

被忽視的盟國

美軍砲兵部隊首次持續作戰部署愛沙尼亞之觀察與經驗*

An Overlooked Ally: Observations and Lessons Learned from the First Persistent U.S. Artillery Forces Stationed in Estonia

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Kes otsib, see leiab. [The one who seeks shall find.] - Estonian proverb

用心追尋，就能找到。－愛沙尼亞諺語

Foreword

An unexpected deployment to the Baltic State of Estonia provided unique lessons for a U.S. Army artillery battalion. Those lessons serve as a groundwork for other American units that will come to Estonia. To better understand Estonia, U.S. service members can improve American-Estonian military preparedness and develop U.S. capability with a dynamic and clever ally. Among the members of NATO, Estonia may be an often overlooked ally. The Republic of Estonia is a small nation of approximately 1.3 million people, slightly less than the population of the state of Maine. Roughly one-fifth of Estonians speak Russian. Its surface area is just over 43,000 km, making Estonia roughly a third larger than its National Guard State Partnership Program counterpart's state, Maryland.¹ Estonia's GDP is the third smallest in the European Union, greater than only Cyprus and Malta.² By these metrics, Estonia is easy to overlook.

前言

美陸軍砲兵營在一次不定期的愛沙尼亞（波羅的海三小國之一）部署任務中獲致獨特經驗，相關經驗可為爾後美軍部署單位列為參考。為了更進一步理解愛沙尼亞，美軍應強化美愛雙邊軍事戰備，以利與這個聰明靈活的盟國建立共同軍事能力。在北約成員國中，愛沙尼亞往往是個被忽視的盟國，因為該國為一個人口約 130 萬的小國，人口數略低於美國緬因州；五分之一的愛沙尼亞人講俄語；

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國土總面積略超過 4 萬 3,000 平方公里，面積大約是美國馬里蘭州（美國「國民兵州夥伴關係計畫」中的愛國對口州）的三倍大。¹由於愛沙尼亞的國內生產毛額在歐盟排名倒數第三，僅贏過塞普勒斯（西亞島國）與馬爾他（歐洲島國），²從上述指標來看，其不容易成為注目焦點。

There is more to the story than these metrics, however. Geography matters. Until Finland's recent admission to NATO, Estonia was the northern anchor of NATO's eastern flank. Estonia now serves at the center among the Nordic and Baltic States, situated just 160 km from Saint Petersburg, Russia. Estonian Defence Forces (EDF) protect a 296 km border with Russia, and the Estonian Navy patrols Estonia's 2,200 islands dispersed throughout the Gulf of Finland and the Baltic Sea.

雖然愛沙尼亞各項指標敬陪末座，但其地理位置重要性卻不容忽視，在芬蘭晚近（2023 年 4 月 4 日）加入北約之前，愛國一直是北約東側翼的北部錨定點，也位於北歐國家與波羅的海三國之中心，距離俄羅斯聖彼得堡僅 160 公里（參見表 1、圖 1 譯者補充資料）。愛沙尼亞國防軍的衛戍範圍為長達與俄國 296 公里的邊界，海軍海上疆域為分布在芬蘭灣與波羅的海上的 2,200 個島嶼。^{**}

表 1 北約成員國統計表

時期	加入國家	數量
北約於 1949 年 4 月 4 日在經過簽署《北大西洋公約》後而成立	創始成員國：比利時、丹麥、加拿大、冰島、法國、美國、英國、挪威、荷蘭、義大利、葡萄牙、盧森堡	12 個創始國

1 "Population Change—Demographic Balance and Crude Rates at National Level," Eurostat, 14 April 2023, <https://ec.europa.eu/eurostat/databrowser/bookmark/47b3db3a-b5e7-4a7ba4ee-d61e2d1d259b?lang=en>; "State Population Totals and Components of Change: 2020–2022," U.S. Census Bureau, 13 June 2023, <https://www.census.gov/data/tables/time-series/demo/popest/2020s-state-total.html#v2022>; "Facts and Figures on Life in the European Union," European Union, accessed 29 June 2023, https://european-union.europa.eu/principles-countries-history/key-factsand-figures/life-eu_en; "State Area Measurements and Internal Point Coordinates," U.S. Census Bureau, 16 December 2021, <https://www.census.gov/geographies/reference-files/2010/geo/state-area.html>.

2 "GDP (Current US\$)—European Union," The World Bank, accessed 29 June 2023, https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=EU&most_recent_value_desc=true.

^{**} 譯者註：愛沙尼亞國防軍的組成為陸軍、海軍、空軍及愛沙尼亞防衛聯盟（準軍事部隊），愛國的兵役制度為 18 至 19 歲收到入伍通知，接著在 19 至 27 歲服義務兵役（8 至 10 個月義務役及 1 年替代役），服完兵役且年齡介於 20 至 32 歲者，可選擇成為愛沙尼亞國防軍後備部隊，另 32 至 60 歲還可選擇加入愛沙尼亞防衛聯盟。此外，愛沙尼亞防衛聯盟在戰時不會與國防軍展開聯合作戰行動，反而是防衛所在任務區之安全，藉由不對稱或非傳統手段，打擊敵方供應鏈。愛國空軍並無主力戰機編制，主要也是受國家經濟所限，其任務為配合北約部隊警戒、提供空軍基地或機場、預警雷達站，空戰能力須靠他國戰機駐防協助。參見，李好（譯），〈愛喬兩國，完善動員制度鞏固國防〉，《青年日報》，2023 年 11 月 29 日，<https://www.ydn.com.tw/news/newsInsidePage?chapterID1633201&type=forum>

冷戰期間 (1947-1989 年)	1952 年：希臘、土耳其 1955 年：西德（1990 年 10 月 3 日兩德統一，統一後的德國仍是北約成員國） 1982 年：西班牙	4 個
冷戰結束至烏俄戰爭前 (1989-2022 年)	1999 年：匈牙利、波蘭、捷克 2004 年：羅馬尼亞、愛沙尼亞、拉脫維亞、立陶宛、斯洛伐克、斯洛維尼亞、保加利亞 2009 年：阿爾巴尼亞、克羅埃西亞 2017 年：蒙特內哥羅；2020 年：北馬其頓	14 個
烏俄戰爭後 (2022 年以後)	2023 年：芬蘭 2024 年：瑞典	2 個

資料來源：North Atlantic Treaty Organization, Encyclopedia Britannica, <https://www.britannica.com/topic/North-Atlantic-Treaty-Organization>，譯者補充資料。

