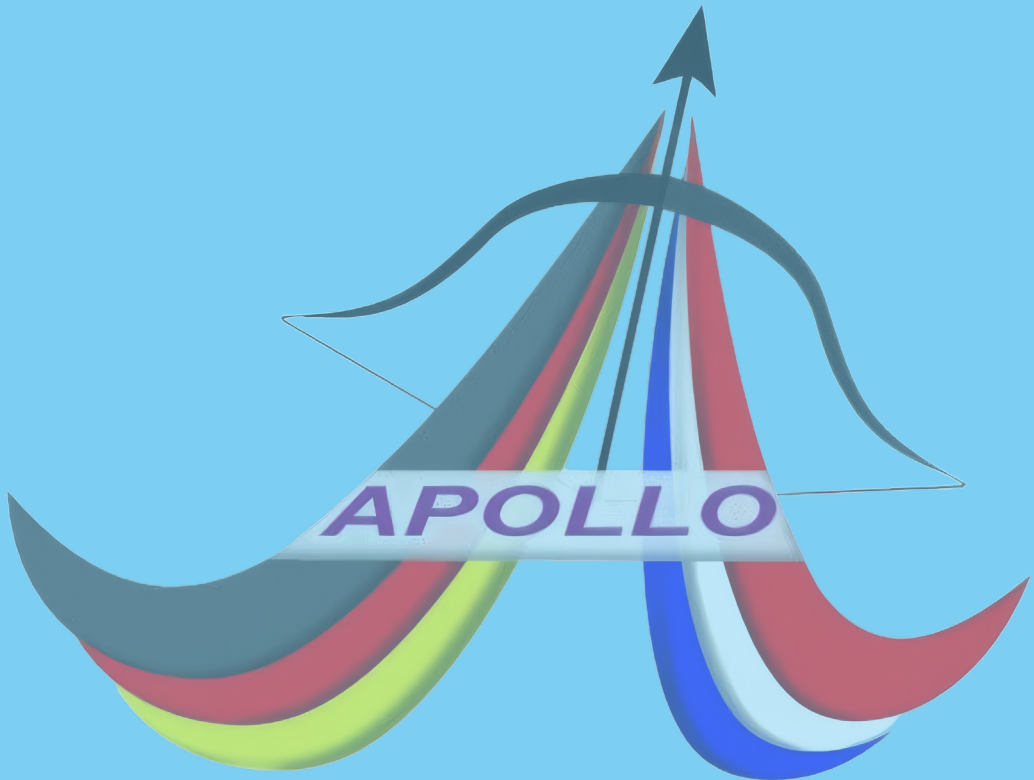


Binational military cooperation in ground-based air defence: Project Apollo as lighthouse project?

Emiel Maliepaard
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Publisher: Nederlandse Defensie Academie. Location: Breda, the Netherlands.

Year of publication: 2026

ISBN: 9789493124509

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Foreword

The Netherlands Armed Forces and the German Armed Forces have been working closely together for many years, resulting in a variety of cooperation and integration projects at different levels. A clear example is Project Apollo, in several publications labelled a “lighthouse project.” This and similar qualifications like “pioneering” or “an example”, were also used for the military cooperation projects Project Taurus, the German-Dutch Tankbatallion 414, and the Franco-German Brigade.

Project Apollo is a clear case of binational cooperation. Multinational military cooperation has become only more relevant in the current geopolitical situation, and it may be valuable to understand the nature, personal experiences, gains, and limitations of this recent Project Apollo with an eye to future cooperation and integration projects. This study, which is not a formal evaluation of Project Apollo, focuses on the experiences of the service members who actually prepare, lead, and do the fighting.

We would like to thank Lieutenant Colonel Wesley Dijkshoorn, chef-staff of DGLC, for his enthusiast and welcoming reply to our inquiry and for providing us with the opportunity to do research on Project Apollo. It is not self-evident to allow researchers to conduct research within an ongoing binational project, particularly not in these demanding times for the units involved. Furthermore, we thank Lieutenant Colonel Benjamin Matthias for sharing his insights (based on his Hogere Defensie Vorming thesis) on the complexity of the ground-based air defence domain and the German and Dutch ground-based air defence organisations and structures.

We interviewed German and Dutch service members who are or were, at different times and in different roles, involved in Project Apollo. These interviews lasted up to 2.5 hours and could have lasted much longer, given the expertise and experiences of the service members, as well as the complexity of Project Apollo. We are extremely grateful for their time, trust, openness, and all the information we received. Participants talked with great passion about ground-based air defence and introduced us to a world that was mostly new to us, resulting in a steep learning curve on both ground-based air defence and on Project Apollo.

This report is one of the outputs of the study on Project Apollo. We hope that the participants, and others who are or were part of Project Apollo, in whatever

capacity, can recognise their experiences in our analyses and interpretations of Project Apollo. Moreover, we hope this study contributes to the exploration of future bi- or multinational military cooperation initiatives.

– The authors

1 Introduction to the Project Apollo study

E. Maliepaard & W.T.C. Bisschop

1.1 Context

The binational cooperation between Germany and the Netherlands has been tight over the last decades (Bundesministerium der Verteidigung, 2023; Duitsland Instituut, 2023; Maliepaard, 2024; Miethke, 2020). The 1 German-Netherlands Corps (1 GNC), based in Münster, Germany, dates back to 1995, and could be understood as a first milestone in the binational military cooperation between Germany and the Netherlands (Bundesministerium der Verteidigung, 2023). Major developments took place in the 2010s. In 2014, 11 Luchtmobiele Brigade (11 Air Assault Brigade) was integrated in the Division Schnelle Kräfte (2014). In 2016, 43 Gemechaniseerde Brigade (43 Mechanised Brigade) was integrated in the 1. Panzerdivision (1 Armored Division). At a “lower” level, the binational Panzerbataillon 414 (Tank battalion 414) was founded, consisting of one Dutch and multiple German companies. In the same year, 2018, the Defensie Grondgebonden Luchtverdedigingscommando (Defence Ground-based Air Defence Command) was reinforced with the German Flugabwehrraketengruppe 61 (61 Surface-to-Air Missile Group), as part of Project Apollo. One year later, the German Seebattalion (Sea Battalion) tightened its bond with the Korps Mariniers (Royal Marine Corps). Finally, in 2023, 13 Lichte Brigade (13 Light Brigade) was the third brigade to become part of a German division, the 10. Panzerdivision (10 Armored Division). All three combat brigades that form the backbone of the Royal Netherlands Army are now under German Army divisions. This list already shows that the German and Netherlands armed forces became increasingly integrated. New binational cooperation projects, such as the cooperation between 1CMI Command and Bundeswehr Operational Communications Centre¹ (Ministerie van Defensie, 2025), and more structural cooperation between German and Dutch reservist units (respectively Unterstützungsbataillon Einsatz 1 and 10 Infanteriebataljon Bewaken en Beveiligen Korps Nationale Reserve) (Wolting, 2025), have been announced recently, which indicates a policy of further intensifying the military cooperation between the Netherlands and Germany (Ministerie van Defensie, 2022, 2023).

Cooperation or integration projects are not necessarily the result of political or ideological eagerness to strengthen multinational military cooperation. In fact,

¹ Confirmed in a Letter of Intent (February 2025).

decisions to cooperate are often motivated by the desire to either (re)gain or keep particular capabilities after years of budget cuts (Maliepaard, 2024; Miethke, 2020). Reasons to cooperate will be discussed in the next chapter, but it is clear that most of the aforementioned cooperation and integration projects were initiated in times of austerity.

Most multinational cooperation and integration takes place on a subregional level, in essence binational cooperation or multinational cooperation between a limited number of neighbouring states (Németh, 2021). These initiatives often take place outside the formal NATO or EU framework and depend on the willingness of states, politicians, and military leaders. The cooperation and integration initiatives between Germany and the Netherlands seem to prove Németh's point, although various aspects of Project Apollo cannot be understood independently from NATO frameworks or efforts, as will be explained later on.

1.2 Ground-based air defence

Ground-based air defence is part of the NATO integrated air and missile defence capabilities, in particular the *Integrated Air and Missile Defence System* and the *Ballistic Missile Defence* capacity (Zwarts, 2017). It can counter various types of external threats, such as (tactical) ballistic missiles, cruise missiles, rocket artillery and mortars, remotely piloted aircraft systems, as well as fixed and rotary wing threats (also Bundeswehr, Online). Ground-based air defence consists of all ground-based systems for air surveillance, command, communication, and combat (Loss, 2024). No single weapon system can protect against all types of external threats, which requires a 360 degrees, layered system of ground-based air defence consisting of very short range, short range, medium range and long range ground-based air defence systems.

From the early Cold War period onwards, ground-based air defence has had an international outlook and relied on contributions from various NATO partners. NATO Air Defence Ground Environment (NADGE), a radar and control system, was approved in 1955 and became operational in 1962. NADGE connected 18 radar stations in western Europe and provided the backbone for Europe's air defence. This system was converted into NATINADS (NATO Integrated Air Defence System) in 1972. It connected more radar stations, and was connected with, among others, British and German air defence systems. Currently, NATINAMDS (NATO Integrated Air and Missile Defence System) is an interconnected command and control network of NATO and national systems, consisting of static and mobile sensors and command and control assets, and weapons systems (Loss, 2024; NATO, 2025).

NATINAMDS uses NATO standards, doctrines, and procedures, and forms the NATO air and missile defence capacity in the full 3D threat spectrum (Zwarts, 2017).

Nowadays, ground-based air defence is an important strategic and tactical capability for armed forces in Europe. The Russian invasion of Ukraine dramatically changed the geopolitical situation in (continental) Europe and led to an increase in the use of ballistic missiles, cruise missiles, drones, and, more limited, helicopters and fighter jets to target military and civilian operations and infrastructure. At the time of writing this, we read in the news about Russian drones and missiles targeting civilians, Ukraine targeting Russian oil refineries, and Ukraine's continuous demand for extra ground-based air defence systems to protect its country, citizens, and service personnel. Just recently, unmanned aerial vehicles, have been detected (and in some cases eliminated) in Poland, Romania, Denmark, Norway, Belgium, the Netherlands, and Germany. Other conflicts, such as between Israel and Hamas, Hezbollah, the Houthi militia and Iran, involve various forms of air assaults with missiles and drones, including by non-governmental actors, though supported by particular states.

It is no surprise, then, that many countries, including the Netherlands and Germany, decided to invest millions in (very) short range, medium range, and long range air defence (weapon) systems to defend military and civilian assets (e.g., harbours, cities), and (host nation support) operations. Units of the German and Netherlands Armed Forces are, or have been, deployed to Eastern Europe (Lithuania, Poland) to deter Russian aggression.

About 15 years ago, the situation was completely different. Politicians and military leaders (openly) doubted the necessity of (maintaining) ground-based air defence and threatened the sheer existence of this expensive capability with further budget cuts. The end of the Cold War promised a new future without symmetrical conflicts, as the Russian threat seemed to diminish and former Soviet countries (and Warsaw Pact members) joined the European Union and the NATO. The new "wars of choice" were mostly understood to be asymmetrical wars against non-state actors without the offensive air capabilities of the Russian Federation (see also Zwarts 2017, who predicted that the current threat is not comparable to the Cold War threat). After the Cold War, these "wars of choice", and in particular peacekeeping and, later on, peace enforcing missions, would become the new *raison d'être* of western armed forces (Broesder et al., 2010 Moelker et al., 2010; also Maliepaard, 2025b).

Zwarts (2017) describes the decline of ground-based air defence in the Netherlands Armed Forces: from a capability that once was able to provide (layered) defence for every army unit and air-force base, and the Groepen Geleide Wapens (Guided Missile Groups, part of the Royal Netherlands Air Force) that was located in Germany as part of the NATO anti air and missile defence belt, to a situation in which the Netherlands Armed Forces can only defend one unit. With the initiation of the Defensie Grondgebonden Luchtverdedigingscommando (DGLC), which integrated all air defence under the single service management (SSM) of the Royal Netherlands Army, the number of army ground-based air defence systems (AGBADs) was halved, and Patriot firing units were reduced from 4 to 3 (Zwarts, 2017). The ground-based air defence in Germany similarly experienced massive budget cuts, resulting in a decrease from 30 Patriot firing units in 1990 to 12 nowadays, and the out-phasing of Gepard and Roland systems, leaving Germany, for the short range air defence, with just Ozelot (Loss, 2024). Like the Netherlands, Germany placed its ground-based air defence under SSM, but, unlike the Netherlands, SSM of the German Air Force.²

In this context, Project Apollo was initiated to institutionalise the cooperation between the German and Netherlands Armed Forces in the domain of ground-based air defence. The reasons for this specific cooperation, according to the service personnel we interviewed in this research project³, will be discussed later on, as well as the specific set-up and organigram of Project Apollo. Nevertheless, as Matthias (2022) puts forward, international cooperation could possibly strengthen the operational capacities as well as the sustainability of ground-based air defence.

1.3 The study

Project Apollo, presented as a lighthouse project, provides an excellent case to study different facets of a binational or multinational military cooperation and integration. The number of publications in the English language on multinational cooperation and integration beyond multinational missions is rather limited (Németh, 2021), despite the existence of many cooperation and integration projects that vary in scope, objectives, manifestations, and durability (e.g. Kraft,

² The German Army will have their own short range ground-based air defence capabilities in due time.

³ Throughout this document we use the term “service personnel” or “service members” as a generic term to refer to military personnel of all ranks (officers, non-commissioned officers and other ranks (e.g. privates, corporals)).

2024a, 2024b; Miethke, 2020). Notable exceptions are studies that focus on cultural aspects of multinational cooperation and integration, including cultural interoperability (see section 2.3.2), in particular regarding the 1. German-Netherlands Corps (e.g. vom Hagen et al., 2005; Janssens, 1999; Moelker et al., 2007) and Tankbatalion 414 (e.g. Essens et al., 2021; Wermser et al., 2020). The study on the *deutsch-französische Streitkräftekooperation* had a wider scope, analysing organisational aspects and the organisational culture of the German-French military cooperation (see the edited volume of Leonhard & Gareis, 2008). This study included aspects such as command styles, organisational structures, and national regulations; these aspects are important to understand the day-to-day experiences, or the lived experiences, of the service members who partake in the multinational cooperation or integration, and to understand the complexity of this type of cooperation projects.

Likewise, our study has a broad scope, focussing on the run-up of the project, the framework of the project, sovereignty and national influences on the project, technical interoperability (e.g. weapon systems, radios, C2 support systems etc.), operational interoperability (e.g. doctrines and procedures), and organisational interoperability (e.g. organisational culture, cultural interoperability, work practices and more). We prioritise a soldier-based view (Molendijk & Kalkman, 2023) instead of a scholar-based view, as the boots on the ground are the ones with the lived experiences of Project Apollo, its working groups, and cooperation and integration aspects.

The study did not start with a clear problem statement or problem analysis from the field, but was driven by the intellectual interests of the two authors in multinational military cooperation and integration at different levels and the factors that enable or hamper it. As Kraft (2024a) warns, it is important to be open-minded and try to understand what actually happened instead of working from assumptions or ideological viewpoints on multinational military cooperation in analyses of military cooperation. This led to a number of rather open questions that guided our research and provided opportunities to focus on the experiences of the military personnel involved.

Research questions that guided our project are:

1. Which contextual factors and decisions led to the initiation of Project Apollo?
2. What are the key elements of Project Apollo and how did Apollo develop since the beginning of the project?

3. To what extent did Project Apollo influence the day-to-day life of the German and Dutch service members of the ground-based air defence?
4. What was the degree of interoperability reached in Project Apollo?
5. To what extent did national and organisational cultures influence the cooperation in Project Apollo?
6. To what extent did the sovereignty of both countries affect Project Apollo and how did Project Apollo affect the sovereignty of both countries?
7. What are the main challenges and success factors of Project Apollo?

Chapter 2 introduces key concepts that guided this study. Chapter 3 describes the methodological approach of this study (population, sample, research method and instrument, and our analytical approach). Chapters 4 to 8 describe the findings of our study. Finally, we discuss the findings and offer conclusions and recommendations for binational cooperation and integration projects in chapter 9.

2 Multinational military cooperation: theoretical insights

E. Maliepaard & W.T.C. Bisschop

2.1 Introduction

The relation between the military and the nation state is a pertinent topic in political theory. Early modern thinkers described the relationship between the state and society in terms of a social contract in which individual autonomy is limited in order to guarantee of security against external threats (see Moelker et al., 2010). To that end, states have the monopoly on the use of violence, and exercise this through the institutions of the military and the police. According to this idea of a social contract, the authority on the legitimate use of force is thus essential to a state (e.g. King 2005). In the words of King: “States have ultimately been defined by their position of a legitimate military force” (2005, p. 322).

Charles Tilly’s famous quote “War made the state and the state made war” exemplifies the strong ties between the (nation) state, its monopoly on the use of violence, and the military (Moelker et al., 2010). This is a widely shared view, both in politics and the military (Gareis, 2008). It is one way to explain the idea of national sovereignty in the employment of armed forces. At the same time, states often depend on cooperation with other states to muster enough military power against external (and sometimes internal) threats. Today, NATO is an example of this, and it is also apparent in the current war between Russia and Ukraine. The need for such military cooperation will, presumably, not decrease in the future. Some politicians, like those of the pan-European political party Volt, the Dutch Labour Party (currently Pro), the Dutch Democratic Party (D66), the German Free Democratic Party (FDP), and the German Social Democratic Party (SDP), even call for the formation of an European Armed Forces, thus going beyond the sovereignty of nation states. This long-term objective gained extra momentum after Donald Trump began his second term.

