a need for a "first principles" review of policy, including doctrine, procedures, and systems in the light of the multi-domain reality.⁷ One obvious weakness remains information sharing across organizational and national boundaries. Despite fifteen years of war, the bureaucracy remains a twentieth century design that is slow, rules based, and formulaic. This is an international problem that requires a concerted relook by multiple actors, agencies, and nations. It will certainly take hard work and may mean

6 A campaign assessment methodology is the process and system designed and implemented to assemble data and input that allows for the ongoing systematic analysis of the effectiveness and efficiency of campaign execution in pursuit of the specified mission objectives. A robust assessment methodology allows for a systematic ongoing review of progress and the identification of critical issues, and it facilitates and assists in the timely and targeted command-directed modification of the plan in response to the real-world outcomes of campaign execution.

7 於下頁。



carrying the fight against traditional gatekeepers, but it needs to be done before the next big fight.

觀察八：政策、程序與系統對於達成作戰任務，依然具有舉足輕重之影響。組織中的政策、程序和系統，對於能完成哪些事項有著重大影響。從其本質上來說，這是有脈絡可循的。以指管通資(C4)和情報系統為例，不只複雜、範圍廣闊，還很昂貴。從2016年在伊拉克作戰的重要經驗可知，「首要作戰指導原則」就是要檢討政策，包括多領域戰鬥實戰應用準則、程序與系統。⁷跨組織和國境的資訊分享，至今都還存在一個明顯弱點。雖然已歷練過15年的戰爭，官僚系統還維持著二十世紀緩慢、凡事依規定的刻板設計。這在各國都是一個問題，需要靠各方勢力、各個組織和國家一起來重新審視。這必定是個困難的工作，意味著會對傳統作法帶來衝擊，但是，這有必要在面對下一次大規模戰爭之前，予以改正。

Shared understanding and situational awareness provide a further absolutely pivotal example of requirements that are central to allowing effective and efficient multi-domain capability application. During 2016 in Iraq, the on-the-run development of a CJFLCC off-the-shelf, coalition-accessible, software-generated common operational picture was central to galvanizing coherent action and ensuring effective force protection. Once built, this tool spread like a positive systemic virus and grew as more and more agencies (higher, lower, and lateral) tracked it or contributed directly to it. It allowed multiple actors to "see" the fight from wherever they were located globally and to focus their efforts around friendly force "truth." It was one simple tool that had a far-reaching positive impact because of the shared understanding it generated.

分享戰場理解和狀況覺知，對於多領域能力的高效運用，絕對是不可或缺的要件。2016年在伊拉克期間，聯合部隊陸上指揮部一直在關注的發展，是聯軍內部就可完成的、透過軟體驅動的現成共同作戰圖像，就是專注於促進一致性行動，並確保有效的部隊防護。一旦這種機制上軌道，就會像活性強大的系統病毒一般，在更多單位(上級、下級或同

7 A "first principles review" is an analysis of a policy without immediate deference to previous/standing convention, policy, and thinking. It is a review from scratch and through an analysis of its core elements. The focus of this type of review is on the primary purpose in order to construct a solution that works in the contemporary context: what are we trying to do, why, and how do we best do it; not, what do we do now and how could we adjust? This does not mean disregarding mandated legal or policy requirements, but it can include scrutiny of those requirements and actions to modify the law or policy if this is considered essential or necessary.

級友軍)之間滋生流竄，不斷產生影響。這會讓其他多方勢力「看到」全球各地發生的戰鬥，並致力於達成友軍部隊的要求。這說明即使是一個簡單的工具，因為戰場理解能充分共享，也能產生無遠弗屆的正面效應。

Observation 9: The quality of people remains the most important element. Not everyone can handle complexity, especially under pressure and in a high threat, time-constrained environment. This is not a new observation, but it remains a fundamentally important one. Iraq-style MDB in 2016 needed complex-problem solvers who were able to overcome institutional and intellectual boundaries. For example, one National Guard captain almost single handedly corralled the plethora of IO stakeholders and linked them to both the coalition plan and the Iraqi psychological operations network. There was no textbook or doctrine for that. Simultaneously, more senior and experienced personnel struggled with "how to get anything done in this place." The clear need is for resilient, critical thinkers who are good with humans and who are self-aware, determined, and output focused. People need to be adaptable (able to do new things), versatile (able to do many things), and agile (able to change what they are doing quickly). The specialists need to be more general and the generalists more interested in specialties. We need an end to silos, or at least we need permeable walls. The key is selection, training, and especially education and then experience. As stated above, not everyone is able to handle the challenges of the MDB operating environment, and the capacity to do so cannot be assumed. Such capacity is not especially resident in any particular unit, branch, or culture. Everyone needs testing and developing in a battle-lab-style exercise and intellectual environment that will prepare them for the challenges of MDB in practice.

觀察九：人員的素質還是最重要的因素。不是每個人都能在高壓力、高威脅，時間又不足的環境下，妥善處理複雜狀況。這不是甚麼新發現，但是真的很重要。類似2016年在伊拉克的多領域戰鬥型態，需要能夠克服制度和知識界線的問題解決者。舉例來說，美國國民兵一個上尉，就有能耐在幾乎獨立作業情況下，將資訊戰相關各方陣營統合起來，並將他們納入聯軍計畫及伊拉克心理作戰網絡之中。沒有一本教科書或準則會教這些東西。同一時間，有更多具有豐富經驗的資深人員都在想方設法「如何將每件事做好」。很明顯，我們需要的是做法有彈性、具備關鍵思維、善於融入人群、自我覺知、有決心，又具備執行力的人才。我們需求的人才要有適應能力(敢嘗試新事物)、多才多藝(能做好許多種事)，且善於變通(能迅速調整現行做法)。專業人員要具備各項通才，通才則需要熟知某些專業技能，這兩類人各擅勝場。就像上面提過，不是每個人都能妥適應對多領域戰鬥環境



的挑戰，哪些人有多少潛能，也就不能先行假設。這些潛能也並非特別適合在哪些單位、軍種或文化中發揮。每個人都需要在戰鬥實驗室一般的作業及知識環境中，經過測試與培訓，讓他們具備面對多領域戰鬥實際挑戰的能力。

Conclusion

結 論

While there are no doubt many other observations that could provide significant material for both training and education, the above nine were significant in their applicability to not only Iraq in 2016 at the theater level, but also to future warfare as seen in the evolving MDB concept. As we continue to experiment and test future concepts for use in the warfare of today and tomorrow, we must not hesitate to leverage recent and current conflicts for appropriate lessons. While by no means is the fight against Daesh near-peer, the group's ingenuity and evolution on the battlefield no doubt mimics what more capable nation-states will employ in any future conflicts. Let us learn today's lessons and apply them for future effect.

還有其他諸多觀察可以在教育、訓練方面提供更多重要協助與建議。以上所列9個觀察點，不只對2016年伊拉克戰場實際運用方面已經發揮功效，對於還在發展中的多領域戰鬥概念，以及未來作戰，都有重大意義。當我們對今天和明日的作戰概念實際運用，持續進行實驗與測試時，對於適用於處理當前衝突的經驗教訓，就要毫不猶豫納入運用。雖然這不是針對達伊沙，但這個團體在戰場上展現的機巧與進化，毫無疑問都是模擬那些更有能力的國家，在未來衝突中會使用的手法。讓我們學習這些經驗教訓，為將來做好準備。
(111年1月3日收件，111年4月25日接受)