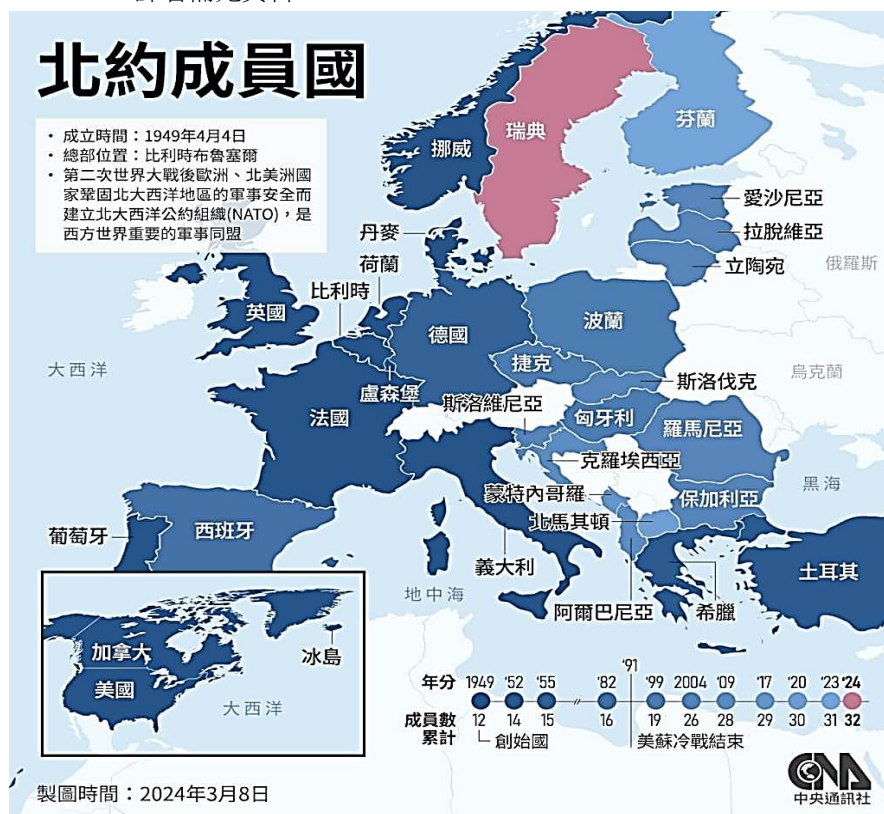


圖 1 北約成員國地理位置示意圖

資料來源：〈北約集體防衛排除夏威夷〉《中央社》，2024 年 3 月 30 日，<https://www.cna.com.tw/news/aopl/202403300259.aspx>，譯者補充資料。

This article focuses on the experiences and perspectives garnered from Task Force (TF) Võit (the Estonian word for victory) in Tapa, Estonia, and from the U.S. Embassy's Office of Defense Cooperation (ODC) in Tallinn, Estonia. 1st Battalion, 14th Field Artillery Regiment (1-14 FAR) established TF Võit in

December 2022 during its no-notice deployment from Oklahoma to Europe in support of Operation European Assure, Deter, and Reinforce, which was decisively enabled through the ODC. The creation of TF Võit exposed the power of persistent force projection when given the goals to build multinational interoperability and intercultural understanding, and to refine U.S. techniques and procedures for long-range precision fires (LRPF) in a new environment. TF Võit and the ODC's close cooperation simultaneously enabled an ally to develop operational capability for a future system years before its fielding, in the vein of the Department of Defense's recommendations to improve foreign military sales (FMS) cases.³

本文從美軍駐防在塔帕營區的「勝利特遣隊」，以及位於塔林的美國大使館「國防合作辦公室」身上汲取經驗與觀察，而第十四野戰砲兵團第一營在 2022 年 12 月時受命編成「勝利特遣隊」，該部隊以不定期部署方式從俄克拉荷馬州移防至歐洲，任務為支援由國防合作辦公室推動的「歐洲保障、嚇阻及增援行動」。「勝利特遣隊」之編成展現美軍持續兵力投射能力，目標是建立跨國作業互通與跨文化理解，並精進美軍在新環境下的長程精準火力戰技與程序。「勝利特遣隊」與國防合作辦公室的密切合作，有助於盟國愛沙尼亞未來幾年將部署的作戰系統能力，同時也符合美國防部所要求的海外軍售精進建議。³

The Estonian Military: A Small but Burgeoning Capability

In stark contrast to its former Soviet occupation, Estonia is now firmly entrenched in the European Union and NATO. Estonia's small territory and modest population and territory belie its growing military and robust economy. The EDF supports approximately four thousand active-duty soldiers, a newly formed division headquarters established in 2023, one active-duty infantry brigade in the northeast at Tapa, and a reserve brigade in the southeastern Estonian military base of Võru. Conscripts augment regular forces through biannual indoctrination, and the Estonian Defence League provides a well-organized and trained national guard of nearly seventeen thousand volunteers.

愛沙尼亞軍隊：軍隊雖小但戰力迅速發展

與前蘇聯佔領時期形成明顯對比的是，愛沙尼亞現已與歐盟和北約建立牢固緊密關係，其領土小與不多人口數的背後，卻隱藏著不斷增長的軍事力與強健經濟力。愛沙尼亞現役軍人總數大約四千人；2023 年成立一個新的師部，主要

³ "Department of Defense Unveils Comprehensive Recommendations to Strengthen Foreign Military Sales," U.S. Department of Defense, 13 June 2023, <https://www.defense.gov/News/Releases/Release/Article/3425963/departments-of-defense-unveils-comprehensive-recommendations-to-strengthen-foreign-military-sales>.

是為統管境內各國部隊；一支現役步兵旅位於國土東北部塔帕營區，一支後備旅位於國土東南部的沃魯軍事基地；兵源補充為透過每半年的役男徵召；愛沙尼亞防衛聯盟是一支有組織、訓練有素的準軍事部隊，由近一萬七千名自願者組成。

Estonia is frequently grouped in Washington, D.C., with its Baltic neighbors Latvia and Lithuania for political and military projects. Sometimes this includes Poland as well, which more often serves as the focal point of American military interests, as Poland recently embarked on a rearmament drive to field the largest land force among the European armies.⁴ Finland's recent admission to NATO now expands prospects for Baltic integration into NATO's new northern flank. There may be a thought that Estonia is an identical one-third partner among the 3Bs, or a miniature Finland. However, U.S. military officers serving in Estonia are quick to realize that the many nuances, unique capabilities, and distinct differences of operations in Estonia merit deeper understanding and attention.

華府的政軍計畫中，往往將愛沙尼亞、拉脫維亞、立陶宛三國視為一體（波羅的海三小國），有時候也會將波蘭納入，因為美國更常將之視為軍事利益的重點，波蘭近期也啟動軍備再強化作為，旨在組建歐洲軍隊中的最大地面部隊。⁴ 芬蘭近期加入北約，成為北約在波羅的海地區的新北部側翼，有人認為愛沙尼亞在波羅的海三小國中佔的份量差不多等於三分之一，但將之看成縮小版的芬蘭或許更適合，因為派駐在愛沙尼亞的美軍軍官認為，愛沙尼亞在波羅的海三小國中有其獨特之處，並具備獨特的作戰能力，值得深入理解並仔細關注這個國家。

Estonia, like its Baltic counterparts, recognized the persistent threat from Russia since regaining its independence from the Soviet Union in 1991. As part of its effort to safeguard independence, Estonia proactively sought a coordinated procurement of the High Mobility Artillery Rocket System (HIMARS). Estonia was the first among the Baltic States to pursue an advanced LRPF capability, submitting for an FMS case in December 2021. The procurement, solidified in December 2022, represents Estonia's largest to date, with the total proposed cost for six HIMARS and a plethora of munitions at over \$500 million in U.S. dollars.⁵ It is Estonia's most expensive and complex LRPF program ever.

4 Matthew Day, "Poland Builds Europe's Largest Land Force to Counter Russian Threat," Telegraph (website), 11 March 2023, <https://www.telegraph.co.uk/world-news/2023/03/11/revolution-polish-army-builds-europes-largest-land-force/>.