Project Apollo is an interesting case to study what actual military cooperation could look like, and what its problems and possibilities are. In the rest of this chapter, we discuss the theoretical background to our case study, respectively (1) the concept of multinational military cooperation and its manifestations, (2) the concept of sovereignty, (3) reasons or motives for multinational military cooperation, (4) success conditions identified in earlier multinational military cooperation projects, (5) the concept of interoperability, and (6) a brief history of military cooperation between Germany and the Netherlands.

2.2 Multinational military cooperation

2.2.1 Exploring the concept

In the 1990s, NATO paved the way for advancing multinational military cooperation (MMC) with its emphasis on multinational forces to “maintain a credible collective defence, enhance Alliance cohesion, reinforce the transatlantic partnership and strengthen the European pillar” (NATO 1995 in Gareis, 2008, p. 20). Before this decade, multinational military cooperation was limited to multinational headquarters, while units functioned in the national chain of command with little to no cooperation with other armed forces (Zapfe, 2015). The introduction of NATO’s Combined Joint Task Forces (CJTF) in the 1990s paved the way for closer multinational military cooperation (Gareis, 2008). Van Veldhuizen et al. (2017) claim that the current geopolitical developments – prior to the Russian Federation invasion of Ukraine, but after the Russian Federation occupied Crimea and parts of the Donbas and Luhansk – require more multinational military cooperation, within the NATO framework, the EU framework, and other binational or multinational frameworks.

To start, it is necessary to conceptualise what MMC encompasses. Gareis (2008) describes multinational military cooperation (*Multinationalität* in German) as having for a long time referred to all possible forms of cooperation between service members of different nationalities. This indeed seems to be the (working) definition of multinational military cooperation in a variety of studies. Csiki and Németh (2012), in their description of multinational defence cooperation, include the clause that this cooperation should aim at developing military *capabilities*, referring to “means of action that facilitates the achievement of a given military goal or effect” (Csiki & Németh, 2012, p. 3). These means include exchanges, liaisons, training, exercises, common doctrines, shared procurement, and multinational formations (also Németh, 2021; Zapfe, 2015).

Gareis (2008) offers a typology of cooperation, differentiating between horizontal and vertical cooperation. Horizontal cooperation refers to manifestations of cooperation between branches or contingents of armed forces at a *similar* level. The actual cooperation usually takes place mainly in the operational and strategic command, between staff officers. This suggests that in most forms of horizontal military cooperation, actual multinational cooperation between other ranks and non-commissioned officers is rather absent. Units remain within their national chain of command and cannot be deployed interchangeably in this type of cooperation. The Franco-German Brigade provides a good example of this: the

German brigades and French regiments work in their own chain of command and only rarely meet service members of the other country, even when based at the same location (Pajon, 2008).

In Gareis' typology, vertical cooperation is a cooperation of contingents of armed forces from different states, coordinated by a multinational body – in essence a multinational headquarters or a multinational staff that commands service members from different nations. Vertical cooperation, then, has the potential to break down national structures and chains of command, because contingents of different armed forces can be, ad hoc or modular, replaced with contingents from other armed forces (Gareis, 2008). This reality can be observed in a variety of NATO structures and, of course, in a variety of peacekeeping and peace enforcement missions, such as Afghanistan, Bosnia, and Iraq (e.g. Maniscalco, 2018; Soeters & Manigart, 2008). As Zapfe (2015) notes, most of NATO multinational cooperation during the Cold War period involved almost no peacetime integration. Units operated in their own national chain of command. Integration took place mainly in headquarters, whereas units themselves were nationally homogenous, for political and military reasons. Politically, multinational units would hinder states' independence and autonomy to act, and thus reduce (strategic) flexibility and freedom. Militarily, the variety of weapons (or weapon systems), C4I, and logistics, but also more "soft" issues, such as diversity in languages (Zapke, 2015), may hamper the combat effectiveness of multinational integration at lower levels.

Gareis' typology is helpful, but not totally satisfactory. Pajon (2008) shows, for example, that both horizontal and vertical cooperation may exist within one integration project (the Franco-German Brigade). Multinational cooperation may take other forms, as military sociologist Soeters writes in his overview of research on multinational military cooperation:

These concrete [interorganisational] interactions may occur at various levels: in project teams in which individual military personnel from different nations work together, for instance on military research and development (R&D), but also in operational units and missions, small and large, and in international headquarters (HQs) or national HQs that are in the process of internationalising their workforce (Soeters, 2022, p. 50)

Kraft (2024a) discusses at length the concept of multinational military cooperation and proposes a straightforward definition of MMC: "the direct (*unmittelbar*) and institutional cooperation (*institutionalisierte Zusammenarbeit*) between two or more armed forces, or parts of armed forces" (2024, p. 32). Kraft's (2024a) definition

aligns with Németh's (2021) extended definition in which he stresses the "permanent structured way" as an important condition for multinational defence cooperation (next to the "capabilities development" condition). Institutional cooperation in Kraft's (2024a) definition consists of both a structural and coordinated cooperation between two countries. As D'Orazio (2013) notes, institutional cooperation requires a signed agreement, treaty, or another written form to validate the mutual affiliation. Examples of such agreements are a Declaration of Intent, a Memorandum of Understanding, and a Transfer of Authority, depending on the form of cooperation. In that respect, institutional cooperation differs from what D'Orazio (2013) calls behavioural cooperation, which refers to a one-time cooperation between armed forces, for example in one specific mission or operation. But this distinction is not very sharp: even these one-time MMCs need to be organised and embedded in armed forces, for example via mandates and rules of engagement, to provide the framework for the actual cooperation during a mission.

Kraft (2024a) proposes a process-based model which differentiates between structures, processes, and activities⁴. Structures refer to actual units, varying from operational units to headquarters. Processes predominantly encompass a range of institutional processes such as doctrine development, military education, exercises, infrastructure, political processes, and procurement. In Kraft's words, processes provide the framework and support for military organisations at all different levels. Some of these processes exist independent of military structures. For example, both the German and Netherlands Armed Forces have distinct organisations and processes to acquire material (respectively BAAINBw and COMMIT) and other processes that were created for specific projects. Finally, activities refer to military missions, like international peacekeeping or peace enforcement missions, (humanitarian) crisis operations, and other military operations in their own or in foreign territory (also Kraft, 2024b). In popular terms, activities are "the real deal" or the "game for which service members train", to use the words of Dutch service members (cf. Maliepaard, 2025b, 2026a).

In her book *Militärische Multinationalität in Europa*, Kraft (2024a) provides an overview of different multinational structures and multinational activities, and a limited number of (potential) multinational processes in relation to (professional) military education, procurement, and international exercises. These structures,

⁴ Although Kraft refers to Easton (1965) and Almond and Powell (1978), a clear introduction in both theories and reflection on its use for MMC is lacking in her book. A somewhat more substantial introduction can be found in Kraft (2024b).

processes, and activities are often related to NATO, for example, the NATO Rapid Force, the Very High Readiness Joint Task Force (VJTF), and the more recent (New) NATO Force Model. They may also be the result of binational or multinational cooperation that is instigated by national states rather than NATO requirements or models.

Kraft's process-based model is not specific to multinational military cooperation and could also be used to analyse military organisations of a single country's armed forces, as well as any organisation or (political) system. This does not come as a surprise, since Kraft borrows this model from the political sciences. Project Apollo will be positioned later on in this report in relation to the structures, processes, and activities (chapter 4, 5 and 6, and section 9.3 and 9.9.1); for now it suffices to note that Project Apollo refers to all these levels, and that they are interwoven. Structures, like units, result from processes, like doctrines, exercises, military education, general work practices, and more.

In our report we define multinational military cooperation as all direct and coordinated cooperation between two or more armed forces, or parts of armed forces, be it in peacetime business operations, exercises, or during operations/missions in (potential) hostile environments: The specific structure, tasks, and objectives as well as the duration and degree of institutionalisation may differ for each cooperation.

[2.2.2 Reasons for multinational military cooperation](#)

Multinational military cooperation, in whatever form, relies on decisions made by sovereign states. These decisions are based on a variety of motives (Van Veldhuizen et al., 2017). NATO motives for multinational military cooperation in the 1990s were: maintaining a credible collective defence, enhancing alliance cohesion, reinforcing the transatlantic partnership, and strengthening the European position within NATO (Gareis, 2008). These are all political motives for expanding or intensifying cooperation, although creating a credible collective defence has a clear military goal as well. In essence, there is a broad understanding that most sovereign states are not able or willing to fund all the capabilities required for the independent defence of their own territories against external threats (Van Veldhuizen et al., 2017).

With respect to military cooperation and integration, Miethke (2020) refers to three particular types of, what he calls, operational defence cooperation: (1) role specialisation, (2) pooling and sharing, and (3) joint force generation. Bottom line:

countries have limited financial resources for maintaining a standing armed forces and must cooperate to remain (or become) a functional armed forces. Role specialisation means that different countries sign agreements that divide the priorities of the respective armed forces. This may imply that a particular country does not possess capability A, but is strong in capability B. Of course, role specialisation makes states more vulnerable in the domain of defence. In the event of war (and serious threats), countries must unconditionally help each other to be able to use all capabilities necessary in order to wage and win a war. It is questionable in the current geopolitical situation to what extent states are willing to take this risk.

Pooling and sharing is the joint procurement and use of capabilities in order to gain, regain, or maintain specific capabilities which may be too expensive to procure or keep as a single state (Miethke, 2020). Examples are the European Air Transport Command, the NATO Multinational Multi-Role Tanker Transport Fleet, or the dual use of the *Zr. Ms. Karel Doorman*, (a joint logistic Support Ship) by the Royal Netherlands Navy and the German Navy. This motive comes closest to Csiki and Németh's (2012) focus on capability building, which for them is a necessary condition of multinational military cooperation.

Joint force generation "would imply that two or more partners maintain their full spectrum of military capabilities and instead rely on a common set of supply routes" (Miethke, 2020, p. 65). Similar to the first two motives, this motive has a strong financial origin because shared procurement, shared maintenance of (weapon) systems and other materials, or shared use of facilities are considered to be cost-effective (e.g. buying in bulk, lower maintenance personnel costs, lower real estate costs) – an assumption questioned by some (e.g. Kraft, 2024a).

Assumed or perceived cost-effectiveness of multinational cooperation seems to be the prime motive for states to cooperate, again in the context of massive budget cuts since the end of the Cold War era (Gareis, 2008). King (2005) describes, long before the changing geopolitical reality of Europe, that the post-Cold War period is characterised by (1) concentration and (2) transnationalisation. Concentration refers to the changing position of the armed forces: not only reduction but also a new function in the changed post-Cold War security landscape: a stronger, more mobile and better equipped all-volunteer armed force. Specialist military units are essential in this stance. They, in King's words, "deliver a great range of capabilities with fewer, more skilled personnel" (2005, p. 327). Burczynska (2013) links the concentration with the professionalisation of armed forces as compared to the

Cold-War period, which suits the technological developments and increasingly complex military equipment and systems.

It is highly questionable whether countries, in particular smaller ones, would still be able to maintain all necessary capabilities. Transnationalisation is, according to King (2005) the solution to the problem of insufficient funds or personnel to maintain all necessary capabilities (see also Burczynska, 2013 on multinational military cooperation between small countries with likewise small air forces). Transnationalisation refers to multinational military cooperation between, mostly, specialist military units. This implies multinational cooperation on lower levels as compared to the Cold-War period cooperation at the brigade, division, or corps level. It also implies more cooperation with different armed forces to secure one's national defence, its military capabilities, and national interests.

Rationalist motives, such as cost-efficiency, spreading of investments and risk, and building or maintaining military capabilities, are not the only motives for multinational military cooperation. Kraft (2024a) identifies, for example, legitimacy-based motives that focus on the position of the state in the international military and political environment. These motives are: military cooperation as a symbol of political cooperation and bonding between countries (binational), a symbol to show one's commitment to a particular security/defence alliance (multinational or supranational), and military cooperation as an instrument to gain national prestige. These motives show, similar to motivations for countries' decisions to participate in peacekeeping or peace enforcement operations, that armed forces are a political instrument to gain legitimacy or influence in the international political system and are used to show commitment to military alliances. European countries, for example, participated in Iraq and Afghanistan to show their commitment to NATO and to the USA, hoping it would strengthen the military, and sometimes economic, bond with the USA (see Bisschop, 2025 who provides multiple examples of countries and their motives to participate in wars and missions). Remarkably, existing political and economic ties are rarely mentioned as motives for multinational military cooperation but it could explain why neighbouring countries often cooperate.

Finally, Lundqvist and Widen (2016) identify one of the main motivations for Swedish-Finnish (naval) cooperation: "external military security threats to the national interests of both states (...) perceived as unmanageable by their own capacities" (p. 352). This motive may be more important for countries with smaller armed forces, such as Sweden and Finland, but may also apply to other countries,

depending on the perceived external military threats. Having shared (strategic) objectives – whether economic, military, or political, or a combination of these – may increase the motivation to establish or to intensify bi- or multinational military cooperation projects.

2.2.3 Success conditions for multinational military cooperation

On the basis of three case studies⁵, Németh (2021) identifies five main conditions for successful multinational defence cooperation. These conditions can be used to understand successful multinational military cooperation. The conditions can be divided into (a) structural and (b) situational factors. To cite Németh:

The structural factors are: 1) the existence of the European security community; 2) the perception that individual European armed forces do not have appropriate funds for defence; and 3) previous defence collaborations between the participating states. The situational factors are: 1) strong leadership by a group of enthusiastic high-level officials and good interpersonal chemistry between them; and 2) a supportive political milieu for the defence cooperation (2021, pp. 11-12).

A security community “is a group of states among whom conflicts are resolved by peaceful means, so there is a high expectation that this norm will be maintained and that war would be extremely unlikely, if not inconceivable” (Cottey, 2013, p. 13 in Németh, 2021). Németh argues that Europe developed an European security community during the Cold War, first consisting of West-European countries, and later including former Soviet states.

The conviction that individual armed forces do not have sufficient funding for their nation’s defence is widely agreed on. This conviction is connected with the change from conscription armies to all volunteer forces and the drastic budget cuts since the end of the Cold War. The further reduction in troops, material, and other facilities since the 2000s, and especially since the financial crisis, led to a situation in which most states are not able to provide a realistic deterrence on their own or to win a (defensive) war. This perception was strengthened by the Russian invasion of the Crimea and the Wales summit, both in 2014. In terms of the social contract theory, the state is not able to live up to its responsibility to defend its citizens against external threats but requires allied countries for a realistic deterrence.

⁵ The case studies: 1) the creation of Nordic Defence Cooperation (NORDEFCO) in 2009, 2) the creation of the British– French Lancaster House Treaties in 2010, and 3) the creation of the Central European Defence Cooperation (CEDC) in 2011.

Previous partnerships and cooperation projects, in particular successful ones (Lundqvist & Widen, 2016), may facilitate new cooperation and integration projects between states. Németh (2021) argues that there is a path-dependency in cooperation projects between states. Cooperation broadens and deepens personal and professional networks, institutional arrangements, and lessons identified/lessons learnt, which may support future projects. An objection to this assumption is that not all cooperation and integration projects are fruitful. For example, the binational Lithuanian and Polish peacekeeping battalion that was based in Poland (LitPolBat), between 1997 and 2007, was disbanded because collaboration proved to be difficult due to, for example, linguistic and geographical barriers (Krivas, 2001).

The situational factors – strong leadership by high-level leaders and a supportive political milieu – may seem similar, but are different. High-level leaders, who in military organisations often are senior officers, need to be boundary spanners by nature. Boundary spanners theory, based on a wide variety of case studies in the field of organisational and management sciences, posits that boundary spanners are people who are considered by personnel of both organisations to be key actors for facilitating and engaging in significant interactions (Barmeyer et al, 2021). They need to have an exchanging, linking, facilitating, and intervening function, as well as possess deep cultural skills and strong language skills (see Table 1). In addition to having skills and fulfilling the different functions of boundary spanners, successful cooperation is aided by good social connections and chemistry between military and political leaders of the countries and organisations involved.

Table 1: Boundary spanners
Barmeyer et al., 2021, p. 28

Exchanging function	Personal engagement in the exchange of information, knowledge, and other resources with actors across units and organisations
Linking function	Utilisation of personal networks to enable other, previously unconnected actors to connect across unit and organisation boundaries.
Facilitating function	Personal engagement in facilitating and assisting others' cross-boundary transactions.
Intervening function	Personal active intervention in inter-unit and inter-organisational interactions to create positive outcomes.
Cultural skills	Extent to which individuals have internalised both tacit and explicit aspects of domain-specific knowledge, values, norms, and beliefs.
Linguistic skills	Extent to which individuals are able to interfere in and to master the linguistic and semantic signals that together constitute a particular language and to transfer meaning in that language.

Armed forces are executive organisations, so policies and priorities are ultimately decided by national governments. To paraphrase Németh (2021), without political support and a realistic framework, these boundary spanners operate in a vacuum and are less effective, not to say effortless. Political support and guidance help to provide the necessary resources and direction for boundary spanners to perform their exchanging, linking, facilitation, and intervening functions. Moreover, military cooperation agreements between countries often are too vague to set the right preconditions for cooperation projects (e.g. Abel & Richter, 2008).

2.2.4 Multinational military cooperation and sovereignty

Decisions to military cooperate with other states are made by sovereign states. At the same time, it is quite likely that multinational military cooperation affects a state's sovereignty.

Sovereignty is a contested concept (cf. Agnew, 2005; Barkan, 2015; Besson, 2012; Krasner, 1999; Philpott, 2024; Schrijver, 2000). It is classically understood as the power to govern a society with generality and supremacy in a certain territory, that is, without there being an equal or superior power. We may distinguish internal from external attributes of sovereignty (Berg & Kuusk, 2010; Besson, 2012; Philpott, 2024). Internal attributes of sovereignty pertain to the authority within a territory, and can be associated with symbolic features like a flag, a national anthem, a national holiday, and a capital city). It concerns a state's governance (head of state, autonomous government, constitution), monetary system, territorial integrity, and permanent population. Sovereignty's external attributes have to do with recognition by other states, associated with diplomatic relations, membership of international organisations, and so on.

Sovereignty is conceptualised in various ways. Krasner (1999) distinguishes four 'meanings' of sovereignty. (1) Domestic sovereignty: the organisation of public authority and the level of effective control within a state. (2) Interdependence sovereignty: the ability of public authorities to control cross-border movements of people, goods, and capital, but also of ideas and diseases and pollution. (3) International legal sovereignty: the mutual recognition by other states and international organisations, with the possibility to enter into international agreements and treaties, exchange diplomats, etc. (4) Westphalian sovereignty: the exclusion from interference in domestic affairs by external actors. Sovereignty in this sense can be compromised by both invitation (inviting a foreign country to establish a military base in one's country, or committing to the rulings of the European Court of Justice, for example) and intervention (like war). These four

“meanings” are different but partly overlapping “meanings” (Krasner, 1999, pp. 15-27). Krasner argues that state leaders employ these concepts opportunistically, and considers sovereignty a form of ‘organised hypocrisy’ structuring international relations. Some consider his approach too statist (e.g., Agnew, 2005), identifying ‘sovereignty regimes’ that differ in the degree to which they use a particular territory for political, social, and economic ends. Our interest is in multi- or binational military cooperation, which is inherently statist.

The concept of sovereignty is essential to many debates on the morality of war. In traditional just war theory, only the supreme authority in a particular territory can be the legitimate authority to wage a war (Johnson, 2014). But wars are often fought in cooperation with other states. Clearly, multinational military cooperation may help the protection of sovereign states. It could also weaken it, by limiting a state’s *de facto* power to (decide on the) use (of) military force (Bisschop, 2025). This applies in particular to states with more powerful coalition partners that may exert influence on them to engage in particular military activities. Analysing a case of bi- or multinational military cooperation, one question to address is how the cooperation affects the sovereignty of the states involved, and the other way round—how the sovereignty of states affects military cooperation.

Supremacy does not come in degrees—it is the highest degree. But a person or institution can be closer or further away from having supreme authority within a territory. States may have authority in one domain, but not in another. For example, countries participating in the European Union have authority over their defence, but not over their currency. And a state can be *de facto* stronger or weaker in a particular domain. For that reason, it makes sense to identify factors that contribute to a state’s sovereignty. Even if the debate on the most adequate account of sovereignty is not yet settled and there is no agreement on the terms’ necessary and sufficient conditions, there is widespread agreement on factors that contribute to the degree of sovereignty of a person or institution within a territory. The factors listed below describe aspects of the various notions of sovereignty and contribute to the sovereignty of a person or institution within a territory. There are perhaps other factors as well, but these five factors will be used as a lens to analyse how binational military cooperation affects the sovereignty of the countries involved, and the other way round. These five elements are:

1. The principle of non-intervention, or the principle that external actors are not to interfere with internal affairs. This is related to the notion of Westphalian sovereignty mentioned above (cf. UN Charter art. 2.4 and 2.7).
2. Border control over the cross-border movements of people, goods, capital, ideas, etc.
3. Internal control. This involves the superior power to rule and control, that is, to prescribe and uphold laws, to take and lead collective action, and to act on behalf of the collective.
4. International recognition by other states and supranational institutions, for example via diplomatic representation. This is an external and de jure form of sovereignty, but increases the internal and de facto form of sovereignty. Krasner includes here the sovereign equality of the member states, independent of size or power (cf. UN Charter, art. 2.1).
5. Self-sufficiency, or independence from others in executing desired policies. This greatly improves the de facto sovereignty. Strictly speaking, it need not affect the legitimacy of the de jure sovereign, but lacking self-sufficiency weakens him. This factor could be viewed as a determinant of internal control: the more a state depends on other states for resources, the less power it has to act independently.

2.3 Interoperability

2.3.1 A difficult concept

One of the core concepts in multinational cooperation is interoperability⁶. Paget argues that interoperability is important at the strategic, operational, and tactical levels of armed forces. He defines interoperability in its basic form as “a measure of the degree to which various organisations or individuals are able to operate together to achieve a common goal” (2016, p. 42). In this basic form, the focus is on the outcome, namely whether organisations (and personnel) can achieve a common goal. The “how” seems to be less important, as long as the parties are able to work together.

NATO provides a more detailed and elaborate definition of interoperability. NATO (n.d.) describes the concept as:

the ability for Allies to act together coherently, effectively and efficiently to achieve tactical, operational and strategic objectives. Specifically, interoperability

⁶ Parts of this section have been published in Maliepaard (2024).

enables forces, units and/or systems to operate together, allowing them to communicate and to share common doctrine and procedures, along with each other's infrastructure and bases. Interoperability reduces duplication, enables pooling of resources and produces synergies among all Allies, and whenever possible with partner countries.

As the underlined phrases show, NATO stresses not only effective and efficient ways of operating, but also a coherent way of operating. 'Coherent' refers to standardised, connected, and logical ways of operating. This may reflect discussions on standardisation between NATO members, in particular in doctrine and standard operating procedures (also Burczynska, 2019; Drent et al., 2013). Interoperability is conceptualised here, as the second underlined phrase shows, as preconditional for multinational cooperation (e.g. Maliepaard, 2024). Further, interoperability is "allowing them [armed forces of different countries] to communicate and to share common doctrine and procedures." Of course, this is true, but the relevance and importance of interoperability cannot be overstated: interoperability means the *ability* to communicate, use shared doctrines, concepts of operations, and other procedures, as well as shared use of systems and work practices that are aligned.

NATO (2023) identifies four dimensions or domains of interoperability. These dimensions are the (a) technical, (b) procedural, (c) human factor, and (d) information. The technical domain consists of hardware, equipment, armaments, and systems. The 'material' domain would be a better term to describe this domain that heavily relies on hardware, equipment, and systems. The procedural domain consists of doctrines and (operating) procedures such as Standard Operating Procedures (SOPs), which may be relatively easy to align with existing NATO doctrines (of course, interpretation differences between countries exist). Nevertheless, evidence suggests that different procedures exist for many "everyday" practices. As Zandee and Ellison observe: "even for the evacuation of wounded soldiers, the German Heer and the Dutch Army [sic] have different procedures" (2024, p. 18). The human domain includes language (terminology) and training as main aspects, leaving out cultural aspects such as national languages, military culture, organisational culture and so on. Nevertheless, Deni et al. conclude that issues such as mutual trust and understanding "are achieved by developing and strengthening relationships during training and operations" (2025, p. 55). The fourth domain, information, is interwoven in the aforementioned three levels. Interoperability here seems to focus more on cooperation, for example in exercises and operations, instead of actual integration of different organisations.

NATO (2022) scores these domains in four levels of interoperability: not interoperable at all (level 0), deconflicted (level 1), compatible (level 2), and fully integrated (level 3). Level 0 means co-existence but no further cooperation. Level 1, deconflicted, means that forces operate in the same area with limited interaction because of all types of prohibitive technical, procedural, or human barriers. Compatible means that forces operate in the same area without *prohibitive* barriers (but not free from barriers). Fully integrated, then, means that forces use common networks, capabilities, procedures, and language (see Deni et al., 2025; NATO, 2022). As this typology shows, the different levels of interoperability all are related to operations, be it during peacekeeping or peace enforcement missions or operations related to defending NATO territories. It may need some adjustments for peacetime “business operations,” for example to analyse the integration of the three combat brigades of the Netherlands Armed Forces in German divisions. Of course, they train together, but do not operate together.

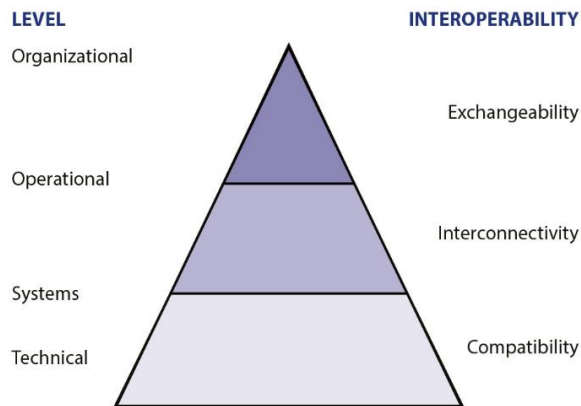
Moon et al. (2014) provide a more complex model, as compared to the aforementioned NATO model, to differentiate between different levels of interoperability in relation to cooperation and integration and between interoperability outcomes (see Figure 1 on the next page).⁷ This model is also used in the Netherlands Defence Doctrine to shed light on interoperability issues. The four levels of interoperability – technical (individual parts), systems (“connected” parts), operational (= everyday work practices and operating procedures), and organisational interoperability (= work culture and organisation as a whole) – are linked with different “objectives” of interoperability: compatibility, interconnectivity, and exchangeability.

This model lacks clear definitions, what makes it difficult to assess exact differences between what they call the “levels of interoperability.” Differences between technical and systems interoperability are quite difficult to identify as all parts are connected. Talking about “levels of interoperability” is problematic as it assumes a logical order: first technical interoperability, then systems interoperability, then operational interoperability, and finally organisational interoperability. It thus means that technical and systems interoperability need to be well-organised to allow for sufficient operational and organisational interoperability. This may make sense since this model finds its origins in IT-studies, but referring to these four elements as “levels” and discussing outcomes at the level of compatible,

⁷ See Moon et al (2014) for a variety of models that can assess (parts of) the four levels of interoperability. This model is derived from Kasunic (2001) who discusses C4I interoperability.

connectivity, and exchangeability, makes it even more confusing. We use the term “domain” instead of “level” when referring to technical, systems, operational, and organisational interoperability – and will present a slightly adjusted model later on (see section 2.3.4).

Figure 1: Interoperability at different levels
Moon et al. (2014), p. 6



Paget (2016) argues that discussions on interoperability predominantly focus on what NATO (2022) calls the technical domain and what Moon et al (2014) call technical and systems interoperability. This leaves the procedural/operational and organisational/human factor domains out. This hampers our understanding of cooperation, especially of integration projects in which structures have shared systems, procedures, work practices, and objectives (cf. Soeters & Szvircsev Tresch, 2010). Operational and organisational interoperability may be most complex due to the complexity of everyday work practices, work cultures, military cultures, and organisations, which are products of constant repeating practices (see section 2.3.2 on cultural interoperability). As Abel and Richter (2008) argue, service members who enter the armed forces will be socialised (informally and formally) in a particular organisational culture, learn which are the dominant or desired norms and values, what is (un)acceptable behaviour, and what should be striven for, etc. Through socialisation, they internalise these norms, values, behaviours, and ambitions (see also Schatzki, 2008). Abel and Richter (2008) show how the socialisation and internalisation may affect the cooperation, for example regarding differences in preferred or acceptable leadership styles. Moreover, new service members will be instructed in their basic training and subsequent advanced training to follow specific procedures to harmonise operational activities (e.g. task verbs, drills). They also become acquainted with everyday working practices in their

units and at their bases, for example related to hierarchy, problem-solving, and more. Interoperability at the operational and organisational level is complex and relates to the essentials of the organisations involved.

2.3.2 Cultural interoperability

Cultural interoperability is not explicitly mentioned in the model presented by Moon et al. (2014). Nevertheless, it is a vital part of operational and organisational interoperability. Researchers even state that cultural interoperability may be more important than other forms of interoperability (e.g. Moelker et al., 2007; Paget, 2016). Wermser et al., in their study on Project Taurus, describe cultural interoperability as:

The ability and motivation of Netherlands and German soldiers to work together, to bridge differences in thinking and doing, in (implicit) rules and routines - effectively and with minimal extra effort (2020, p. 3).

This definition emphasises *bridging* differences, which reproduces the idea of two different cultures, in their case a distinct German and a distinct Dutch culture that govern people's actions and understandings (Maliepaard, 2024). At the same time, Wermser and colleagues focus on a deeper understanding of each other's culture: not just focusing on the values, norms, and national peculiarities, but also on implicit and unwritten rules and working practices (see Maliepaard, 2024). Obtaining this knowledge may be rather complex due to the multitude of military cultures within military organisations (e.g. Soeters, 2018; Soeters et al., 2006) and because it requires participating in these organisations and practices to acquire this knowledge.

The authors of the study on Project Taurus identified several conditions of cultural interoperability, which depend on the three dimensions of complementarity, compatibility, and commitment (see Table 2 on the next page). Similar to models on overall interoperability, the authors differentiate between multiple "levels" of interoperability to differentiate between different degrees of cooperation and integration. The conditions mainly refer to how one perceives the cooperation and to the personal, social and professional identities of individuals (see Table 2); they fail to consider the work practices which constitute the organisation, the work culture and more.

Table 2: Conditions of cultural interoperability
Essens et al., 2021, p. 42

Complementarity	Compatibility	Commitment
Organisational strategic opportunities	Extra effort	Means and facilities
Personal opportunities for learning and growing	Effectiveness of the work	Motivation to collaborate
Pride in the collaboration	Cultural fit – interaction affinity	Trust in partners
Perceived complementarity of knowledge and skills	Cultural fit – perceived similarity	Common identification (with partners)
Unique contribution to the collective	Cultural fit – cultural differences	Identification with the collaboration

Paget does not focus on *bridging* differences but focuses on a shared understanding. He maintains: “cultural interoperability can be grounded in a common language, a similar ethos and comparable principles” (2016, p. 42). Cultural interoperability is about speaking a common language, and Paget is not referring to actual languages (German, Dutch, or English) but to a mindset and cultural framework for cooperation in everyday shared practices (Maliepaard, 2024). The phrase “a similar ethos” is rather vague, Paget admits. He more or less equals it with a similar military culture. Stewart et al. (2004) also use the term *ethos*, which for them consists of elements like commitment to multinationality, shared goals and purposes (e.g. a shared strategic purpose and a shared operational approach), culture and values (national political strategic values as well as interpersonal values), and the level of trust.

Paget (2016, 2020) mentions “*Einheit im Denken*” as the German phrase for cultural interoperability, in particular cognitive interoperability, and speaks of an interoperability of the mind. In his article on Professional Military Education, he relates this to the ability of an officer to command forces in an international or multinational context. Cultural interoperability or interoperability of the mind is relevant at every level involved in a multinational cooperation or integration project.

Paget’s (2016) and Moelker et al.’s (2007) argument that cultural interoperability may be more important than other forms of interoperability is provocative. We believe that this may not be the case for every type of cooperation or integration, in particular for tactical units that must fight in the event of war or during

peacekeeping and peace enforcement missions (also Maliepaard, 2026a). Depending on the actual structure, interoperability in the technical, operational, and organisational domains needs to be high to avoid misunderstandings, delays, and differences in operating procedures due, for example, to differing terminology, non-interoperable C2 support systems, different interpretations of NATO doctrines, different standard operating procedures, or national caveats.

2.3.3 The national-political-juridical context

One crucial element is missing in most interoperability models: the national-political-juridical context. These three factors partly overlap and are strongly interconnected.

The “national” refers to, among others, geography, history, demographics, economy, and national industries. The geographical location of a country impacts the perception of external threats, the requirements for its defence, and the possibilities for its use in training and exercises (see also Woodward, 2005). The history of countries and their armed forces influences doctrines, the organisation of the armed forces, and civil-military relations. It also informs more general factors such as education and (national) cultures.

Countries vary in size and population, but also in the size and nature of the domestic economy and industries that produce dual-use and/or military technologies (e.g. arms and ammunition, equipment, software, hardware). Smaller nations, with smaller populations, may depend more on multinational cooperation for credible deterrence or to keep or maintain capabilities, because they lack personnel and/or financial resources to have a large armed force (see section 2.2.2). The vast cost of domestic development and production of weapon systems makes it more difficult for smaller countries to produce their own weapons (Smith, 2022). This is especially true for high-technological systems. National industries often rely on demand from foreign countries to become profitable (Smith, 2022).

The “political” refers to, among other, political preferences, policies, and decision making in governmental organisations and in military organisations. This does not merely have a national focus, but also involves international aspects. Armed forces are executive organisations and plans are made by national governments and ministries (and ministers) of defence. The direction of plans and policies is influenced by political principles, preferences, and (often) multi-party coalitions and compromises. This is true for internal politics, but also for foreign politics. For

example, Germany more often pursued a policy of multilateralism and multinational military cooperation compared to the Netherlands (see section 2.4).

A country's defence and foreign policy are also influenced by wider frameworks and organisations. The Common Security and Defence Policy of the European Union, for example, provides a framework for national governments. Its Politico-Military Group covers the political aspects of EU military issues, including military capabilities (European Union, 2024). NATO defines capabilities as "the ability to create an effect through employment of an integrated set of aspects categorised as doctrine, organisation, training, materiel, leadership development, personnel, facilities and interoperability" (NATO, 2026). NATO sets capability targets for member states, but it is up to member states to decide the "how" question. It may well be that small states need to adapt to decisions made by larger states, because smaller states often have to work with systems of larger states (e.g. Bennett, 2026). Interoperability is a core aspect of NATO and led to a huge variety in Standardisation Agreements (STANAGs) that may impact technical, operational, and organisational interoperability.