俄羅斯在蘇聯解體後宣布成為獨立國家以來，一直被愛沙尼亞、拉脫維亞、立陶宛三國視為是持續性威脅，所以愛沙尼亞為了維護國家獨立，也致力於向外協調採購「高機動砲兵火箭系統」(HIMARS，簡稱海馬斯)，愛國是波羅的海三小國中第一個致力於發展先進長程精準火力能力的國家，該項目的購案於 2021 年 12 月提交，並在一年後(2022 年 12 月)獲准同意，這是其迄今為止最大的一筆採購案，採購品項為六套海馬斯系統及相關彈藥，武獲總成本超過五億美元，⁵這是愛國最貴的一筆軍事買賣，而且像海馬斯系統這種長程精準火力的建軍計畫複雜度也是前所未見。

U.S. Force Posture in Estonia

Estonian pursuit of serious deterrence and credible combat capabilities caught U.S. attention as the first of the Baltic nations to action the LRPF capability gap menacing NATO's eastern flank. As a result of U.S. and allied commitments at the Madrid Summit, the U.S. Army's V Corps in Europe ordered Operation Victory Vigilance to provide a persistent rotational force structure of U.S. infantry units in Võru and a platoon-sized U.S. element of four HIMARS in Tapa that would precede the fielding of Estonian HIMARS.⁶ The premise of the additional forward U.S. presence is to enable (and not simply defend) Estonia and to improve procedural, human, and technical interoperability between U.S. and Estonian forces. This is particularly significant for Estonia's development of HIMARS capability given the transformational role of HIMARS in Russia's war in Ukraine.

美軍在愛沙尼亞的部署

愛沙尼亞致力於建立嚇阻力與可恃戰力的態度獲得美國關注，因為其建構長程精準火力能力來強化北約東側翼的防衛，也是波羅的海地區國家中首位採取實際行動國家。美國與北約還在 2022 年馬德里峰會上做出承諾，下令駐歐美陸軍第五軍展開「勝利戒備行動」，讓美軍步兵兵力持續作戰部署在沃魯軍事基地，而且在愛沙尼亞尚未完成海馬斯系統部署之前，讓美軍的四個海馬斯火箭排進駐塔帕，以彌補愛沙尼亞這段時間的戰力罅隙。⁶美軍的前進部署不僅是協防愛沙尼亞，而且也強化美愛兩軍的程序、人文交流及技術互通經驗，這對愛國部署海馬斯系統能力至關重要，而且該系統能力還經證實在烏俄戰爭中扮演扭轉

5 "Estonia—M142 High Mobility Artillery Rocket System (HIMARS)," U.S. Defense Security Cooperation Agency, 15 July 2022, <https://www.dsca.mil/press-media/major-arms-sales/estonia-m142-high-mobility-artillery-rocket-system-himars>.

6 "US to Deploy More Troops to Estonia to Boost NATO Defenses," Associated Press, 8 December 2022, <https://apnews.com/article/estonia-united-states-government-and-politics-432833d5bec2fa30d6778b4c2b76d743>.

戰局的角色。

The 1-14 FAR HIMARS battalion deployed a mixture of capabilities to Estonia to provide LRPF in support of both V Corps and the new Estonian division's deep fight. To provide this capability, five different units stationed throughout Europe deployed specialized elements to enable continuous operations in Tapa Camp as the first semi-enduring U.S. force in Estonia. As of 2023, a mission command cell, a security forces infantry platoon, a HIMARS platoon (four HIMARS with a fire direction center), a battery headquarters, a Q-53 radar section, a platoon of HIMARS resupply vehicles, and a maintenance support team comprise TF Võit. Additionally, two Estonian liaison officers, a mayoral cell from the Army's regional support group, and an Army post office team support TF Võit under one U.S. senior responsible officer due to a lack of a unified command structure among the composite forces. In this capacity, the senior responsible officer routinely engaged ODC and EDF's division-level officers, and the HIMARS battery garnered unique insight into tactical EDF-U.S. operations.

第十四野戰砲兵團第一營（本體為海馬斯營）部署至愛沙尼亞的混合戰力，旨在為美軍第五軍與愛沙尼亞師部在執行縱深作戰時提供長程精準火力支援，該營底下有五個不同單位（配備專用裝備）駐防在歐洲各地，以提供塔帕營區部隊遂行持續作戰能力，其編成「勝利特遣隊」奉派至愛沙尼亞後，成為美軍首支半長久性部署部隊。截至 2023 年為止，「勝利特遣隊」係由任務指揮中心、安全兵力步兵排、海馬斯排（四個排搭配一個射擊指揮所）、連本部、Q-53 雷達組、海馬斯排補給車及保修支援組等組成。此外，由於美愛兩國組成部隊缺少統一的指揮架構，美軍編設一名高級責任官來統管愛沙尼亞聯絡官（2 名）、美陸軍地區支援大隊的市長民事組、美陸軍郵政小隊等，以利支援「勝利特遣隊」之需求。該名高級責任官的職責為定期跟愛沙尼亞國防軍師部軍官與國防合作辦公室相互往來，這也讓駐防在愛國的美軍海馬斯部隊可從雙方的戰術交流中獲致獨特經驗。

Lessons Learned in Procedural Interoperability

While many TF Võit leaders were experienced in combat tours in the Middle East, operational tours in Europe, permanent overseas assignments in Poland, or myriad U.S. annual training exercises throughout the Baltics, their experiences often created a false sense of understanding of Estonia's professional military culture, operations and training, and the important

business rules for persistent U.S. operations within Estonia.

強化程序互通經驗

雖然歷任「勝利特遣隊」隊長都曾在中東、歐洲、波蘭等海外地區進行職務輪調，也曾在波羅的海地區參與眾多的美軍年度演訓，但他們經驗反而造成對愛沙尼亞專業軍事文化、作戰訓練的誤解，甚至也未能理解美軍持續作戰部署愛沙尼亞的一些重要業務規則。

It is not an uncommon misconception for U.S. military personnel to presume that Estonia is a third world fragile state or a helpless former Soviet satellite. Estonia's present economic and military disposition are more akin to Western than Eastern Europe. Visitors to Estonian military bases will note robust force protection, new facilities, and high-quality physical and technical infrastructure. For example, secure hard-stand facilities housing rotational U.S. forces at Tapa Camp offer free Wi-Fi, fresh linen, free laundry, stable climate control, contracted cleaning services, and abundant bunks with new mattresses. In contrast, facilities of allies perceived as more mature partners like Germany or Poland that accommodate rotational U.S. forces do not always provide comparable life support services. Estonians are deservedly proud of their overlooked investment to welcome an increased U.S. presence.

一點都不讓人意外的是，美軍人員往往將愛沙尼亞誤認為是一個第三世界的脆弱國家，或是將之視為一個幫不上忙的前蘇聯衛星國，其實愛國目前的經濟與軍事狀況，更像是西歐而不是東歐國家。再者，曾至愛國軍事基地訪問的人，會注意到其強大的兵力防禦能力、新式設施及高規格的軟硬體基礎設施，不僅如此，塔帕營區還提供駐防在安全掩體內的美軍部隊享有免費 Wi-Fi 網路、新床單、免費洗衣、恆溫空調系統、外包清潔等服務，甚至也有大量新床墊的床位。相較之下，讓人認為是更成熟的德國或波蘭盟國，它們提供給駐防美軍的生活起居設施反而比不上愛沙尼亞，愛國當然自豪於自身在美軍生活起居的投資勝過其他盟國，這種重視也是對美軍駐防的一種歡迎。

In addition to adjusting expectations of what the EDF affords rotational partner forces, U.S. forces should stay vigilant to respect Estonia as the host nation and an accommodating partner. TF Võit observed mitigatable friction when U.S. headquarters perceived themselves as “battlespace owners” in Estonia or the Baltics, which led to frequent missteps in U.S. forces presuming unimpeded access to Estonia and its bases. Whereas in the Global War on Terrorism, a battlespace owner could relatively freely reposition forces within

Iraq or Afghanistan, such actions in Estonia invited frustration at the least, and delayed movement of U.S. forces at the worst. The battlespace owner mentality, combined with TF Võit's reliance on external logistical support, encouraged U.S. forces in Europe to move forces into Estonia to augment U.S. capabilities within their commander's intent; however, at times they did not first confirm host-nation or base commander permission. Consequently, U.S. forces would arrive unannounced to the Estonian border or an Estonian base with orders from a U.S. division and insist on entrance, having ignored the Aircraft and Personnel Automated Clearance System or country and base access request processes. The familiar business rules of U.S. operations in Germany or Poland do not apply, but this friction is easily alleviated through engagement with the ODC. The ODC mitigated and often prevented unintentional missteps from U.S. forces.