Questions of sovereignty are always in play when it comes to multinational military cooperation, because countries often attach great importance to strategic autonomy (see section 2.2.4). This influence, for example, a countries' procurement policies. They may buy nationally to make the national industry survive in a highly competitive world in which economies of scale matter (Smith, 2022). Military procurement is not necessarily a rational decision-making process based on best products for the best price, but may involve symbolic notions and values such as pride and autonomy (Suchman & Eyre, 1992).

The fact that armed forces are executive organisations does not mean that military professionals have no influence on decision making regarding the armed forces. This is true for both military-military relations and for civil-military relations. Military politics is a hotly debated subject in studies on civil-military relations, started by a discussion in relation to work by Huntington's (2000) *The Soldier and the State* and Janowitz' (2007) *The Professional Soldier*, often summarised as the divergence (separation of political/civilian and military matters) versus convergence (intertwining of military and civilian matters) debate. Coletta & Crosbie (2021) argue that military politics, in essence military officials' involvement in political matters, is important for healthy civil-military relations. Service personnel often work together with (civilian) policy makers and ministers of defence, for example in developing visions on binational cooperation between

(branches of) armed forces (e.g. the German-Netherlands Common Army Vision, see section 2.4).

The “juridical” refers to existing rules and regulations that delimits the space for multinational cooperation and interoperability. The organisations that cooperate or integrate are embedded in national laws and regulations. For example, despite the integration of the three combat brigades of the Royal Netherlands Army into German divisions, German and Dutch troops still serve under their respective national legislation. Laws and regulations have a major impact on binational cooperation. Studies on the Swedish-Finnish naval cooperation (Lundqvist & Widen, 2016) and the German-French Brigade (Abel & Richter, 2008) show that various types of legislation have an impact on the day-to-day cooperation and, in the case of the German-French Brigade, the integration of German and French service members and units. It includes prohibitions on having a partner country patrol in one’s own country (as is the case in Finland) or using military force in another country (again, the case in Finland). But also labour laws (an issue in most cooperation projects if service members are based abroad, see also Fleck, 2000), regulations concerning the ownership of material, and different procedures, responsibilities, and permissions for everyday tasks such as guarding (with or without a weapon) (as is the case in the German-French cooperation). The interviewed service members of the German-French Brigade expressed the necessity of shared rules and regulations to fully integrate (Abel & Richter, 2008).

Rules and regulations are not limited to the national state. European rules such as the Defence Procurement Directive (2009/81EC) help cross-border procurement and may limit protectionism and awarding contracts to domestic industries. In reality, various exceptions are possible for awarding contracts. European laws such as the EU Working Time Directive can be applied, and sometimes have to be applied, to have a healthy work-life balance. Currently, the European Union is working on harmonising relevant laws that relate to military cooperation. For instance, a “Military Schengen” should help to remove regulatory barriers to make it easier to transport troops, equipment, and military assets through Europe.

The national-political-juridical context potentially influences the (degree of) technical, operational, and organisational interoperability between cooperating or integrated structures. Procurement of new communication systems, for example, is a balancing act between what is technically and operationally necessary or desirable for effective and coherent operations and political and military interests. Zandee and Ellison observe in their essay on C2 support systems that:

Cooperation and integration is [sic] gradually being more and more institutionalised in unit planning; every training event at the brigade level and above is set up binationally. The main challenges now are seemingly from setting (national) regulations, procedures and/or planning from outside the divisional level that do not include or take into account ongoing deeper integration efforts/projects (e.g. new national regulations on intelligence sharing that make an integrated intelligence cell effectively void, national choices for specific C2 support systems, or restrictive national regulations on the certification of individual specialties) (2024, p. 29).

Despite improvements, such as the binational setup of training events at the brigade level and above, numerous complex issues remain due to European and national legislation or national political decision making. The C2 support system, for example, is a national choice that strongly affects the technical interoperability domain, but has also significant impact on the operational and organisational interoperability between units of different countries. The lack of interoperability of C2 support systems has been subject to studies and essays for many years (e.g. Adams et al., 2004; Biehl, 2008; Hartel & Chaimberlain, 2000; Lasschuyt & Van Hekken, 2001). Baker cites (the then) Major General Ton van Loon:

We have chaotic C2 – This is something we need to solve...Nothing works. The Netherlands and France have the same radios but still can't talk to each other because they use different software. It's stupid (2009, p. 17).

Remarkably, Baker (2009) concludes that “between traditional western or NATO allies such as Australia, Canada, Great Britain, Germany and the United States this has not been so much of an issue primarily because they have developed compatible C2 systems.” The question is whether this indeed is true. Zandee and Ellison (2024) discuss experimentation with C2 support systems, but conclude that this remains a bottleneck for multinational military cooperation. Integration without an interoperable command and control system seriously hampers the effectiveness of an integration project and the safety and effectiveness of the boots on the ground. C2 support may already be an issue in binational arrangements, let alone in multinational arrangements (see e.g. Biehl, 2008).

2.3.4 Interoperability Assessment Model

We should not view all bi- or multinational cooperation and integration projects as the same. The variety in projects and structures is clear, but it also implies that interoperability demands should not be treated as the same for all these structures.

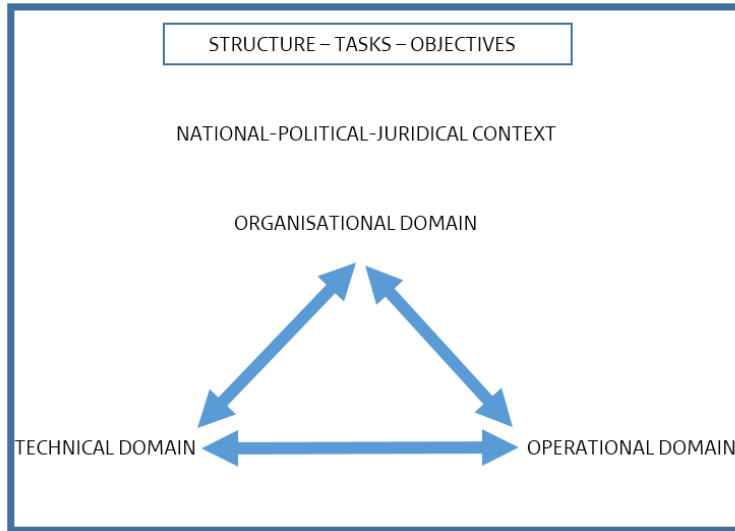
The required level of interoperability in the different interoperability domains depends on the structure, tasks, and objectives of the structure. For example, units of two armed forces that separately operate in the same AOO require a different degree of organisational interoperability as compared to a binational unit that has to be certified, as one integrated unit, for a rapid response force. Cooperation and integration are often mentioned in the same sentence, but the interoperability demands of both structures are different. A binational army corps may require interoperability in fewer domains, and may function with a lower degree of interoperability in these domain, than a binational company or battalion. A CIS battalion may require interoperability in different domains than an infantry battalion. Tasks and level may be linked, but these examples show that one cannot assess interoperability using a blueprint for all organisations.

In this study, we adapt NATO's interoperability framework and Moon et al.'s interoperability pyramid to propose a new framework for assessing interoperability requirements and levels. Our model (see Figure 2 on the next page) consists of three domains of interoperability. Scores on these domains together create an overarching picture of the level of interoperability. These domains are technical, operational, and organisational interoperability. The technical domain consists of both the technical and systems domain identified by Moon et al. (2014). From an organisational point of view, differentiating between "individual" and "connected" parts is senseless in an era in which all technologies are embedded in networks of technologies. We define this domain as all technological networks that together constitute a large variety of hardware and software, but predominantly C4I systems and weapon systems.

As in NATO (2022), the operational domain consists of all doctrines, Standard Operating Procedures (SOPs), and Tactics, Techniques, and Procedures (TTPs) (also Bennett, 2026). In short, all (written) material that specify how service members have to (support the) fight and, of course, be trained for their tasks ("train as you fight"). The organisational domain consists of all the work practices (DEU: *Der Alltag*, NLD: *de dagelijkse gang van zaken*) that constitute the organisation and its work culture; these work practices are not necessarily related to operations. They include meeting practices, decision-making practices, mandating practices, greeting practices, linguistic practices, as well as traditions and ceremonies. These practices are also carriers of norms, values, principles (e.g. leadership principles), and expectations (e.g. professional expectations of privates, corporals, NCOs, or officers). Cultural interoperability is, therefore, an important part of organisational interoperability. Work practices develop over time, but still bear the

histories and memories of the organisation. Reaching a high level of organisational interoperability requires exchangeable, or even better, shared (“negotiated”) work practices (e.g. Barmeyer et al., 2019; Brannen & Salk, 2000; Romani et al., 2011).

Figure 2: Interoperability Assessment Model
Own design



These domains do not stand alone. They impact and are impacted by other domains. Possessing different systems may require rethinking SOPs or even render other domains pointless. If, for example, technical interoperability of C4I is low, the structure may decide to separate work practices or Standard Operating Procedures. Finally, these domains are influenced by the national-political-juridical context as explained before. This report will provide multiple examples of both interactions between domains, and between domains and the national-political-juridical context.

As mentioned before, NATO’s (2022) levels of interoperability (no interoperability, deconflicted, compatible, and integrated) could be used to assess the level of interoperability in future projects. Nevertheless, we must keep in mind that these levels need to be adapted for assessing interoperability in structures that cooperate or integrate in peacetime business operations and for the slightly different domains we use compared to NATO.

Based on NATO's typology, we identify four levels for all types of MMC: no cooperation (or co-existence), limited cooperation, substantial cooperation, and integration. Co-existence refers to the absence of interoperability between armed forces (or units of armed forces) that cooperate, whereas limited cooperation implies a minimum degree of interoperability but the cooperation structure still experiences substantial interoperability flaws in all domains that impact the actual cooperation between military units of different countries. The substantial cooperation level implies a higher degree of interoperability, scored on the relevant domains, but not so much that the bi- or multinational structures are interoperable in all domains. Integration, then, means that units of different militaries are fully interoperable in all three domains.

2.4 German-Netherlands military cooperation

Previous military cooperation may facilitate future cooperation. This suggests a path-dependency in military cooperation and integration (Németh, 2021). In a special issue on the Dutch-German military cooperation, Van Duurling concludes: "Germany is of significant importance for the Netherlands. This importance is quite often underestimated from a Dutch perspective, while the significance of the Netherlands for Germany sometimes is overestimated" (2005, p. 518). He did not refer to military cooperation between the two countries, but to the economic value of Germany for the Netherlands. It is important to take into account the economic, cultural, and social connections between the two countries and not just narrowly focus on the military cooperation. Germany and the Netherlands are highly connected to each other in many areas and on many levels: binational military cooperation makes therefore perfect sense.

We do not aim to describe all history and manifestations of cooperation and integration between the German and Netherlands Armed Forces. Rather, we highlight a number of key developments to provide more depth to the enumeration in section 1.1.

Although the foundation of 1GNC is considered to be the first milestone of military cooperation between Germany and the Netherlands (e.g. Bundesministerium der Verteidigung, 2023), military cooperation started during the early Cold War period. The Netherlands was, in 1950, the first country that officially proposed the West-German participation in NATO. This was shortly after China and North Korea invaded South Korea, and when the threat of a Soviet invasion in Western-Europe was high (Hoffenaar, 2005). Dutch Minister of Foreign Affairs Stikker discussed the West-German participation with the American Minister of Foreign Affairs Acheson.

Nevertheless, it took five more years, in particular due to objections by France and the French parliament, before West-Germany joined NATO (Hoffenaar, 2005). The Netherlands and Germany were given an “area of defence” next to each other, which made it important to participate in joint exercises to streamline defensive operations in the event of a Soviet invasion.

Ground-based air defence was vital in this period and the Netherlands contributed to the air defence belt along the West-Germany border, starting at the Waddenzee and ending at the Swiss border. The Dutch contribution consisted of various units with NIKE-Hercules and Hawk rockets (Hoffenaar, 2005; Zwarts, 2017). Dutch troops were stationed in Germany, which led to cultural and military interaction between German and Dutch service members and civilians.

Hoffenaar (2005) mentions another important early cooperation project: on the 17th of January 1963 the German and Netherlands governments signed an agreement to exchange the bases Seedorf and Budel: the Budel-Seedorf Treaty (Schröder, 2005). Troops of the Royal Netherlands Army (41 Pantserbrigade, 41 Armoured Brigade) would use the base at Seedorf, whereas a German Air Force contingent (the Luftwaffenausbildungsregiment 2, Air Force Training Regiment 2) would use the base in Budel. The cooperation and use of each other’s bases were expanded over the years, until the 1990s, when the changing geopolitical situation in Europe led to budget cuts in the Netherlands and Germany (e.g. Hoffenaar, 2005). Likewise, the Budel-Seedorf Treaty resulted in a variety of intercultural interactions between German and Dutch service members and civilians.

Furthermore, local, national, and international exercises were held to prepare for a possible Soviet invasion. According to Hollenaar (2005) this entailed close cooperation between the German and Dutch governments, the military of both countries, as well as the defence industry. He notes that this cooperation was successful and that in the 1980s the cooperation reached its peak. It is important to take into account this heritage, in particular to understand the tight cooperation between both countries nowadays and the long history of cooperation in the ground-based air defence domain.

After the Cold War, most countries shifted their focus from international military cooperation to their own armed forces. Germany, which for many years embraced a policy of multilateralism and multinational military cooperation (also Kasdorf, 2014; Van Diepenbrugge et al., 2005), and the more reactive (or passive) Netherlands (van Duurling, 2005) decided differently (Hoffenaar, 2005). In 1995,

the 1. German-Netherlands Corps became operational, replacing the headquarters of 1. German Corps and the 1 Netherlands Corps, two years after a treaty between both countries was signed to establish a binational headquarters. Münster was chosen as location because the 1. German Corps was established here; perhaps the historical significance of this site, the city where the Peace of Westphalia (including the Peace of Münster) was signed, also contributed to this choice. 1GNC later evolved to a multinational, NATO-certified HRF HQ(L) (High Readiness Forces Headquarters – Land Operations) (Schröder, 2005), which saw action in the former Yugoslavia and Afghanistan. This development into a multinational HRF-HQ(L) “meant adapting German and Dutch doctrine and procedures to NATO’s, changing reporting procedures and attending NATO forums to develop concepts” (Van Diepenbrugge et al., 2005, p. 537).

Another significant milestone was the installation of the Army Steering Group in 2004 (one star level) and the German-Netherlands Common Army Vision on Future Cooperation of 6 April 2005. In the words of Schröder: “Common goal of both armies is to strive for intensified co-operation and deepened integration to gain synergetic effectiveness and efficiency of both armies” (2005, p. 522). This is summarised by Schröder (2005) as follows: (1) a systematic and institutionalised approach, (2) integration in all possible areas to achieve synergetic effects, (3) harmonisation of national administrative decision-making procedures, and (4) covering processes from early conceptual phase onwards. This closely aligns with Kraft’s (2024a) definition of multinational military cooperation: institutional and (where possible) direct cooperation. Nevertheless, the provision “all possible areas” means, according to the Common Army Vision that cooperation should have clear advantages be it in effectiveness (enhancing quality of (bi)national military capabilities), efficiency (increase outputs or reducing costs), or in reciprocity (balanced benefits for both countries) (Schröder, 2005). These three criteria should be assessed for every form of cooperation or integration and imply a constructive but not naïve stance towards MMC.⁸

In the German-Netherlands Common Army Vision on Future Cooperation, five key areas have been identified to foster institutional cooperation and integration and increase interoperability (in particular system and operational interoperability). These Lines of Operations are: Concepts & Doctrine (C&D), Armament & Equipment (A&E), Training & Exercise (T&E), Decision-making Process &

⁸ (see also Article 2.1 of the Agreement between the Government of the Federal Republic of Germany and the Government of the Kingdom of the Netherlands on bilateral defence cooperation, November 8th 2006)

Communications (DMP&CIS) and Binational Participation in Operations (OPS). For a further outline we refer to the vision document or an overview in Schröder (2005). The scope of these Lines of Operation shows the high ambitions set by the Netherlands and German military and the Army Steering Group, which centre around the technical, system, and operational interoperability. These aspects are partially reflected in the 2006 Agreement on bilateral defence cooperation, as well as in various Declarations of Intent (e.g. 2013, 2018, 2023). These latter documents stress the importance of cooperation and integration, monitor progress, and identify new ways forward.

The cooperation between the Netherlands and Germany has shifted from a project-based cooperation to an institutionalised cooperation. This is not only witnessed by the integration of the three combat brigades in German divisions and other cooperation projects as mentioned in chapter 1, but essentially by political agreements that provide the regulatory and policy framework for alignment and interoperability in the five Lines of Operations.

The new geopolitical developments and major investments in the strengthening of national defence and armed forces could help the institutionalisation of the German-Netherlands integration (e.g. investing in common C4I systems), but may also hamper the binational cooperation and integration because it takes time to integrate new (weapon) systems into existing structures and to form new units. This may lead to a focus on internal challenges and push challenges related to the German-Netherlands military cooperation to the background. Nevertheless, the most recent versions of the Vision on German/Netherlands Army Cooperation seem to expect more cooperation and integration and aim for interchangeability of German and Dutch units.

2.5 Bridging theory and practice

This chapter introduces important concepts, such as multinational military cooperation, interoperability, and cultural interoperability. MMC can be defined as all direct and coordinated cooperation between two or more armed forces, or parts of armed forces, be it in peacetime business operations, exercises, or during operations/missions in (potential) hostile environments. The specific structure, tasks, and objectives as well as the duration and degree of institutionalisation may differ for each cooperation. In practice, cooperation between units can be both vertical and horizontal, though vertical cooperation seems more preferred (Gareis, 2008). Of course, such terminology remains rather vague and may not encompass

all different manifestations nor the realities of service members, but it gives some directions for research and for policy(makers).