愛沙尼亞國防軍提供給駐防夥伴部隊的支援，甚至已超過美軍的預期，所以美軍應敬重愛國這個良好的地主國與合作夥伴。「勝利特遣隊」觀察到美軍總部往往認知自己是愛沙尼亞或是波羅的海地區的「戰場主人」，導致美軍認為可以自由進出愛沙尼亞及其基地的錯誤觀念，惟這種不當認知應加以修正。雖然在全球反恐戰中，戰場主人（美軍）可以自由在伊拉克或阿富汗境內部署部隊，但這並不適用於愛沙尼亞，至少這種作法會影響部隊士氣，最壞情況下可能還會讓美軍行動不便。戰場主人心態再加上「勝利特遣隊」需依賴外部的後勤支援，這讓駐歐美軍決定將「勝利特遣隊」移往愛沙尼亞，以利達成指揮官所望的部隊戰力提升目標，只是在這個過程中，美軍人員在做事時會忽略應要先向地主國確認或取得基地指揮官同意，也就是美軍會在未經知會情況下就抵達愛國邊境或基地，並以持有來自美國師部的命令就要求進入，反而沒經過「飛機與人員自動查驗系統」並遵守基地進入要求程序。事實發現，美軍不能將用於德國或波蘭的作業模式一體適用於愛國身上，所幸國防合作辦公室可以從中化解這種摩擦，該機構常扮演調和者並經常防止美軍犯下不當錯誤。

Leveraging the Office of Defense Cooperation to Enable Tactical Operations

On behalf of the U.S. Department of Defense and specifically U.S. European Command (USEUCOM), the ODC works within the U.S. embassy to engage with the Estonian Ministry of Defence and the EDF to expand capability and improve interoperability. U.S. units in allied nations like Estonia are building strategic capabilities as much as they are building tactical ones. When a U.S.

unit rotation like TF Võit enters into a capability procurement process, it enables a level of capability development that would otherwise take years for any nation, no matter its size. Moreover, the ODC can serve as a conduit to transfer the desire of the host nation to leverage the power of a U.S. unit rotation to expedite initial or full operating capability development vis-à-vis emergent and present threats like Russia. The ODC also helped rapidly connect and sustain critical relationships between the EDF and TF Võit that would have otherwise been impractical due to disparate command relationships. These multinational networks simultaneously give U.S. forces the opportunity to look at the employment of their own systems with fresh eyes. In all these cases, the ODC is an asset to help commanders and soldiers.

國防合作辦公室成為提升戰力的推手

美國大使館國防合作辦公室為代表美國防部、美歐洲司令部，與愛沙尼亞國防部及國防軍進行交流，進而擴展雙方戰力並提升作業互通。美軍正於愛沙尼亞這樣的盟國境內建立戰略能力，而盟國藉此也建立自身戰術能力，舉例而言，駐防在愛國境內的美軍「勝利特遣隊」須先進入戰力籌獲，之後才可以達到所望戰力發展水準，這整個過程將耗費數年，無論是哪個或規模大小的國家都必須如此。國防合作辦公室的戰力促成角色，讓地主國充分獲得駐防美軍的支援，以達成初始作戰或全作戰能力，進而有效因應鄰近一旁俄羅斯的各種威脅。此外，由於愛沙尼亞國防軍與「勝利特遣隊」隸屬不同指揮鏈，國防合作辦公室的協調角色，也有助於迅速拉近彼此間的關係，這種不同國家的指揮網絡關係，更打開美軍看待人裝部署的眼界。綜上所述，我們可以將國防合作辦公室視為是協助指揮官與官兵的重要資產。

For Estonia, TF Võit's deployment could have been a self-contained projection of U.S. LRP in support of an ally and the NATO alliance. Instead, it produced much more. It served as a foundation for the development of Estonia's capabilities. This foundation, while only in the initial stages, may pay off in the further development of Lithuanian and Latvian LRP. The bottom line of the ODC's support to TF Võit is simple: improved deployability and techniques, tactics, and procedures for U.S. forces, and capability development for allies in a way that is meaningful to the alliance. This support extends to any unit operating within Estonia, regardless of duration or scope.

「勝利特遣隊」部署愛沙尼亞境內的長程精準火力，不僅可以支援愛國與北約外，而且也為愛國帶來其他效益，舉例而言，其成為愛國戰力發展的奠基者，

雖然這種能力屬於初期發展，但未來的擴大效應將有助於立陶宛、拉脫維亞兩國發展長程精準火力能力。此外，國防合作辦公室除了能提供「勝利特遣隊」最基礎支援外，也能提升美軍自身部署水準和戰技、戰術及程序，還可以協助盟國發展自身所需戰力，而且這種援助模式適用於愛沙尼亞境內所有國外單位，不會受到部署時間與地點因素所影響。

Estonia's commitment to its LRPF development is significant. It is Estonia's largest procurement to date, and Estonian leadership recognizes the LRPF role in the region's defense if war comes. TF Võit's efforts in building human and technical interoperability enabled Estonia to make concrete decisions about its FMS case for HIMARS. Given that Estonia's HIMARS are slated to arrive in 2025, there is no time to spare in that development. TF Võit's open and earnest effort to collaborate with Estonia did wonders to develop Estonian capability and is a model for other deployments to the region with other complex capabilities in development. Consequently, TF Võit's deployment answered U.S. defense recommendations in support of FMS cases "to provide allies and partner nations relevant priority capabilities."⁷

愛沙尼亞迄今最大一筆軍購案為先進高機動砲兵火箭（海馬斯）系統，可見其認為發展長程精準火力能力的重要性，而愛國領導高層也認知一旦戰爭爆發，該能力將在國土防禦上扮演重要角色。「勝利特遣隊」駐防在愛國境內，除了促成美愛兩軍的人員與戰技互通交流外，也是愛國最後堅定向美國選擇採購海馬斯系統的推手，愛國的海馬斯系統接裝期程訂於 2025 年，所以接裝前的訓練也刻不容緩。「勝利特遣隊」以開放、認真態度跟愛國進行合作交流，藉此提升愛國軍隊戰力的事例，將有助於美軍在波羅的海地區推動其他複雜能力的部署與發展。鑒此，「勝利特遣隊」部署愛國境內的成果，符合美國防部所要求的海外軍售精進建議，也就是「提供盟國或合作夥伴當前迫切需要的相關能力。」⁷

Lessons Learned in Human Interoperability

While the ODC is deliberately trained and onboarded to navigate unique Estonian idiosyncrasies, TF Võit and other U.S. forces encountered avoidable friction in human interoperability due to nuances in Estonia's professional military culture. For example, the EDF generally speaks English, which fosters direct interaction at echelon to foster vital partnerships. While trying to nurture these relationships, U.S. forces quickly discovered that Estonians are famously

⁷ "Department of Defense Unveils Comprehensive Recommendations."

honest before polite and ruthlessly efficient in their interactions. TF Võit observed that well-developed personal relationships are critical in Estonia, since the EDF's small size correlates to strong internal networking that can helpfully circumvent bureaucratic gauntlets and even offer access to civilian resources for training. Similarly, the EDF's smaller size means that its leaders are well versed in the training and operations of adjacent units. Consequently, EDF partners were surprised that TF Võit was ignorant of concurrent U.S. operations in Võru or conversations held at the strategic level, though Estonian directness quickly addressed communication shortfalls.

強化人文交流互通經驗

雖然國防合作辦公室的機制是為愛沙尼亞特殊國情所量身打造，以減少雙方在做事上的摩擦，但這功勞也不完全是美軍的，因為愛國本身的專業軍事文化也有所貢獻。舉例而言，愛沙尼亞國防軍大都會講英文，這不僅促成美愛兩國部隊的直接互動，而且也有利於建立雙方的關鍵夥伴關係。在雙方人員互動交流之下，美軍發現愛國軍隊在外表有禮、冷酷高效的背後藏著直率，而且根據「勝利特遣隊」的觀察指出，由於愛國軍隊規模小，這意味著組織網絡規模也不大，這有助於減少官僚組織的各種程序，而且在愛國發展良好人際關係也很重要，因為這種人脈有助於獲得訓練所需的民事資源。愛沙尼亞國防軍編制不大也讓不同單位的領導幹部在作戰訓練上可以互通有無，熟悉彼此戰術戰法，而且愛國的夥伴國都知道這種現象，但它們訝異的是美軍「勝利特遣隊」在沃魯軍事基地的共同部署，其重要性不僅為人所忽略，甚至連戰略溝通對話也付之闕如，好在愛國軍隊人員的直率特質，足以彌補這種溝通落差。

TF Võit observed a commander-centric approach to mission command in the EDF. The EDF is less reliant on command sergeants major than the United States, but there is an active effort to mature the role of their senior enlisted advisors. Interestingly, in the Estonian language, only one word, "juhtimine," conveys command, leadership, and management. This reflects a markedly different mission command approach between EDF and American officers, whereby U.S. leaders treat those three facets of mission command as distinct leadership methods. However, the EDF mitigates this nuance through an "adhocracy culture" among its military staff that supports a goal-oriented approach that deemphasizes rank and prizes innovation.

「勝利特遣隊」還觀察到愛沙尼亞國防軍的「任務式指揮」有別於美軍模式，其採取以指揮官為中心的途徑，雖然對於士官長的依賴較少，但取而代之的是借

用資深義務顧問人員的才能。值得一提的有趣人文特色是，愛國語言中有一個詞 *juhtimine* 可以同時傳達指揮、領導統御、管理之意涵，這也是美愛兩軍在「任務式指揮」上另一個不同點，美軍領導幹部在「任務式指揮」中把指揮、領導統御、管理界定為三種不同面向的用兵之道，而愛國領導幹部則是用一個詞來涵蓋全部，會造成這種些微不同是因為愛國擁有「創新文化」，也就是參謀們致力於以目標為導向的方法，形成以追求創新為主而不用去顧慮階級問題。

A final, important aspect of the EDF's professional culture is its sensitivity to the strategic role of non-Estonians in support of Estonian defense. First, it is the EDF's responsibility to defend Estonia and not the responsibility of the United States or any other ally. For instance, at Tapa the Estonian 1st Infantry Brigade commander warned U.S. forces upon arrival to not errantly boast that Americans deployed to defend Estonia but instead Americans enable and support EDF capabilities. To that end, the EDF wanted the right type of capabilities, like HIMARS and not maneuver forces, at Tapa to positively augment its defense plans. Second, nonethnic Estonians are not overtly discriminated against in their EDF role. Estonia has a sizable ethnic Russian population amongst its citizenry, but that should not imply disloyalty. On the contrary, many of the EDF officers, to include intelligence and commanders, have Eastern Slavic names and may even lack a strong command of the Estonian language as native Russian speakers, yet they are no less patriotic than their ethnic Estonian officer counterparts.

最後要提的一個重要面向是，在愛沙尼亞的軍事專業文化中，清楚理解非愛國人士支援防禦的戰略角色定位。首先，保衛愛沙尼亞是其國防軍的責任（自己的國家自己救），這並不是美國或其他盟國該負責的，舉例而言，塔帕營區第一步兵旅旅長曾表示，我們不能誤以為美軍是為了協防而部署愛國境內，美軍主要是協助並支援愛國建構戰力。所以，愛國國防軍需要美軍來協助建立海馬斯系統戰力，而不是協助提升戰鬥部隊戰力，才能實質強化防衛計畫。其次，國防軍並不會歧視非愛沙尼亞族群，也不會認為俄裔人士（國內占一定比例）就意味著忠誠度不足，相反地，許多國防軍軍官如情報官或單位主官都有東斯拉夫姓氏，以及以俄文為母語且無法流利講愛沙尼亞語的人，他們的愛國心也不亞於愛沙尼亞軍官。

Lessons Learned in Technical Interoperability

As an artillery-centric partnering force, TF Võit expected technical interoperability to serve as the foundation for LRPF mission processing (digital

or voice methods) with the EDF. Though technical interoperability remained top priority, it also proved to be the central challenge to functional cohesion. Digital connectivity from the sensor to the shooter is key in a large-scale combat operation (LSCO) with multiple NATO partners. Digital connectivity enables timely and accurate fires and mitigates the risk of miscommunication due to language barriers. A lack of appetite toward technical interoperability exposed three friction points: clearance, capability, and connectivity.

強化技術互通經驗

作為一支以火砲打擊為主的部隊，「勝利特遣隊」認為技術互通是在執行長程精準火力射擊任務程序（數位或語音方式）時，與愛沙尼亞國防軍溝通的基礎。雖然技術互通至關重要，但這卻是各國軍隊在軍事職能統合上的主要挑戰，舉例而言，未來大規模作戰行動的關鍵面向，為美軍與北約各國建構偵打一體的數位連結，以促成即時與準確的火力支援，同時減少因語言不通所造成的溝通不良情形。至於技術互通的良窳將取決於三個問題：許可、能力、連結。

The United Kingdom and the United States were strategically stationed in Tapa to reinforce the Estonian division LRPF capability in the event of allied contingency operations or LSCO. In Estonia, the United Kingdom positioned M270 Multiple Launch Rocket Systems (MLRS) and the United States provided HIMARS to support LRPF. By comparison, the MLRS carries two pods of six rockets or one missile, while the HIMARS can only carry one pod. MLRS executes most of the fire missions against larger bunkers, command posts, or logistical hubs due to its larger pod-carrying capacity. Alternatively, HIMARS's reduced ammunition capacity supports prosecution of time-sensitive targets like enemy artillery, air defense, or radar capabilities. Enemy time-sensitive targets typically use survivability moves to reduce acquisition by NATO artillery. This means it is imperative to create efficiencies in fire-mission processing from sensor to shooter to enable timely and accurate fires by reducing reliance on voice communications, both internal and external, at echelon.