Kraft's (2024a) typology of multinational military cooperation (structures, processes, and activities) as well as our interoperability figure provide important tools and instruments to explore Project Apollo, since both use a rather broad notion of MMC. Kraft reminds us of the importance of the processes, often embedded in work practices. On the basis of interoperability literature, we stress the interplay between three interoperability domains (technical, operational, and organisational) to assess the effectiveness, efficiency, and coherence of a structure's functioning. In agreement with the study of the German-French Brigade, we are convinced that understanding multinational military cooperation as a phenomenon requires focusing on the dynamics between the national-political-juridical context, interoperability domains, and the lifeworlds of the service members involved (see also Leonhard & Ganeis, 2008; Pajon, 2008).

Abel and Richter (2008) argue that due to the mosaic in treaties, laws, and regulations, service members may not fully grasp the political or juridical aspects that form the basis of a binational cooperation project, even though they are the ones who experience concrete obstacles in their everyday work that may impact the everyday work practices and experiences - and likely the effectiveness and efficiency of the binational project. Nevertheless, the day-to-day experiences of the service members who actually prepare the fighting, lead the fighting, and do the fighting form the core of our study as they are best equipped to reflect on the aforementioned dynamics.

Apollo is a unique case to study, since it entails cooperation and integration at different levels, including the battery level. The next chapter will describe our research approach, which is followed by an extensive introduction of Project Apollo and the different aspects that we believe are relevant for understanding Project Apollo. Like Matthias (2022), the emphasis will be on Apollo Yellow (Patriot cooperation) and Apollo Green (essentially the BSTF), but we explicitly include the other working groups of Apollo as well as the lives of the Dutch service personnel in Husum and the German service personnel in Vredepeel.

3 Studying Project Apollo

E. Maliepaard & W.T.C. Bisschop

3.1 A case-study approach

This study follows a case-study approach in which we aim to describe and analyse the everyday experiences of the service members involved (cf. Flick, 2025). Gerring defines a case study as “an intensive study of a single unit *for the purpose of understanding a larger class of (similar) units*. A unit connotes a spatially bounded phenomenon (...) observed at a single point in time or over some delimited period of time (2004, p. 342; *emphasis added*).” Despite the focus on the case, or the study object itself, a case study may result in new knowledge that is more broadly applicable, see the *italics* above (also Flick, 2025; Flyvbjerg, 2011). In our case this means that results from this study on Project Apollo may result in knowledge that applies to other multinational military cooperation and integration projects as well.

The choice for a case study is a choice for (1) an individual unit and a clear demarcation of the study object, (2) an intensive (rich, in-depth, complete) study of the study object, (3) incorporating a time dimension to study changes in the study object, and (4) incorporating the context in which the study object is embedded (Flyvbjerg, 2011). In the words of Flyvbjerg (2011), a case study approach is not necessarily a methodological decision, but a decision on what to study. Our case is Project Apollo and we aim to understand this case through interviews with military personnel who were closely involved in the execution of this project.

3.2 Research methods and instrument

We interviewed Dutch and German service members about their Project Apollo experiences and studied (policy) documents for a better understanding of the binational ground-based air defence project. Qualitative interviews are a range of methods suitable to generate data that provides, in our case, a soldier-based view of the study object (e.g. Flick, 2025; Hennink et al., 2011). Interviews help to focus on individual experiences and meaning-making as people often make sense of their experiences through narratives and language. They may also uncover underlying processes which cannot be identified using other (in particular quantitative) methods (see Flyvbjerg, 2011).

We used semi-structured interviews. This specific method helps to foreground the experiences of the participants, in contrast to a more scholar-based view (e.g. Hennink et al., 2011). This enables research participants to discuss what is important to them, instead of merely replying to inquiries about what is important to the researcher. Different from open interviews, life histories, or oral histories, a semi-structured interview aims to guide the topics that are understood as important to the research project while at the same time remaining flexible, interactive, and providing opportunities to react to what the research participants tell, discuss, question, et cetera.

We did not communicate our interview guide (see Annex 1) beforehand to foster a spontaneous conversation. Some participants asked to receive an interview guide for preparation, since the interview would take place in a language other than their mother tongue. We sent them a slightly adapted interview guide with the main questions, but without the probs and secondary questions.

The interview guide was based on our research questions and a short pre-study of policy documents and documents on Apollo. This pre-study helped to identify core issues that we wanted to include in our interviews. Informal conversations with military colleagues with multinational experience also helped to identify points of interest for our study.

Most interviews were conducted in Dutch, a few interviews were conducted in a mixture of Dutch/German/English, and a few in English. The authors of this report conducted the interviews together. We recorded the interviews, and one of the authors (Bisschop) made extensive notes during the interviews. These notes helped to discuss main issues and our personal assumptions in our hot debriefs after conducting interviews, informing the subsequent interviews. The interview guide was only modestly adjusted after the first interviews.

3.3 Population, recruitment, sample

The population consists of all German and Dutch NCOs and officers who are or were involved in whatever capacity in Project Apollo. Due to the nature of this project, the majority of the population consists of Dutch and German officers who worked at either Vredepeel (NLD), Todendorf (DEU) or Husum (DEU). It is important to note that due to job rotations, the interviewees may have occupied different functions over time in Apollo, or were involved in different time periods. Job rotation is a normal part of the military in Germany as well as in the Netherlands.

We started with a list of potential interviewees. This list was handed to us by our Point of Contact at DGLC. We approached all the potential interviewees, and interviewed most of them. In the interviews, the participants mentioned different names with whom they had worked together and either asked whether someone was willing to take part, or gave us contact details to approach them. This snowball sampling was important to get a larger and more diverse sample, preventing possible homogeneity in experiences, opinions, and meaning-making (e.g. Flick, 2025). We considered it important to include both Dutch and German service members, and people from different ranks. Due to the nature of the cooperation and integration, we did not include ranks below the NCO level. In total we interviewed 21 service members.

Potential participants received information on the research project (Annex II) as well as an informed consent form to read before we started planning interviews. They were asked whether everything was clear before they signed the informed consent form (see Annex III). Most interviews took place in real-life, often at the Generaal Bestkazerne in Vredepeel, but three interviews were conducted online and one via phone due to a long distance between the workplaces of the interviewees and the interviewers (in essence service members working in Germany). In case of online or phone interviews, we recorded oral informed consent instead of written informed consent.

We aimed for interviews of 60-90 minutes and a large part of the interviews fell in this range. Nevertheless, due to extensive experiences, some interviews had a longer duration. Interviews lasted between 40 and 151 minutes, averaging 83 minutes with the bulk of interviews around 73 minutes.

3.4 Data analysis

We used *Iterative Thematic Inquiry* (ITI) as our analytical approach (Morgan & Nica, 2021). This approach is inspired by reflexive thematic analysis (TA), which stresses the subjective character of analyses and interpretation. ITI differs from TA by stressing the importance of reflecting on one's own assumptions in every phase of the research process, not just during the analytical phase. The goal of ITI is "to begin the analysis process by addressing one of the key issues in any form of qualitative analysis: the extent to which the ultimate conclusions arise from the data or from the researcher's own preconceptions" (Morgan & Nica, 2021, p. 4). Data analysis in ITI differs from the six steps of data analysis in TA – TA starts with familiarisation, coding and theme development, which is a more linear process (Naeem et al., 2023). Data analysis in ITI is limited to four steps:

Step 1: Assessing initial beliefs of important topics and themes: Examines the researcher's preconceptions;
Step 2: Building new beliefs during data collection: Develops content of existing themes;
Step 3: Listing tentative themes: Produces a provisional statement of final themes;
Step 4: Evaluating themes through coding: Ensures that the themes are appropriate (Morgan & Nica, 2021, p. 4).

Step 1 and 2 are part of, respectively, the research design and the data collection phase. Step 3 and 4, and especially step 4, take place predominantly after data collection. As Morgan and Nica (2021) pragmatically define: "a theme is a meaningful, recurring pattern that researchers first develop from the data, and then use to interpret that data for an audience" (2021, p. 2). Like in reflexive thematic analysis, themes do not emerge but are actively constructed by the researcher. In this process, it is important to be aware of one's (subconscious) preferences, biases, assumptions, and ideas (Morgan & Nica, 2021) during theme development in the data collection phase.

We ended every interview (or interview day in case of multiple interviews on one day) with discussing the interview(s) and whether we saw patterns in information, processes, and more. This helped to render assumptions, ideas, and interpretations conscious, which in return helped to be aware of these assumptions and interpretations during the interviews and data analyses. In the words of Morgan and Nica: "Being as explicit as possible about one's initial perspectives is what makes it possible to question those preconceptions throughout the data collection process" (2021, p. 4). Constant reflection is important and three things can happen during the reflection on data: beliefs can be reinforced, challenged, or expanded (Morgan & Nica, 2021).

We, independently, listed several themes that are important and which were taken into account in the data coding process. Codes were partially based on the tentative themes, although we used both inductive and deductive coding to create the final codebook and review the themes we identified during the data collection and analytical phases.

3.5 Ethics

We were not obliged to ask for ethical clearance on the basis of the ethical protocol of the Faculty of Military Sciences, Netherlands Defence Academy. We aligned with the ethical protocol of our faculty and the Code of Conduct for Research Integrity

of the Netherlands Association of Universities (2018). Important aspects are (1) harm reduction, (2) informed consent, (3) voluntary participation, and (4) confidentiality and anonymity (also Flick, 2025).

We interviewed service members who, in different capacities, participated in Project Apollo. As Apollo is not a large project, at least not when it comes to cooperation and integration, and as the ground-based air defence world is rather small, confidentiality and anonymity become even more important. We cannot state the function of the research participants in this report, nor the rank or the participant's specific involvement in Project Apollo. Moreover, we had to review the quotes we wanted to use in such a way as to avoid traceability, and sometimes partially rewrite quotes due to the specific language participants used. This resulted multiple times in the decision not to discuss a situation or a particular experience – often very specific experiences shared with us in detail – in this report. Of course, these situations still informed our analyses, but we were not able to use these citations in this report.

3.6 Limitations of the study

We identified several limitations of this study: (1) the relatively small sample, (2) the difficulties in recruiting German key figures, and (3) our focus on officers and, to a lesser extent, NCOs. We interviewed 21 service members and more interviews could provide additional information and perspectives, i.e. more data. The majority of our interviewees are Dutch. Despite attempts to recruit German key figures we did not manage to include all key figures of Apollo. Their experiences could have enriched the data with additional German perceptions and experiences. We did not include privates and corporals due to our understanding that they were not much involved in the binational cooperation. Nevertheless, they work in a binational framework and may experience the consequences of the binational cooperation in Apollo. Finally, both researchers have no background in the ground-based air defence domain which could have led to misunderstandings in our interpretation of the data. We tried to avoid this or repair this by checking information or interpretations with service members we interviewed.

3.7 Final remarks

In the next chapters we discuss the themes we identified and our analyses of the experiences of the interviewed service members. Sometimes participants shared different perspectives on developments, the structures within Apollo, or the activities that shaped (or constituted) Project Apollo. It is important to note that

the analyses and interpretations are the sole responsibility of the authors. Our analyses are supported by a variety of quotes. In some instances we include our questions to provide more context to what the interviewees said. In these instances we used numbers for the interviewers and a Y for the participants.

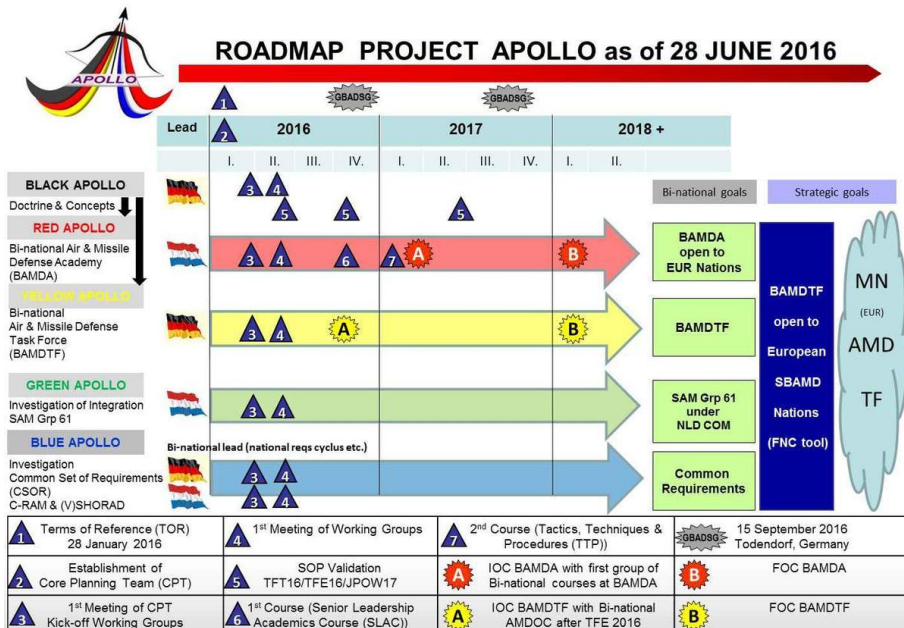
4 Project Apollo: a roadmap for binational military cooperation?

E. Maliepaard

4.1 Introduction

Project Apollo is a multidimensional project that has developed over time. Zwarts (2017) includes an early roadmap of Apollo in his analysis of the ground-based air defence of the Netherlands Armed Forces (see Figure 3). It initially consisted of five lines or working groups, centred around doctrines and concepts (Apollo Black), training in the air- and missile defence domain (Red), binational air and missile defence (Yellow), the integration of the German Flugabwehrraketengruppe 61 in DGLC (Green), and procurement efficiency (Blue). The depicted binational goals as well as the ambitions changed over time. For example, Apollo Green initially did not encompass the Binational SHORAD Task Force (BSTF); the integration of the German Flugabwehrraketengruppe 61 was to be explored, according to the first roadmaps. Moreover, the initial roadmap did not include a sixth line or working group: Apollo Purple that centred on technical interoperability issues.

Figure 3: Early roadmap of Project Apollo
Zwarts (2017, p. 279)



In this and the subsequent chapters we discuss the themes that we developed during this research process and that were reviewed in the analytical phase. A number of themes are more general, they apply to Project Apollo as a whole. Other themes are specifically associated with the long range air defence cooperation (Patriot) or the short and medium range cooperation and integration (BSTF). Other themes, such as are interwoven with Apollo Yellow and Green and will be discussed there. Table 3 presents the themes we developed and reviewed.

Table 3: Identified and reviewed themes, including most relevant subthemes.
Own analysis.

Themes - Subthemes	Specific or interwoven
The Road to Project Apollo - Project Apollo as a lifeline - Project Apollo as political project	Specific
Project Apollo as cooperation project - Personal motivation - Apollo at Defensie Grondgebonden Luchtverdedigingscommando - Apollo at Flugabwehrraketengeschwader 1 - Apollo working groups - Apollo 2.0?	Specific
Apollo Yellow (Patriot cooperation) - Patriot cooperation before Apollo - Patriot interoperability before Apollo - Patriot cooperation in Apollo Yellow - Interoperability in Apollo Yellow	Specific
Apollo Green and the BSTF - Contextualising the BSTF - Integration in practice - Complicating matters: the bigger picture - The BSTF: A worthwhile project?	Specific
Cultural dimensions of binational cooperation - Social interaction and language - Hierarchy and leadership - Impact of cultural differences on cooperation at the battery level	Interwoven
Sovereignty - Non-intervention - Border control - International sovereignty - International recognition and equality of member states - Self-sufficiency	Interwoven

4.2 The road to Project Apollo

To understand the experiences in Project Apollo and its subordinate projects, it is important to be aware of the context in which Apollo was started. This context was sketched in the first chapter; here we discuss the road to Apollo from the perspectives of the interviewed service members.

4.2.1 Project Apollo as a lifeline

In the 2010s, ground-based air defence was openly criticised by military officials because it was an expensive capability in a world without clear air threats. One participant reflected on the position of the ground-based air defence in the Netherlands Armed Forces:

I've once heard someone say "you are five times smaller than 13 Light Brigade, but five times more expensive. And what do you actually contribute to our fighting?" This was the time, even before the Crimea, before the MH17. Yes, IS had a couple of drones, but that was like "oh somewhat annoying." Of course, that has changed in the past 10 years; the air threats have increased significantly. But that was not the case back then." (#D)

The geopolitical situation was completely different than it is now. There was no need to defend military bases against incoming missiles or other types of air threats. In addition, subsequent governments were downsizing the armed forces:

Is it still important? The *raison d'être*. In the 1990s and 2000s, that was the magic word "*raison d'être*." We really have to work hard and prove ourselves, otherwise they will cut us back. It didn't really matter. If they needed money they would just do like this [randomly point], "okay let's dissolve this unit." (#E)

In the introduction we provided figures on the downsizing of ground-based air defence in both the German and Netherlands Armed Forces. An interesting aspect of this quote is the notion of the "*raison d'être*." In the 2000s and 2010s, Western armed forces focused on peacekeeping and peace enforcement operations. These operations did not require the use of ground-based air defence, apart from defending camps against local enemy forces (known as *Sense & Warn*). A German officer (#N) mentioned that the German Army only kept LeFlaSys because "it was so small and could be used for quick operations and movements." Peacekeeping and peace enforcement operations are the kind of quick operations this officer implied.

One officer mentioned the wider economic context. The 2008 financial crisis induced austerity programmes, which led to the downsizing of the ground-based air defence and other military assets of the German Army. The same was true for the Netherlands (e.g. Ministerie van Defensie, 2024). A Dutch officer mentioned that the likelihood of dissolving all ground-based air defence capacities in the Netherlands Armed Forces was particularly high at one point around 2006 (most likely during Balkenende II), due to the costs of ground-based air defence, but was decided against for purely political reasons: according to this officer, politicians were scared that not signing the new AGBADS deal – the industry was already in the Netherlands to sign the deal – would possibly lead to declining electoral popularity.