美國與英國在愛沙尼亞塔帕營區的戰略部署，主要是為了協助愛國這個盟國在應急作戰行動或大規模作戰行動發生時，有效遂行師部下達長程精準火力打擊。英軍於此部署的是 M270 多管火箭系統，美軍部署的是海馬斯系統（參見表 2 譯者補充資料），兩者不同之處為 M270 系統有兩個發射箱，每個可容納六枚火箭彈或一枚飛彈，海馬斯系統只有一個發射箱；M270 系統的發射筒彈藥空間較大，執行對大型掩體、指揮所、後勤樞紐等大部分的火力打擊任務，海馬斯

系統的發射筒彈藥空間較小，執行對敵火炮、防空武器或敵雷達系統等時效性目標的打擊。至於敵時效性目標通常會採取機動變換陣地的生存模式，以減少被北約砲兵鎖定的機會，這也代表愛沙尼亞須提升從偵測到打擊整個射擊任務程序的效率，藉由減少各部隊依賴內外部的語音通信，才能實現及時精準的火力打擊。

表 2 海馬斯系統與 M270 多管火箭系統簡介

	
一、簡介： 海馬斯系統為美國於 1990 年代末研發的多管火箭砲，意在取代以履帶為底盤而機動性不佳的 M270 多管火箭系統。 二、生產商： 洛克希德·馬丁(Lockheed Martin)、英國貝宜(BAE)。 三、性能諸元： 一個發射箱總可攜帶 6 枚火箭彈或 1 枚飛彈；重量 16.25 噸；長 7 公尺；寬 2.4 公尺；高 3.2 公尺；操作人數 3 人；作戰範圍 480 公里；速度時速 85 公里。	一、簡介： 1983 年美軍首度使用 M270 多管火箭系統之後，北約多個成員國相繼開始採用 M270，逐漸成為北約的制式武器，但於 2003 年時停產。 二、生產商： 洛克希德·馬丁。 三、性能諸元： 兩個發射箱可攜帶共 12 枚火箭彈或 2 枚飛彈；重量 25 噸；長 6.85 公尺；寬 2.97 公尺；高 2.59 公尺；操作人數 3 人；作戰範圍 640 公里；速度時速 64.3 公里。

資料來源：〈M142 高機動性多管火箭系統〉，<https://zh.wikipedia.org/zh-tw/M142%E9%AB%98%E6%9C%BA%E5%8A%A8%E6%80%A7%E5%A4%9A%E7%AE%A1%E7%81%AB%E7%AE%AD%E7%B3%BB%E7%BB%9F>；〈M270 多管火箭系統〉，<https://zh.wikipedia.org/wiki/M270%E5%A4%9A%E7%AE%A1%E7%81%AB%E7%AE%AD%E7%B3%BB%E7%B5%B1>，譯者補充資料。

To achieve rapid and efficient fire mission processing in Estonia's multinational operational environment, TF Võit used a gated approach. The first gate establishes communications with frequency modulation voice communications using frequency hopping and cipher text methods. The second gate is U.S.-Estonian digital connectivity through an information exchange gateway. V Corps defined true digital interoperability as the ability to digitally transmit targeting data and coordinate instructions between nations. An elusive third gate is true digital connectivity via NATO's artillery interface

software, the Artillery Systems Cooperation Activities (ASCA), among the French and UK partners in the enhanced Forward Presence (eFP) Battlegroup at Tapa.

為了在愛沙尼亞這種多國作戰環境中執行快速有效的射擊任務程序，「勝利特遣隊」採取一種名為建立「通道」的方法：第一個通道為建立通信系統，作法是使用跳頻法與密文法來建立語音通信頻道；第二個通道為建立美愛兩軍的數位連結，作法是使用資訊交換閘道，而且美軍第五軍所定義的真正數位互通，為有能力在國家之間以數位方式傳輸目標資料並進行相互協調指令；第三個較難以捉摸的通道為建立真正的數位連結，作法是如何將北約砲兵介面的軟體、美軍「砲兵聯合活動系統」完成整合，並為英法兩軍派駐在塔帕營區的「前進駐留加強戰鬥群」(eFP)所用，而 eFP 由北約國家軍隊組成，前進部署在北歐、中歐及東歐地區作為防禦與嚇阻力量。

TF Võit achieved the first gate of voice interoperability by teaching the Estonians where to find and how to load NATO keys on the Estonian AN/PRC-148 MBITR radio to connect to a U.S. RT-1523 SINCGARS radio. This experience highlighted a few key persistent points of friction in NATO's technical interoperability challenges. First, in the 2000s, the Estonians upgraded their communication systems to radios that will not connect to SINCGARS radios, requiring the use of tactical voice bridges. The second point of friction stems from the EDF's reliance on the conscription system, resulting in a limited number of actively certified and qualified soldiers with the clearance to handle secret materials. This inadvertently restricts a majority of the EDF forces from access to materials and systems like communications security or NATO's Mission Partner Environment (MPE) to avoid leaking information. A combination of the lack of easy access to communications security and the difference in radios immediately reduced the Estonian appetite to maintain voice connectivity with its allies.

「勝利特遣隊」達成語音通信互通的事例，為藉由教導愛國軍隊如何將北約通信密鑰載入 AN/PRC-148 多頻交換無線電機，並將該機與美軍 RT-1523 單頻地空無線電系統進行連結，這項經驗凸顯北約面臨技術互通的挑戰，也就是存在一些重要且持續性的摩擦點：第一個摩擦點發生於 2000 年代，愛國軍隊雖然升級了無線電通信系統，但卻需要使用戰術語音橋接器，才能連結至美軍的單頻地空無線電系統；第二個摩擦點是愛沙尼亞國防軍採取徵兵制，導致經認證與合格的在役士兵人數不多，無法充分做好通信機密材質作業，這種情形無意間成為大

多數國防軍無法學習通信安全系統與材質的限制因素，例如北約通常使用美軍的「任務夥伴環境系統」來避免洩密。總歸來說，愛國軍隊在通信安全學習上付之闕如，以及與美軍無線電通信連結存在差異，這種情形立刻減少愛國與其他盟國維持語音通信的意願。

The second gate, digital connectivity with the Estonians, ran into similar issues of clearance, capability, and connectivity. While MPE is advertised as the premier NATO network to promote digital interoperability, it has many requirements that not all allies meet, to include Estonia. However, limited connectivity between Estonia's TOORU artillery system and the U.S. Advanced Field Artillery Tactical Data System (AFATDS) proved to be an achievable goal with U.S. Cyber Command (USCYBERCOM) and U.S. Army Europe and Africa approval.

第二個通道的美愛兩軍數位連結正面臨許可、能力及連結等問題，像是美軍的「任務夥伴環境系統」雖然被宣傳為北約首要使用的網絡，目的在促進各國的數位互通，但一些包含愛沙尼亞在內的盟國並未具備相關的要求條件。此外，愛沙尼亞火炮指管系統（TOORU）無法與美軍「先進野戰砲兵戰術資料系統」（AFATDS）進行有效連結問題，目前看來，應可在「美國網路司令部」及「美國歐洲與非洲陸軍」的許可協助下達成有限連結。

TOORU is a unclassified but secure software internally produced with ongoing development by Estonia's proud technology and software industry. The system, as part of the wider Kolt computer software infrastructure, provides the EDF fires enterprise with a confidential fire direction and fire support ability running off preexisting civilian cellular and satellite connections. The EDF attempted to mitigate information-sharing obstacles between software by providing partner forces with an information exchange gateway to enable fire mission processing and deny cross-domain data leaks. Unfortunately, this does not provide an acceptable connection with AFATDS under USCYBERCOM and U.S. Army Europe and Africa policy. This is because TOORU has yet to federate with NATO and is not classified at the same level as MPE.