Military recommendations helped to prepare the political decision to start Project Apollo, though none of our interviewees were involved in the actual decision making. The participants understood Project Apollo to be an important lifeline of the ground-based air defence. One officer said:

Y: Back then, Germany and the Netherlands exchanged preliminary ideas about founding Apollo, and both the ministers, this was Ursula von der Leyen for Germany and, I think Kajsa Ollongren for the Netherlands, right?

2: Hennis-Plasschaert

Y: Right, they liked each other, and back then air defence was not that important. So it was like “we should find a way to put a flag on it.” If you put a binational flag on something, it is really difficult to dissolve. (...) So put a binational flag on it, and you won’t be able to dissolve it and you can continue the capability together. That was the initial idea of Apollo, back in 2017. (#P)

This officer suggested that it is more difficult to dissolve or discontinue a binational project or unit than a national unit or project. This conviction was shared by other officers we interviewed. For example, one participant (#O) observed “the more you operate combined, the more difficult it becomes for politics to close something down. That sounds like a terrible argument, but it was the feeling we had back then.” As another Dutch officer shared:

We were told, Apollo was founded to prevent the Germans from losing their short range systems. If they would bring these to the Netherlands, they would be able to keep their systems, because these would become part of the Netherlands Armed Forces. (#I)

These quotes show that creating a binational project means “politicising” units or capabilities through institutionalisation. It requires, for example, the creation of a

Technical Agreement and Terms of References, as well as other documents. Despite that the nations involved maintained sovereignty over their units, it would become a lot more difficult to make political decisions without consulting the other country. Later on we discuss how the interviewed service members evaluated Project Apollo, but the fact that ground-based air defence still exists is considered, by the participants, to be one of the success factors of Apollo: it was the lifeline for the ground-based air defence.

4.2.2 Project Apollo as political project

Interviewed service members elaborated on the context in which Project Apollo was founded and developed. German-Netherlands cooperation in the long range air defence existed for a long time. Both countries, together with the USA, were the first Patriot users. The Dutch-German Competence Centre Surface Based Air and Missile Defence (CCSBAMD) started as the Extended Air Defence Task Force (until 2014) and is another example of the longstanding cooperation between Germany and the Netherlands. At first, it was manned by personnel of the three Patriot countries; the USA left the project in 2008 due to personnel shortage.

A predecessor of Project Apollo is the Binational Program for Intensification (BPI). BPI was, according to the officers who reflected on this project, a program – or, rather, a document – that resulted from political pressure to increase binational cooperation between Germany and the Netherlands. The project was limited to stationing German officers in the Netherlands (Vredepeel) and Dutch officers in Germany (Husum) and, according to one German officer, mainly focused on the long range ground-based air defence. BPI was the starting point for Apollo.

The political pressure to advance binational cooperation between both countries was not limited to the ground-based air defence. In fact, it followed other projects such as Project Musketeer and Project Taurus. Musketeer was dedicated to the integration of 11 Luchtmobiele Brigade in the Division Schnelle Kräfte, completed in 2014. Project Taurus (which officially started in 2016) was a more complex project. One officer described it as the “Matryoshka doll” project: a German-Dutch tank battalion 414 was founded and integrated into 43 Gemechaniseerde Brigade, which in turn was integrated into the German 1. Panzerdivision.

Multiple participants explained they felt political pressure to start with binational integration in the air defence domain. Unlike these army-army cooperation projects, Apollo involved cooperation and integration between two countries and two branches. The Defensie Grondgebonden Luchtverdediging finds itself under

Single Service Management (SSM) of the Royal Netherlands Army, and the German Flugabwehrraketengeschwader 1 finds itself under SSM of the German Air Force. Both are complex organisations, consisting of units that in the past were part of other branches (respectively air force and army) (Matthias, 2022). Multiple research participants called Project Apollo a “forced marriage” that had to succeed. The idea of a forced marriage indicates that it was a top down decision dominated by political motives. Participants questioned the tactical advantages of Project Apollo. As one interviewee described it:

I: So when Apollo started, what were your first thoughts?

Y: Look. It initially started when two female ministers came together, had some coffee, and came up with this idea. It, in fact, was a forced marriage, to, in the end, do some stuff. That is the feeling we all had. We felt that it was a little something in return for everything we already did. We had to cooperate as Luchtmobiel already did, 43 Brigade did, and the tank battalion did. (#Q)

Multiple officers mentioned how the good interpersonal relations between von der Leyen and Hennis-Plasschaert, and their political wish to work together, were decisive for cooperation or integration projects such as Apollo and Taurus. It was to them not so much the result of a well-structured and rational process based on envisioned tactical advantages and effectiveness. This is not to say these decisions were not informed by military leaders of both countries:

I believe that politics is informed by commanders and generals, they influence politics, so to speak. What would a politician, without military background, be doing if he would say “okay, let’s do this project.” They always should have a group of people to consult to know whether something is a good idea or not. This thought could be naïve, but... (#U)

A small number of German and Dutch participants had (staff) functions in which they were involved with the preparations of Project Apollo, or knew colleagues who prepared documents on BPI and Apollo. They confirmed the significance of personal relationships and political opportunities for such projects. Due to anonymity and confidentiality we are not able to discuss this point further, but the Netherlands Ministry of Defence provides a few examples of such opportunities in their policy evaluation of the German-Netherlands cooperation in Taurus. For instance, the personal networks of lieutenant-general De Kruif (Commandant Landstrijdkrachten) and lieutenant-general Kasdorf (Inspekteur des Heeres) proved instrumental in the run-up to Project Taurus (Ministerie van Defensie, 2024). The importance of good interpersonal relations for the functioning of

Apollo (Green) and the possible future of Project Apollo will be discussed elsewhere (see section 6.5.3 and section 4.4).

4.3 Project Apollo as cooperation project

4.3.1 Personal motivations

Before delving deeper into Project Apollo and the various working groups, we discuss the motivations and intentions of the interviewed service members. It appears that there was a strong initial motivation to make Apollo a success and to learn about the (weapon)systems of the other country.

2. How was the initial motivation? Did both sides want to cooperate or was it more top-down?

Y: You see me smile. In the beginning, yes, both sides were very motivated as we saw the value of cooperation and doing stuff. So you know, we were together in Turkey, we stood next to each other. We could have done much more with equipment and perhaps relieve people because we could do stuff together. So the motivation was pretty high. And we were, of course, curious. What do they have? We knew that the Patriots were mostly similar, it is American stuff, but they used it slightly differently and differed in details. But we had, for example, different IT systems, so we were very curious which systems they used. (#A)

This interviewee had participated in Operation *Active Fence* before Apollo, although their Patriot cooperation involved little multinational interaction and was limited to being deployed side by side, instead of operating as an integrated unit. Project Apollo was an opportunity for this and other interviewed service members to get acquainted with different weapon systems, other systems (e.g. radar and communication systems), as well as the working practices and procedures of their “foreign” counterpart.

Many participants elaborated on their experience with multinational exercises, deployments (not necessarily in the field of ground-based air defence), or being stationed abroad. A German officer reflected on his willingness and curiosity to participate in Apollo. He mentioned learning from Dutch service members in practising NATO procedures, and the experience of cooperating with a different branch with its own culture, because air defence is part of the German Air Force:

Y (...) I was very neugierig...how do you say that in English?

1: Curious.

Y: Yeah, because I thought it would be very interesting to work closely together with another nation. And, within the same domain (...) sometimes we have an exercise and we, for example, work together with an infantry platoon from [country] or so. But in this case, we had the same role, as air defenders. And I found it also very interesting to work together with the army, because in Germany the air defence belongs to the air force. (#R)

Learning and a “sneak-peak” in a foreign military organisation and culture was an important motivation for these participants. It stimulated to find out what to do and how to address the implications of Project Apollo, for example to introduce German officers in working practices and systems in Vredepeel or to set up arrangements for the integration of FlaRakGrp 61.

4.3.2 Apollo at Defensie Grondgebonden Luchtverdedigingscommando: German colleagues

In 2017, Project Apollo was founded, with a ceremony at Gemert Castle (Kasteel van Gemert). The impact of Project Apollo at DGLC was twofold: between 12 and 15 German officers – participants mentioned both numbers – were stationed in Vredepeel to foster the binational integration, and Dutch service members were involved in binational working groups. A Dutch officer elaborated on the binational aspect of Project Apollo at DGLC:

Y: (...) We’ve got a number of Germans here at DGLC. They occupy positions that are related to the colours [of Apollo]. So there were four Germans in the knowledge domain, currently zero, by the way. There are some Germans in the staff, some at the training centre. So what is binational? We have a few German people working here. (#O)

German officers were stationed in the Netherlands to further the integration between ground-based air defence of the German and Netherlands Armed Forces, even before the BSTF commenced. This indicates the wish for a sustainable cooperation and integration of air defence capacities. The last sentence of this quote must be read as a sarcastic answer to the “so what is binational?” question. The German S1 officer worked, according to a Dutch service member, both for the German service members and for DGLC:

The German S1 colleague has a few HR tasks for the German detachments that works at DGLC. Administration, S1-tasks, HR tasks, you name it. He works a fixed number of hours per week for the Germans and the rest of the time for us. (#K)

The German S1 colleague was the point of contact for the German service members stationed in Vredepeel and handled HR issues for them. At the same time this officer participated in the S1 of DGLC.

In general, the German service members were understood to be part of the team and as integrated in the working practices of the Defensie Grondgebonden Luchtverdedigingscommando. Most Dutch interviewees spoke positively about hardworking German colleagues who really wanted to make the most of it and adjusted well to the culture at DGLC, even to the extent that some of them became “more Dutch” and “a number of Germans who went back to Germany (...) find it difficult to get used to the German working culture” (#D).

When talking about a German colleague, a Dutch participant reflected:

No he is just part... that captain reports to the section 1. But I was part of the [section] and there it is the same. You just work for that section. In addition, they have a German line, but that refers more to administration and some guidelines from Germany related to the broader issues. But for his everyday work, he is just part of that section. (#K)

This quote gives the impression that the German service members are “just part” of DGLC or “just work” at a particular section. The reality could be different because it sometimes was difficult to make their work actually possible, due to organisational difficulties. One of the participants mentioned a German officer who could not be enrolled in a training course and therefore could not participate in the everyday work at a section. They had to get permission from both the German and the Netherlands Armed Forces, but this was too difficult. In contrast, another participant mentioned a German officer who could be easily enrolled in a course to prepare for his specific function. Experiences, thus, differ.

German officers often had vast experience in their own national systems, but several systems differ from the ones used in the Netherlands Armed Forces. Even when systems were the same, an experienced German officer still had to take a course on using it, given by the Netherlands Armed Forces. This was required to receive the necessary permissions and access to digital systems (including personal accounts), and contributed to the sense that bureaucracy in the Netherlands Armed Forces complicated the integration of a German colleague. Another officer pointed out that not all Germans were a good fit, because they had no experience with the German units that were part of Apollo or with the systems they used. They could, therefore, not fulfil their boundary spanner function to foster connections

between DGLC (and 13 Luchtverdedigingsbatterij in particular) and the German units. He nuanced this by saying that such issues can always arise with service members who are stationed abroad.

The job description was also often not clear for the German officers, according to Dutch participants. They sometimes had to look for work for their German colleagues and struggled to give them meaningful tasks. This was confirmed by German officers, especially the ones who took part in the early days of Apollo. As a German officer recalled:

It was really like “okay you’ve got a political assignment, don’t bother us and make something nice out of it.” That was the message we received from Germany, of course simplified. And in the Netherlands it was “hey great that you are here, what are you going to do?” (laughs). “We will see, we won’t bother you, we need a couple of things: Equipment, IT, and other stuff to enable us to work here” It was always a bit of a dilemma. Are you stationed here as an exchange officer or do you fulfil a German function here? And is our work limited to Apollo? It was a bit of everything. And after a while, like half a year, our vision was more or less clear so we knew how to go forward. (#P)

The Dutch service members struggled to provide meaningful work for their German colleagues, and the German service members had to create their own function as well. This is not necessarily negative, because initiating new projects often comes with unexpected aspects. It took time to form an idea of what was required to make a meaningful contribution to Apollo.

This quote further shows a dilemma about the positionality of the officers: should they see themselves as exchange officers who participate in the work of their host country, or as German officers with German jobs, just outside Germany? As one Dutch officer reflected on the position(s) of German service members:

When I was in the staff, I had a German service member in my section. In fact, there were German service members in nearly all sections. Above them, there was the DDO, the *Dienstälteste Deutscher Offizier*, the oldest German officer. In Germany they call the SNR the DDO, the one who was in charge of the contingent. But you always noticed, there was always a German agenda. In my section I had a German officer, and he was always tasked by different lines. So that is not always really helpful. (#Q)

Although the German service members were integrated into the various sections and everyday work practices, several Dutch interviewees noted that the influence,

guidance, and orders from national lines still influenced the work practices of German service members. This raises questions about the role of the German contingent in the Netherlands. As one German officer explained, when talking about the functions of the German contingent:

So we are completely integrated here at DGLC, but we, of course, have the task to be connected with our German counterparts. That is also the expectation from the Dutch side. So in case a question arises, we can quickly provide an answer, or we can provide them with a point of contact. So you need to be constantly connected with the German colleagues. If you do not do so and you just think “I am here”, like being an exchange officer, that is not the right way of doing one’s job. You still have to be German, but around 80-90 percent of the work is for the staff of DGLC. (#B)

In other words, the German officers had to act as boundary spanners to facilitate the exchange of information and contacts which served both German and Dutch objectives. Still, the vast majority of the time was dedicated to work in the staff of Defensie Grondgebonden Luchtverdedigingscommando.

Germans who worked at DGLC had to learn Dutch in order to fully integrate into the work practices of DGLC. They received a three-month training which helped to understand and speak Dutch and allowed them to work and live in the Netherlands. The preparation was sufficient for everyday (social) conversations “but the military jargon and the vocabulary is still somewhat limited. So you need some time to get used to it at DGLC. And that was necessary, but after like six months it is all good” (#P).

A German participant shared that “From my experience, I told every German officer who came to Vredepeel, also in presence of the Dutch colleagues, if you are in a group or a meeting and you want to say something, *say it*” (#N). He argued that Germans are more shy to talk in Dutch and that the desire to formulate perfect sentences could hamper communication:

If you do not know the word, say it in German, English, just mix it. Because the Dutch colleague understands it, you become part of the discussion and you can discuss. And your Dutch only becomes better by practicing it. (#N)

In fact, many Dutch interviewees concluded that most German colleagues were fluent, or at least had a sufficient proficiency in Dutch, and could fully participate in everyday working practices at DGLC.

The quote also indicates that one could be pragmatic since the Dutch colleagues, especially in Vredepeel, often speak German and English sufficiently well, because they had lived in Germany (the Netherlands Armed Forces had military bases in Germany during the Cold War) or grew up in the Netherlands-Germany border region.

Some German service members lived Germany with their families whereas others moved to the Netherlands. Social activities could be important for social cohesion and a mutual understanding. It was said that German service members often had Friday breakfast together which was understood as important for their social bonding. German service members could become members of the DGLC officers' mess and participate in social activities. A German interviewee shared that he actively took part in social activities at Vredepeel. These were not just social events, but were also important for everyday work:

But these events are important, because during work you talk about work. Of course, you meet each other at the coffee machine and say something like "hey how is stuff going at home? You got a new car?" but it was still superficial. At a party, a diner or likewise there is more time to talk in-depth with each other like "hey I heard something is going on in your life, can I help? Or how is it going with...?" and you engage in more meaningful conversations and you get to know each other at a deeper level. This is really important when you see each other the next day. (#P)

This is, of course, not different from working together in a national unit or elsewhere. But due to cultural differences it may be even more important to organise and attend social events to informally get to know and understand each other. Interviewees noted that Germans often do not talk about their private life, or socially bond, at the workplace.

4.3.3 Apollo at Flugabwehrraketengeschwader 1: Dutch colleagues?

As part of BPI and Apollo, Dutch service members were to be based in Husum at Flugabwehrraketengeschwader 1 to strengthen the binational cooperation. When discussing the German contingent at Vredepeel, this Dutch officer explained:

Y: (...) and we had to station five colleagues in Germany. For many, many, many years, but somehow we are not getting it done.

2: How come?

Y: Yeah, I don't know. It has been decided by generals, decided by ministers, but the colonels are not able to execute this decision.

1: Perhaps no willingness to go there?

Y: No, there really are people who want to go to Germany. (...) Perhaps because we have not enough personnel. The people we normally station there are captains, majors. The types of people who should go over there, and experienced NCOs, are exactly the ones we are short of. This means, thus, that it will impact our personnel capacity. That is the problem. Money cannot be the problem, although we do have a cap on functions abroad. (#L)

This Dutch interviewee argued that capacity problems are the only logical explanation for the Dutch vacancies in Germany, referring to personnel shortages in the Netherlands Armed Forces. Currently, only one officer is stationed at Flugabwehrraketengeschwader 1.

Y: (...) That is the one lieutenant-colonel. And for the other four we apparently have no money. Germany has an opinion about that decision. And that is 100 percent right, since they binationally agreed upon it. And it was signed by the Commander-in-Chief and the Minister. And *we* get away with it. (#D)

What is interesting here is not just that this participant views money to be the main problem, but that he suggests a lack of willingness to live up to the agreement signed at the highest political and military level. Some Dutch participants were convinced that senior officers did not find it important to fill these positions; if it had been important, these officers would have put pressure on DGLC to fill the vacant positions in Germany.

According to this Dutch participant, “Germany has an opinion about this decision.” Also many Dutch and German officers have an opinion about it, including this person, as is reflected in the phrase “and *we* get away with it.” German participants understood that the cause could partially lie in personnel shortages and acknowledged that the German Armed Forces are much larger compared to the Netherlands Armed Forces. But they noted that not everyone at the German side understands this decision. One German service member remarked: “it is not about *you must* fill these positions, it is about *you do not want* to fill these positions.” This also brings Dutch service members in Apollo into a difficult position, as they need to explain why these positions are still vacant, after all these years. German and Dutch participants take it to be a signal of a lack willingness to contribute to, and invest in, the binational cooperation and integration in the ground-based air defence domain.

Over the years, only one officer worked as part of Project Apollo in Germany. This officer contributes to Apollo efforts, and is integrated in the section in which he

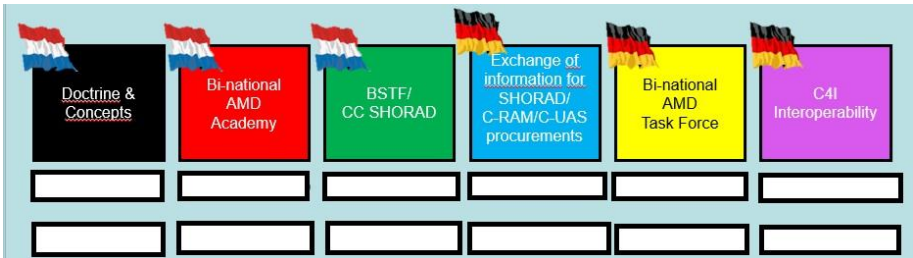
works, although due to foreign disclosures (German Eyes Only) he cannot participate in every meeting or project. Communication goes mainly (or nearly exclusively) in German. Being able to speak German is an important asset and advantage that may be even more important because only one officer is stationed in Husum instead of a contingent of three to five Dutch service members.

4.3.4 Apollo working groups

General structure

As mentioned earlier, Project Apollo started with a variety of working groups, later expanded to include Apollo Purple. Ambitions and goals for these working groups also changed over time. In this section we focus on the Apollo working group structure and the various working groups (see Figure 4). Apollo Yellow and Green will be discussed separately because they respectively involved cooperation between, and integration of, tactical units. The reflections on the Apollo structure and the working groups differed for the interviewed service members, which is related to (1) the phase in which they were (or are) involved with Apollo, and (2) the specific working groups in which they participated.

Figure 4: Final Apollo working groups
Internal document



Currently, Apollo is undergoing changes and Project Apollo 2.0 will continue in a different form than the initial and updated form. Interviewed service members hoped that a new Project Apollo will give a new boost, new morale, and new energy to the cooperation between the German and Dutch ground-based air defence. As one German officer put it:

But it somehow fell asleep at a certain point, all the meetings (...) and all the Apollo meetings in general, you could feel like that there was not much political will to proceed with this thing, because... I cannot even tell you why, but it was somehow falling asleep.(#T)

Whether it was just the lack of political will or not will be discussed later, but because Apollo stalled, and is currently being redeveloped (Apollo 2.0; see section 4.4), we write about people's engagement in Project Apollo in the past tense.

One officer, who was part of Apollo in its early days, shared:

So, we started with a kick-off meeting back then. I think it was in 2015 or 2016, the kick-off meeting. At that meeting they presented the whole outline with the working groups. For each colour a Dutch officer and a German officer were responsible, and one had the final responsibility. That's reflected in the flags [on the roadmap]. And it started really well. (#U)

According to this officer "the working group structure functioned really good, but they were not always that successful." In fact, Project Apollo consisted of three levels (1) the steering group, (2) the working groups, and (3) individuals who worked on the plans that were produced in both the working groups and the steering group.

The steering group of Apollo met at least twice a year, in either Germany (Köln) or the Netherlands (Vredepeel). A participant explained:

Y: (...) In principle, there was always a German and Dutch component in every colour.

1: And how was the cooperation, did it go well?

Y: Yeah, once in a while we met in Köln. There we had the "how does it go?" meetings and generals were briefed on the progress and the actual situation. It all worked pretty well.

1: And did you meet up outside of these meetings?

Y: Yes, because tasks were often delegated, action points, where the colours came together to work on that. In between, the leads of the colours organised meetings. So the meetings in Köln were with the complete group and were all about "where are we standing?" (#L)

This quote provides a more "to the point" overview of how Project Apollo functioned at the three mentioned levels. It took some time to get Apollo started and the first meetings were more about getting to know each other, explaining systems, operating procedures, and thinking about new procedures. This pattern repeated itself in the first few meetings. As one participant put it:

So yeah, that took a while. It took about one-and-a-half year, perhaps even two years, I don't know. Each time we presented [our systems and procedures]. Then

in the Netherlands, then the next one, three or four months later, in Germany, often in Cologne. “Let’s present again, what do you have?” Because it had not landed yet. That was the case on both sides, by the way. (#A)

Getting to know each other was not limited to explaining one’s material and operating procedures. The meetings were also helpful for some teambuilding among the Apollo participants:

And when we had a meeting with all the colours in Cologne, we arrived there the day before. We slept in a hotel and the evening before the meeting, we all, Germans and Dutch members, went out for dinner. Or we visited the Weihnachtsmarkt, if that was happening. And then the next day we talked about Apollo. So that included some teambuilding. (#O)

The system of steering group, working groups, and individuals who worked on tasks seemed to work for the interviewed service members. Sometimes, there was not much to talk about because some activities took a while before developments or results could be observed and discussed. Some participants could (or had to) invest more time in certain working groups, whereas for others it was more of a side-project.

Some organisational differences came to the fore. The mandate of the steering group was rather limited. It was mentioned that decisions could not simply be made by the participants at the meetings. German delegates had to discuss topics in person with their superiors, so decisions could only be taken at subsequent meetings. Dutch participants often discussed issues with their superiors via phone, making quick decisions, but they sometimes changed decisions over time. This reflects organisational differences in hierarchy and decision-making processes, which will be discussed at length in section 7.3.

As one Dutch interviewee concluded:

So these different colours also represent different interests. The idea of Apollo with its different colours was really interesting, but the willingness to invest equally in all these colours, in all these lines of operation, was perhaps not always present. (#M)

Not all working groups were equally successful for a variety of reasons, including the willingness to invest in them or their resulting plans. The “was not always present” phrase may be read as an understatement of the perceived willingness. The lack of willingness was ascribed to political reasons and military

protectionism, and to decisions “above the paygrade”, as the interviewed service members put it.

Cooperation in Project Apollo involved meetings and exchange of information via national IT networks. Information was often classified as at least confidential, and not all communication systems could be employed, for example for VTC software and email. Issues that can become a burden for cooperation:

But there is a solution for everything. And there was a solution for [the email problem], because the Bundeswehr used [system] and now uses [system]. The Netherlands always uses [system]. Are you allowed to email from our current system with the system used by the Netherlands Armed Forces? No that was not allowed. Nowadays when you start your computer in the Netherlands, the system starts with a blue screen which states that it now is *allowed* to email with the Bundeswehr. A technical solution was implemented. It all took until ‘21, ‘22 before things were arranged. (#N)

According to this officer “there is a solution for everything.” For most problems, such as for the exchange of data, technical solutions were available, though not always allowed, due to regulations about foreign disclosures, etcetera.

A number of participants pointed out the differences in size between the Armed forces of the two countries. Dutch participants explained they felt the Netherlands was sometimes too small compared to Germany, referring to the different sizes and differences in capabilities of both armed forces. As one interviewee explained: the German ground-based air defence consists of over 2,400 personnel and may grow to 3,000 people, whereas DGLC consists of circa 700 service members and may grow to 1,000 personnel. Some participants suggested that due to these differences, Germany was less willing to invest in Project Apollo. This should be seen in the context of the *Zeitenwende* and the new plans of the German government to become the strongest armed forces on the European continent.

In Project Apollo, participants did not note power imbalances, such as the “big brother” and “little brother” issues. Despite differences in size, there was an equal balance between the German and Dutch delegates in the steering group and working groups. As one Dutch officer noted when questioned about power differences:

1: I would think that DGLC would be more in charge instead of Germany
Y: Yeah but that was not the case. I won't say that the Germans felt like they were more than us, on the working group level. No, I think it all was quite equal. That also has to do with the chairmen from the German side. That is very important, there was nothing wrong. It was superb. (#A)

Personal leadership mattered and the participants spoke generally positively about their colleagues. Possible risks to the sustainability, in light of the importance of personal leadership, were (1) the job rotating system in the armed forces, and (2) shifting responsibility for a colour or project in Project Apollo, which resulted in the leakage of knowledge and networks.

Apollo Red

Participants who reflected on Apollo Red all came to the same conclusion. In short: "The red one [Apollo Red], the binational AMD Academy (...) It was not that important." [#D4] In general the willingness to actually cooperate or integrate in Apollo Red seemed lacking:

1: I quickly heard "Red is dead", that is what people said about it.
Y: Yes and that is a shame. They [ideas] do not always work. To get stakeholders to come to Crete to train them in a couple of days in the field of air defence, very generally, and show them the live firings, that is great. That was the only course in the course book of Apollo Red and there was nothing else in it. We have a training centre in Husum, we have a training centre in Vredepeel. If you would give it the same logo on the wall "binational bla bla bla education and training centre", that would be fantastic, but it does not happen. (#U)

Two aspects in this quote are important to understand why Apollo Red was not successful. First, as one of the other interviewees argued, most of the courses potentially worth including in Apollo Red were already existing NATO courses offered elsewhere. To avoid overlap, the number of courses in the Apollo Red course book was limited to one. It seems that Apollo Red had no added value in terms of training.

Second, both Germany and the Netherlands have their own ground-based air defence training centre. To integrate them would come at the cost of sovereignty and autonomy: one of the countries would "lose" the school and would thus run the risk of losing expertise, even if personnel still worked at the binational training centre. As one German officer argued:

If you really are serious about integration, you need to look at this: we have a school, you have a school. We have instructors, you have instructors. Could you really, with fewer personnel, provide training for the same number of students? And if you decide to do so, we need less positions here and less positions there. Or you should say, “we close the school in the Netherlands and move everything to Germany”, or “we go to the Netherlands”, that does not make a difference to me. This means that your knowledge base, if you say we do it elsewhere and station German instructors and staff in the Netherlands, is no longer in Husum. And this step nobody will take, for a reason, and I understand that reason, but this really is an important aspect for real cooperation and binationality. (#L)

According to this officer, a binational training centre would be essential for *real* cooperation and integration between the Dutch and German ground-based air defence. It would mean a joint knowledge base, shared interpretation of operating procedures, a binational socialisation and, thus, an institutionalisation of the German-Netherlands cooperation and integration in the air defence domain. Several Dutch and German officers still viewed the lack of cooperation between the training centres, or perhaps the integration of both centres in one centre, as a missed opportunity in Project Apollo.

Apollo Black

Apollo Black was discussed in a limited number of interviews. Perceptions of the success of this working group differed. One of the interviewees reflected on the need for DGLC to (re)write their own procedures, thus having less time to actually work for Apollo Black. This participant explained:

Not much has been done, because we were much too busy with writing our own procedures, or rewriting them. For Patriot and for the counter-UAS team, which was new back then. Similarly, everything for 13 [Luchtverdedigingsbatterij], includes procedures for the BSTF, because we also had to do that. “How to do that? How to integrate these? And what is possible?” That has been written, by the way, in collaboration with the BSTF. But otherwise, we were just very busy with ourselves. These kind of things are important. You know, if you can decide beforehand on how to operate together, and in the broadest sense of the word the actual rules you use to engage the enemy, the rules related to communications, but also how to transport, and everything. If you can agree on that beforehand, that would be great. (#A)

Whilst this service member understood and expressed the importance of common procedures, he argued that staff of DGLC was too occupied with (re)writing their own procedures. Procedures for the BSTF were written as part of Apollo Black, but

the rest of the procedures were DGLC-only. For that reason, this colour was only partially successful. Others believed that Apollo Black was more successful, for example because they wrote a binational and later multinational CONOPS. One service member who took part in Apollo Black said:

So within this working group there were about ten people who are working on writing products, like me, such as the writing of books. You need to test these, like “is this it? Take a look, read it, try it out in an exercise” and so on. So it was somewhat successful. But you have to keep it up to date, otherwise the knowledge will leak away. (#U)

This participant told a different story: it was successful in that products, such as SOPs, were developed within the working group or in small groups of service members. These products were written, tested, adjusted, etcetera. It seems that when products such as SOPs were finished they were not reviewed and adjusted further. Thus, even though Apollo Black has been successful in delivering products, the writing of shared procedures was not institutionalised or part of everyday working processes. Perhaps for this reason, some people got the sense that Apollo Black “feel asleep”, like other working groups.

Apollo Blue

Sharing and pooling is an often used type of multinational military cooperation because it may lead to (re)gaining or keeping capabilities that single countries are unable or unwilling to sustain (for primarily financial reasons). Apollo Blue was the working group on procurement. Interviewed service members had mixed feelings about its success. As one participant put it, “for me, Apollo Blue was successful, absolutely. I really see the value of this working group. This remains important for the future.” Another interviewee made this more specific and said:

We did look into it [Apollo Blue] like “okay, but if we procure stuff we want to make use of the economies of scale, we need to create only one project group, we need to conduct only one market study, we need to start an accreditation process only once, we can make a joint proposal to the Americans if we want to buy American stuff.” So there are all types of advantages, also as Germany is one of our six strategic partners. (#D)

Joint procurement would save money and capacity. German and Dutch project leaders were said to have come together to sign contracts to use each other’s systems. In practice, however, the procurement reality was different, due to national regulations, national restrictions, and national structures and procedures

for procurement.

In the beginning we had the illusion that we could start joint material procurement projects. Yeah, that really turned out to be a utopia. We experienced that... [short pause to think] We are extremely restricted by national regulations, so it would only make life more difficult for us if we tried creating joint projects. Then we said, let's stop doing that. (#O)

Service members in Apollo are not the ones who ultimately procure new systems. They can provide input to the Central Staff or the German counterpart, but COMMIT⁹ (in the Netherlands) and BAAINBw¹⁰ (in Germany) are the organisations ultimately responsible for the procurement of new systems. One of the differences between both organisations is that Commit is a civil-military organisation whereas BAAINBw is a civilian organisation, according to one of the participants. But the main difficulties were due to a lack of political willingness, the interests of national industries, and the differences in planning horizon. For example:

I think the main issue is the planning horizon and when budgets become available. It is important to synchronise this, so we can do stuff together. We could acquire big things and save money. We could initiate joint projects, have budget simultaneously to buy stuff and sign contracts. This is a big issue for interoperability; interconnectivity can be improved by this. (#L)

One of the participants mentioned the joint procurement of new systems for the medium range air defence. This officer recalled agreement on the radar and weapon systems, but since the German Ministry of Defence was not able to get the budget to sign contracts, it was not possible to actually sign the contracts. In the end, the two countries choose differently and acquired different systems (IRIS-SLM versus NASAMS 3). There was, no doubt, more to it, but, it illustrates how procurement is dependent on national political and military decision making.

Industries play an important role in procurement for multiple reasons. For example, commercial parties prohibit armed forces to share information with other armed forces, affecting the degree to which information could be shared among German and Dutch participants in Apollo Blue. Political interests may also influence decisions of military and political leaders, for example, when national interests (own military industries) prevail over concepts of operations or over interoperability.

⁹ Commando Materieel en IT

¹⁰ Bundesamt für Ausrüstung, Informationstechnik und Nutzung der Bundeswehr.

Jointly procuring (weapon) systems increases technical interoperability, and perhaps operational interoperability, as units from the two countries would use, for example, the same radios, radars, or vehicles. But the question is whether this advantage translates into decisions about procurement:

They look into it [interoperability with German units], but I am not sure whether they really take it into account. I don't know. It would be great, but I can't say. That is exactly what the working group "joint procurement" [Apollo Blue] was all about. In the end we jointly procured containers and generators [laughs]. "Well done, but it wasn't meant for these kinds of stuff, right?" I am a bit sceptical, but that is the reality at this moment. We chose different weapon systems and that really is a shame. (#U)

Nevertheless, the main strength of Apollo Blue was the exchange of information in the early phase of procurement. In particular, service members need to write a program (or set) of requirements to start the procurement of new materials. These programmes (or sets) of requirements are generally lengthy documents; co-writing or sharing these types of documents reduces the number of hours one's personnel spend drafting and reviewing these documents. Exchange of information happened on multiple levels, in a grey area between formal and informal exchanges. When asked about the extent the exchange of information was formally arranged, one of the interviewees replied:

That's something we left aside. It was more in the context of Apollo, "there you go." We did not register something like that, or formally transfer the information, Apollo is a suitable umbrella for that. We all are adults and know how to handle it the right way. (#O)

Apollo Purple

The final working group we discuss in this chapter is Apollo Purple, a working group that was not part of Project Apollo from the start. As one participant explained:

That one was established separately, because we saw that... We created two international units in Apollo. One the one hand it is Green, the BSTF, let's call them the Stingers, an integration of the Dutch and German Stingers. One the other hand Yellow, which was the cooperation between the Dutch and German Patriot units, which existed before Apollo. Nevertheless, now it was part of Apollo. Then there is one important question: "okay, but how are we going to exchange information? It sounds super easy, but it wasn't. (#O)

Apollo Purple was considered essential for cooperation and integration of units, because it had to improve the interconnectivity, including that of C4I-systems, between the German and Dutch ground-based air defence units. Technical interoperability in Yellow and Green will be discussed in, respectively, chapters 5 and 6. For now we provide a quote that represents interoperability discussions:

And that was for Apollo a limiting factor. We all started to buy our own communication systems and to develop our systems. We made it all “national secret” or something like that. So foreigners may not use it. That drives us apart. (#G)

Two interviewed service members explained that this working group was not chaired by an officer at DGLC, but by an army staff officer (a lieutenant colonel working at Staff-CLAS). Perhaps this reflects both the complexity of the subject matter and the level at which relevant C4I decisions are being made.