TOORU 系統是一套未涉及機密但具保密功能的軟體，其為愛沙尼亞運用自豪的科技與軟體業所發展的國防自主產物。該系統為愛國柯特電腦軟體基礎設施的一部分，其有能力讓國防軍傳遞經加密的射擊指揮與火力支援指令，運用的連結方式為民用蜂巢式網路與衛星系統。此外，TOORU 系統是愛國國防軍為了減少各方在軟體上的資訊共享障礙，提供友軍單位一個資訊交換渠道，以利遂行

射擊任務程序並避免跨域資訊的洩漏。不幸的是，TOORU 系統即使在美國網路司令部及美國歐洲與非洲陸軍兩個單位的許可協助下，也無法與美軍 AFATDS 系統達成有效連結，原因在於該系統尚未整合至北約軍隊，而且也跟「任務夥伴環境系統」一樣屬於非機密等級。

Additionally, even with USCYBERCOM approval, U.S. forces would not be able to achieve true digital connectivity. The proprietary software within AFATDS at present blocks the passing of coordinating instructions. This could cause issues for operational- or strategic-level commands or fire support elements, as they could not provide necessary coordinating instructions to a fire direction center. To achieve limited interoperability, the United States would need to assume risk within the MPE domain by allowing NATO systems to directly connect to AFATDS, or for software development to pass coordinating instructions between NATO Systems and AFATDS. Currently, there is limited U.S. appetite to assume this risk to the MPE domain.

此外，即使獲得美國網路司令部的許可協助，美軍也無法實現真正的數位連結，因為內建在 AFATDS 系統的專利軟體擋下了協調指令的傳遞，這種情形可能會造成作戰、戰略層級指揮部或火力支援單位的困擾，因為它們將無法向射擊指揮中心提供必要的協調指令。儘管如此，有限技術的互通卻是可以實現的，但美軍須承擔在「任務夥伴環境系統」這個大架構下所衍生的風險，也就是允許北約系統直接連結美軍 AFATDS 系統，或是透過軟體開發讓協調指令可以在北約系統與美軍 AFATDS 系統之間傳遞，但目前為止，美軍對於承擔這種風險的意願有限。

Estonian challenges to partnered technical interoperability are not unique to the United States. The elusive third gate of connections between ASCA compliant NATO fire direction centers encounter similar challenges. TF Võit was unable to achieve technical interoperability with eFP forces because of French and UK command-support relationships and technical capabilities. For example, there are French 155 mm CAESAR self-propelled howitzers that are direct support to Estonia's 1st Infantry Brigade, UK 155 mm AS-90 self-propelled howitzers in direct support to the eFP Battlegroup, and UK MLRS and U.S. HIMARS in direct support to the Estonian division under separate bilateral agreements. TF Võit focused efforts toward achieving digital connectivity via direct ethernet connection with the MLRS battery to enable coordinated and massed fires. This focus was due to the closely aligned

command-support relationships among the MLRS, HIMARS, and the Estonian division.

愛沙尼亞在與夥伴國的技術互通挑戰並非僅限於美國，例如上述所提到達成真正數位連結的第三道通道中，美軍「砲兵聯合活動系統」與北約射擊指揮中心的相容性也存在問題。美軍「勝利特遣隊」無法與英法部隊的「前進駐留加強戰鬥群」達成技術互通，原因出在各方部隊的指揮支援關係與技術能力問題，舉例而言，法國 155 公釐凱薩自走砲直接支援愛沙尼亞第一步兵旅、英國 155 公釐 AS-90 自走砲直接支援「前進駐留加強戰鬥群」（參見表 3 譯者補充資料），以及英國 M270 多管火箭系統與美國海馬斯系統依據單獨的雙邊協定來直接支援愛沙尼亞師部。「勝利特遣隊」主要是以「乙太網路」（區域網路最常使用的技術之一）來和英國 M270 多管火箭系統進行數位連結，以達成火力協調與密集火力射擊，該作為重點在於海馬斯系統、M270 多管火箭系統及愛沙尼亞師部三者之間須達成密切的指揮支援關係。

表 3 凱薩自走砲與 AS-90 自走砲簡介

	
一、簡介： 1990 年代，法國地面武器工業集團 (GIAT，現為奈克斯特[Nexter])與勞爾重工(Lohr)共同開發凱薩自走砲，底盤採用雷諾車廠的夏爾巴(Sherpa) 外銷版底盤則是使用梅賽德斯－賓士車廠的烏尼莫克(Unimog)卡車。 二、性能諸元： 重量 17.7 噸；長 10 公尺；寬 2.55 公尺；高 3.7 公尺；操作人數 5-6 人(緊急時最少 3 人)；155 公釐 52 倍徑火炮，搭載 18 枚彈藥；最大射程 42 公里；作戰範圍 600 公里；道路速度時速 100 公里，非道路時速 50 公里。	一、簡介： 1990 年代英國維克斯造船與工程公司 (VSEL)研製的輕裝甲自走砲，供英陸軍使用。 二、性能諸元： 重量 45.7 噸；長 9.07 公尺；寬 3.5 公尺；高 2.49 公尺；操作人數車長、砲手、2 名裝填手、駕駛共 5 名；155 公釐 L31/39 口徑火炮，搭載 48 枚彈藥，7.62 公釐北約 L7 通用機槍；最大射程 40 公里；作戰範圍 420 公里；最大速度時速 53 公里。

資料來源：〈凱撒自走砲〉，<https://zh.wikipedia.org/zh-tw/%E5%87%AF%E6%92%92%E8%87%AA%E8%A1%8C%E7%81%AB%E7%82%AE>；〈AS-90 自走砲〉，<https://zh.wikipedia.org/zh-tw/AS-90%E8%87%AA%E8%B5%B0%E7%A0%B2>，譯者補充資料。

Unfortunately, TF Vöit quickly learned about the lack of appetite from the UK due to its long-standing inability to achieve digital connectivity with the NATO fires enterprise in Estonia. Instead, NATO forces Estonia to rely on “swivel chair” fire mission processing via Estonian-provided Kolt computers or human liaison connections. As of 2023, the UK battle group completed approximately eleven “CABRIT” operational deployment rotations to Estonia without obtaining UK Strategic Command approval to attempt an ASCA connection with partner nations. Additionally, the UK-led eFP Battlegroup and its MLRS battery lack the organic capability to provide the UK equivalent of MPE connectivity. This highlights a lack of appetite to achieve ASCA connection with partners and promotes continued reliance on swivel chair interoperability via Estonian provided Kolt computers. The French CAESAR battery does not require approval for an ASCA connection, and the command-support relationship does not align to the HIMARS mission, obfuscating the demand signal to obtain eFP and U.S. compliance. The lack of clearance, capability, and connectivity ultimately inhibited progress toward true digital connectivity amongst NATO partners.

可惜的是，「勝利特遣隊」很快就發現英軍在這方面的意願不高，因為其長期以來無法與北約駐防在愛國境內的砲兵部隊完成數位連結，至於當前北約駐防在愛國境內的替代方案為使用名為「旋轉椅」互通模式的射擊任務程序，也就是借助愛國的柯特電腦系統與人員連絡官輾轉來達成連結。截至 2023 年為止，駐防在愛國境內的英國戰鬥群已完成約 11 次名為「卡布里」的作戰輪調部署，但由於未獲「英國戰略司令部」的許可協助，英軍無法試著用美軍「砲兵聯合活動系統」來與夥伴國進行數位連結。此外，英軍的「前進駐留加強戰鬥群」及其 M270 多管火箭連本身就無建置數位連結能力，也就無法讓英國具備等同美軍一樣規格的「任務夥伴環境系統」，這意味著英軍並未致力於與友軍達成「砲兵聯合活動系統」的數位連結，導致其持續依賴「旋轉椅」互通模式（借用愛沙尼亞所提供的柯特電腦系統）。同樣情形也發生在法軍，其凱薩自走砲連未獲上級許可，所以無法與「砲兵聯合活動系統」進行數位連結，其指揮支援關係無法與美軍海馬斯系統互通，這種情形導致無法順利接收美軍或是英軍「前進駐留加強戰鬥群」的需求訊號。綜上所述，由於面臨許可、能力及連結等問題，最終阻礙北約各國之間實現真正的數位連結。

TF Vöit and U.S. forces will continue to face a lack of NATO appetite to achieve technical interoperability due to a lack of capability, connectivity, and

clearance. The U.S., Estonian, and UK higher headquarters do not indicate a sincere appetite to seek ASCA connectivity due to cross-domain vulnerabilities required to achieve systemic connectivity. The EDF and eFP at Tapa lack the organic capability for secure satellite communications connectivity to enable long-distance fire mission processing via MPE. Finally, as a conscript-based military, the Estonians lack the widespread clearance to operate on the same classifications as the U.S. and UK partners.

目前在許可、能力及連結等問題情況下，不管是「勝利特遣隊」或美軍其他部隊都將繼續面臨北約對於達成技術互通的意願不高。再者，美國、愛沙尼亞、英國高層司令部也未展現誠意來尋求與「砲兵聯合活動系統」的數位連結，況且要達成不同系統的連結，各方還要想辦法先解決跨域連結的弱點。至於愛沙尼亞國防軍與駐防在塔帕的「前進駐留加強戰鬥群」，也尚未具備衛星通信安全連結的建制能力，導致無法實現架構在「任務夥伴環境系統」下的遠距離射擊任務程序。最後，愛沙尼亞的徵兵制也讓高層不放心廣泛下授許可的權力，形成與美軍或英軍在技術互通上的障礙。

An Improved Understanding toward Continued Progress

Fortunately, the positive experiences and lessons learned in human and procedural interoperability between TF Võit and the ODC with the EDF provide core conduits for expedited progress in technical interoperability shortcomings. For units deploying to Estonia, or any other nation in the Baltics, the experiences of the first TF Võit rotation may enable some larger lessons while deployed to support a smaller ally:

- ◆ Removing the mindset of battlespace ownership will benefit the mission, respect the sovereignty of the host-nation partner, and discourage a unilateral approach.

- ◆ Identification of how an ally implements its mission command will enable a more successful deployment and lessons learned.

- ◆ Coordinate and develop localized mission parameters at echelon to develop “business rules” unique to the country.

- ◆ U.S. and UK forces will have to assume risk to the MPE domain to enable NATO partner connectivity to achieve true digital connectivity in LSCO.

- ◆ The U.S. embassy’s military team and the ODC are key to accelerating a deployment’s value and optimizing immediate tactical integration.

- ◆ There are high demands for LRPF capability, but their effectiveness is

hindered by strategic-level command's lack of appetite to assume risk toward full technical interoperability.

◆To improve technical interoperability in the U.S. European Command theater, U.S. forces must either assume risk on cross-domain spillage or accept the swivel chair method as a viable alternative to full technical interoperability.

◆The ODC served as an accessible enabler and responsive mediator that converted tactical unit intent into suitable, feasible, and acceptable courses of action for U.S. operations in Estonia.

NATO's northern and eastern flanks hide more than an overlooked ally capable of credible deterrence and defense against Russian aggression. Estonia serves as a testament to the possibilities of expanded U.S. partnerships. Most importantly, Estonia eagerly invites U.S. forces to build collective interoperability in an otherwise unfamiliar theater.

提升相互理解，持續精進關係

所幸，「勝利特遣隊」、國防合作辦公室、愛沙尼亞國防軍之間在人文交流與程序互通的正面學習經驗，可作為重要的溝通管道，以加速解決技術互通不足的問題。對於部署至愛沙尼亞或是波羅的海地區其他國家的部隊而言，美軍「勝利特遣隊」首次部署愛國的經驗，可以讓他們知道在部署至較小盟國時也能帶來諸多學習經驗，列舉如下：

◆摒除認為自己是戰場主人的心態，將有助於任務遂行，同時須尊重地主國的主權，並防止單方面做事的情況發生。

◆理解盟軍如何執行任務式指揮及其與我方不同之處，這有助於更成功達成部署目的與經驗學習。

◆協調並研擬各部隊的在地化任務參數，以制訂該國特有的業務作業規定。

◆美軍與英軍應身先士卒承擔「任務夥伴環境系統」的執行風險，才能促使北約各國的跟進，進而實現在未來大規模作戰行動中的真正數位連結。

◆美國大使館軍事小組與國防合作辦公室為提升部隊部署價值與優化即時戰術整合之重要推手。

◆雖然愛沙尼亞與各國部隊都將長程精準火力視為重要部署，但受限於戰略層級的司令部缺乏承擔風險之意願，進而妨礙實現完全技術互通之目標。

◆為了改善美國歐洲司令部戰區內的技術互通，美軍須勇於承擔跨域衍生的風險，或是接受「旋轉椅」互通模式作為可行替代方案，以利實現完全技術互通之目標。

◆國防合作辦公室可作為提升戰力推手及靈活應變協調者，並將戰術部隊

的意圖轉化為適當、可行及可接受的行動方案，以支持美軍在愛沙尼亞境內的行動。

北約東北部側翼藏著不只一個被忽視的盟國，其餘盟國同樣都具有可對抗俄羅斯入侵的可恃嚇阻力與防禦力，愛沙尼亞是擴大美國夥伴關係的顯著案例，更重要的是，儘管美軍駐防在愛國這個不熟悉的戰區，但愛國積極態度已成為集體作業互通的促成者。

譯後語

本文作者們點出美軍在部署至較小盟國(如愛沙尼亞)時，常出現老大哥(戰場主人)心態，尤其是單方面做事態度實在是不可取，導致地主國所訂定的一些業務規則付之闕如。所幸，編制在美國大使館下的國防合作辦公室往往扮演紛爭調停者角色，也經常防止美軍犯下不當錯誤。儘管愛沙尼亞獲得美軍駐防協助，為其帶來精準長程火力打擊能力，但愛國領導幹部的心態正確，認為自己的國家自己救，保家衛國是自己責任，不能靠別人。所以，愛國迄今為止最大一筆軍購案，為向美國採購海馬斯系統，以強化自身的精準火力打擊能力，進而對抗鄰近在側的俄羅斯威脅。對照我國而言，國軍在部隊交流上勢必也會遇到一些協調或溝通問題，美國與愛沙尼亞兩軍交流的經驗學習，可供國軍單位參考，正所謂「他山之石，可以攻錯」。

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