Linguistic issues hampered discussions about the (im)possibilities of connecting Dutch and German systems, despite the fact that most IT jargon is in English. For example:

But there the language was English. And that lead to a barrier sometimes, I should say. To understand each other, both from the Dutch side as well as from the German side. One speaks it fluently, the other not at all. There were project teams at both sides, who in their field, say ICT, shoot a 9 or a 10, but for English maybe a 2 or a 3. That was a little tiresome, because it became dependent on the breaks, during which some technician would tell you, ‘I had wanted to say this and that, and what this German colleague is saying now, we are not able to do.’ But he did not feel comfortable to raise this during the meeting. These things happened now and then, on both sides. (#A)

Nevertheless, as professionals, they had enough in common to be successful in certain cooperative projects. For example, they mapped the many different aspects of the IT-systems in various schemes. These schemes provide insight into the systems of both countries, and how to connect them. Small experiments showed that connecting German and Dutch systems is technically possible.

Look, if you link stuff on a very small scale, in a closed environment, and without sending information, I know it’s all possible. But at a certain moment, tests need to be more extensive, which means you have to inform the security coordinator and the security authority. (#A)

The “big test” was never done due to security restrictions, despite service members of both countries agreed to do so. The chair of the working group received a message that the “big test” was not allowed:

I can clearly recall that moment. We finally agreed like “let’s organise a test to link the different systems.” This was followed by a coffee break and a phone call was made to a higher level. The chair called with the higher level but then he was told “it all goes too fast, we can’t do it, we need to rethink it. And were we sure?” (#A)

Security authorities of both countries were either not willing or able to approve more complex tests linking different systems to each other. Communication between security authorities of the Netherlands and Germany was characterised as difficult or even absent. The connections could not be tested in real-life situations, and so the working group reached its limits. This led to frustrations and may have contributed to the “end” of the working group, although there never was a clear termination point of Apollo Purple.

The interviewees who discussed interoperability issues all concluded that, despite some successes, more could have been done to improve technical interoperability between German and Dutch air defence units and their weapon systems and C4I systems.

4.4 Apollo 2.0?

At the time of the interviews, Project Apollo was past its peak. The number of meetings had declined, and the authority over Flugabwehrraketengruppe 61 was transferred back to Flugabwehrraketengeschwader 1 in Husum. It seems that the Dutch and German ground-based air defence units at present are occupied with their own current investments, expansions, and restructuring.

The question is: was Project Apollo useful?

2: But suppose that they think Project Apollo was a worthwhile project after all..
Y: You just said that Apollo was worthwhile *after all*. Apollo *is* worthwhile, it has been worthwhile. It is just a shame that Apollo is paused. I sincerely hope that they will revive Apollo. How great would it be if we could connect with the German system and we could start doing stuff together. (#A)

The interviewed service members described the challenges and complexity of Project Apollo, but also stressed it was a learning experience and the success they

could celebrate. The impeding factors were mostly external, such as political and military decision making, procurement organisations, commercial disclosures, and security coordinators/authorities. They were the main cause of the downward spiral that characterised Project Apollo in recent years, not the units involved in Apollo. This is not to say interviewees were not critical of Apollo and the progress of the working groups (see section 4.3.4):

If you want to cooperate, you need to make arrangements. You need to know what you can do, your strengths, and your weaknesses. And that should have been the basis for Apollo. But I did not see that [i.e. knowledge and commitment]. (#I)

One should keep in mind the time in which Apollo was initiated: a time of scarcity, budget cuts, and diminishing relevance of ground-based air defence. Multiple service members argued that Project Apollo was successful “given the circumstances in which it was founded” (#N). As mentioned before, the biggest success of Project Apollo is that the ground-based air defence of both the German and the Netherlands Armed Forces was not dissolved. Personnel and knowledge did not all leave these armed forces, and material was not sold to other countries.

Several interviewees, on both sides, identified strongly with Project Apollo and held a strong belief that it should be revived. Even though its character would, in general, be up to the commanders of DGLC and Flugabwehrraketengeschwader 1, they argued that the binational cooperation should be institutionalised and well-organised, instead of consisting of ad hoc projects. This allows long-term plans for, e.g., personnel, and increases the return on investment. As a staff officer argued:

If I know that a German captain will be stationed here for the next 30 years, I will make a fixed job description. In the current situation, I know that all the tasks I give to him, I’ll have to do myself in one year’s time. It is not structural. You receive temporary help, that’s helpful, but you can assign that person only temporary projects. Structural tasks in a section... if the person leaves, you need to do it all by yourself again. (#K)

Structural agreements, as participants noted, make it worthwhile to invest in solving encountered problems with personnel, material, and communication. We will delve deeper into Apollo Green and Apollo Yellow in the next chapters, but institutionalised cooperation (and integration) will increase the return on investment to, for example, write CONOPS, test procedures (Apollo Black), and foster technical interoperability (Apollo Purple).

The participants arguing that Apollo should be revived insisted on the need for a clear mission and clear objectives for Apollo 2.0. The commanders of DGLC and Flugabwehrraketengeschwader 1 should explicitly commit to Project Apollo 2.0:

I think that Apollo should be revived. It was successful for a period of time. We accomplished a lot. It had momentum, but the flow is gone. This [Project Apollo] has to be restarted by the two colonels. They need to agree on a point on the horizon, “what is our end-goal? And how will we reach that end goal? And how would it benefit us?” Both the quick wins and the long-term benefits. (#L)

I think we should have joint objectives, because, in the end, we will defend cities in more or less the same area, in the event of a war. We won’t go to [censored], because that has been decided in the new NATO force model. So that model takes a more regional approach: Germany takes the northern part, the Netherlands as well. (#U)

These goals should be clear and specific, as the quotes show. As one of these participants argued, it would make most sense to focus on future deployments or joint exercises; such a focus would lead to concrete steps for cooperation – although it would not necessarily involve the scope of all the working groups of Project Apollo (black, blue, purple, red) discussed in this chapter.

The interviewees emphasised the need to implement lessons learnt in a new manifestation of Project Apollo (Apollo 2.0). This new Apollo project should be adjusted to the recent geopolitical developments, military developments, and new investments:

I believe Apollo was a success story and that is also the reason why we are currently reorganising Apollo and doing stuff differently. Nobody said “Hey let’s kill Apollo and stop with it.” Maybe a different manifestation, maybe a different approach because the whole world has changed. So several plans should change; that’s how it works. But the biggest success of Apollo is that nobody argues that we should kill Apollo. (#P)

Others argued that cooperation could be expanded. A large share of the interviewed Dutch service members stated that Germany is a preferred partner for multinational cooperation in the domain of ground-based air defence, because of the history of cooperation *and* because of Project Apollo. A few participants also included Norway to be an important partner. The same was true for German interviewees. It seems that path-dependency is an important factor for preferences of partners. Moreover, several interviewed service members referred to the

ongoing integration of the Royal Netherlands Army in the German Army and possible future cooperation between both air forces (as both countries will operate F-35 fighters and Chinook helicopters in the near future, creating technical interoperability). This intensifying cooperation would be an additional reason to choose Germany or the Netherlands as a preferred partner for military cooperation in the ground-based air defence domain.

4.5 Conclusions

The theme “the Road to Apollo” provides a picture of the origins and starting point of Apollo: a situation of scarcity, lack of urgency, and a low priority of ground-based air defence at that time. Project Apollo was a political project to save the ground-based air defence capabilities and to strengthen the binational political and military relationship between Germany and the Netherlands.

For the theme “Project Apollo as cooperation” we focused on three subthemes: Apollo at Defensie Grondgebonden Luchtverdedigingscommando (Vredepeel), Apollo at Flugabwehrraketengeschwader 1 (Husum), and the Apollo working groups (with the exception of Yellow and Green). The different projects in Apollo diverge in significance and results.

German service members were stationed in Vredepeel. They had to find their way within DGLC, without a clear understanding of their functions and position, and without a vision for the cooperation and tasks. They generally found meaningful tasks to work on, although this was sometimes not possible due to regulations that limited access to systems and prevented them to reach their full potential. In general interviewees discussed positive experiences at the interpersonal level and felt that the German service members were integrated in the sections in which they were placed. Language issues were rather limited because German service members took a course to learn Dutch, and most of the Dutch service members at DGLC spoke German and English at a sufficient level.

Apollo at Flugabwehrraketengeschwader 1 was more limited, due to the fact that the Netherlands Armed Forces did not station the agreed number of Dutch service members in northern Germany. This was mostly perceived by German and Dutch participants as a lack of willingness of the Netherlands Armed Forces to contribute to Apollo. The one officer who works at Husum seems well-integrated in the working practices and has access to systems and information.

The three-level working group structure of Project Apollo was considered a success, but the perceived success of the individual working groups differed. This may relate to the perceptions, ambitions, and experiences of the interviewees. The amount of time the service members had to invest in the working group differed vastly, depending on the specific working group and the time period in which one became involved in Apollo.

In general, it seems that the working groups had the potential to improve the technical and operational interoperability of the DEU-NLD cooperation in the domain of ground-based air defence. Joint doctrines, SOPs, education, procurement, and interconnectivity all could render cooperation more effective, efficient, and reciprocal between DGLC and Flugabwehrraketengeschwader 1. In fact, they were seen as essential, in particular for Apollo Yellow and Green. The working groups had their merits, to a certain extent; outputs are described in the previous section. Nevertheless, after a “motivated start”, the enthusiasm dropped over time because of the encountered problems.

Most of the problems can be traced to processes on the higher military and political levels. Interviewed service members often did not have enough information to trace the origins of these problems; sometimes, different versions of the origins were told in the interviews. Some of the obstacles are more structural, such as the procurement procedures in both armed forces, and aligning them demands organisational change on multiple levels. Sovereignty and national interests posed other obstacles, as became apparent, for example, in the lack of willingness to intensify cooperation between (and perhaps the (partial) integration of) the training centres in Husum and Vredepeel.

The problems encountered in Project Apollo show the limits of ad hoc cooperation and integration projects – not saying that Project Apollo was an ad hoc project itself – because the mandates and autonomy of these projects are substantially limited by the military structures and the national-political-juridical context.

5 Binational Patriot cooperation in Apollo Yellow

W.T.C. Bisschop

5.1 Introduction

The Netherlands has had Patriot weapon systems since 1987, and Germany since 1989. A Patriot system consists of a radar, a fire control center, multiple launchers, and supporting facilities. At the start of the war in Ukraine, 2022, the Netherlands had four systems, Germany twelve. The two countries have cooperated on Patriot systems for decades. During this time, their interoperability decreased. In Apollo Yellow, the Dutch 802 squadron, based in Vredepeel, cooperated in Patriot exercises with Patriot units of the German Flugabwehrraketengeschwader 1 (FlaRak Geschwader 1) (with its headquarters in Husum). Of the 21 interviewees in this project, about 11 of them had been involved in this cooperation, both Dutch and German, as NCO or officer. This chapter is about their perception of the interoperability of Patriot weapon systems during Apollo Yellow, and the ramifications of their experiences in this project for Patriot cooperation. I start with the level of cooperation and interoperability before Apollo Yellow. I then discuss the level of cooperation and interoperability during Apollo Yellow, including the various types of problems that occurred. Finally, I describe the current status and prospects of binational Patriot cooperation.

5.2 Patriot cooperation before Apollo Yellow

Multinational cooperation is common in ground-based air defence (see section 1.2), and the cooperation between Germany and the Netherlands on the Patriot weapon systems had been in place long before the two countries met under the umbrella of Apollo Yellow. There had been German exchange officers in Vredepeel since the 1990s. Service personnel of both countries performed the evaluations of each other's units during exercises. "The entire NATO-evaluation branch consists almost, for Patriot, of Dutch and Germans" (#H), a German officer said, maintaining that this was not due to the numbers of systems the countries had—these were modest indeed—but to their commitment to understand and work with them.

Apollo Yellow was not the first cooperation program for the Patriot weapon system. In 1999, the Extended Air Defence Task Force (EADTF) was established in Burbach, Germany (Tanski, 2017). Consisting of 34 German, Dutch, and American military officials, it aimed for more interoperability and the development of common tactics, techniques, and procedures (TTPs). Together with the USA, the Dutch EADTF personnel provided guidance and support during Operation Display

Deterrence in 2003 to protect the Turkish border region with Iraq, where the Netherlands deployed three Patriot batteries. In 2014, the EADTF was transformed into the German-Dutch Competence Centre for Surface Based Air and Missile Defense (CC SBAMD), located at Ramstein, and still in existence (Groen & Katsman, 2023).

German and Dutch Patriot units held regular exercises together, with two of them being the most prominent. JPOW, the Joint Project Optic Windmill, is a biennial virtual command post exercise at Vredepeel, that started in 1996 with the USA, the Netherlands and Germany (Pronk, 2021). The impetus for it was the experience in the First Gulf War, when it turned out that the very expensive Patriot system was too often unsuccessful in downing missiles. The three countries started working together on concepts and simulations. In later years, other countries acquired Patriot systems and joined JPOW. For the Dutch and German Patriot users, it was a regular exercise, right from the beginning. “I’ve been driving to the Peel [abbreviation of Vredepeel] for Patriot-simulations ever since I started, [over ten] years ago”, a German officer told us. Another biennial exercise is the live firing on Crete, where countries like the USA, Norway, Greece, Germany and the Netherlands fire with their Patriot systems at drones. Cooperation was common, and could take various forms, up to integration. Through these exercises, the air defenders got to know each other’s weapon systems, and developed their social network.

Before Apollo started, the Dutch and German Patriot units had been deployed together. They took part in the NATO-operation Active Fence in Turkey, at the border of Syria (2013-2015). One officer related that this experience made him curious to explore further possibilities for binational cooperation:

Yes, and then you’re in fact standing side by side, you know. Yes, that we in fact could do much more together, and thus also maybe here and there pieces of apparatus..., but maybe also relieve people. Because you can do things together. So the motivation was quite high. And we were also curious, of course. Like, what do you actually use? (#A)

Given that the two countries already worked together with Patriot units, “the step to start a binational project was very small” (#P).

5.3 Patriot interoperability before Apollo Yellow

The level of technical interoperability between the Patriot units of the two countries used to be high, higher than it is nowadays. In the past, Germany, the

Netherlands and the USA explored how to connect their systems to each other, and they made it happen.

In 1996-1997, we were much more ahead compared to now. We started working-groups as a result of the exercises of JPOW. (...) Back then, we had a complete list for how to connect a German launcher to a Dutch radar and to an American ECS [Engagement Control Station], and then to... At least, it worked. It was all... And we could chat with each other. We cannot do that anymore. (...) And that, of course, is quite strange. (#G)

There was a working group with the explicit aim of interoperability, the Tri-National Operations Interoperability Working Group (TOIWG). They developed a handbook for the sheer purpose of being able to connect their systems:

We made, together with the Americans, Germans and Dutch, an interoperability book. It told you precisely, if you want to do this, then you need this little cable and you connect it like this, you can on this ... yet all without accreditation, this was before that time. (#L)

Nowadays, this level of technical interoperability is not available anymore. The handbook became outdated when the countries started to use different communication systems and the accreditation problems began (see below). “We should start that project again”, this officer believes.

Multiple participants shared experiences about live firing exercises with mixed crews at Crete. The idea is that mixed crews increase operational sustainability because you can exchange personnel if necessary (e.g., in case of casualties).

You could have created a greater operational sustainability, at least in the area of personnel. Especially the Germans have not opted for that. (...) You know, we have done that very often in the past, mixed crews. Just in a fire control centre. If you speak English with each other, it works well, because the fire control personnel of the Germans is also trained in English. It works well. You know, you put them twice in a simulator. And then they can run the live firing. That works great. We did that often. But we don't have that anymore. And that's, yeah, that's a shame. (#G)

Moreover, even when the Dutch and German Patriot systems were different, being able to operate each other's weapon systems was part of the cooperation between the two countries. About shared exercises, an officer recalled:

Mixed, and working on each other's systems. Very interesting, very instructive. And it motivated people too, to do that. We even once had a launching exercise where we got a challenge at the end of the week in which the Dutch had to set up a German system, and the Germans a Dutch system. And then as fast as possible, clocked to see who won. That's nice. They really made a competition out of it. (#A)

Apart from operational benefits, this sort of cooperation and mixing motivated people in their work.

5.4 Patriot cooperation in Apollo Yellow

The aim of Apollo Yellow was the establishment of a Binational Air and Missile Defence Task Force (BAMDTF). This taskforce was to achieve "interim and full operational capability, and [explore] feasible future milestones up to three years ahead" (internal document). Unlike the BSTF (see section 6.2.2), Apollo Yellow was concerned with one type of weapon system: Patriot. Germany contributed with different squadrons and, unlike Apollo Green (and the BSTF), Apollo Yellow did not involve one country's unit being placed under command of another country. As an explanation for the latter, an officer suggested that both countries consider the Patriot weapon system part of their strategic capability, not as tactical assets.

Patriot or submarines or F-35 capability, those are strategic capacities. At least, this is how the Netherlands sees them. You can use them purely technically or tactically, but this is how the Netherlands sees them, and how it is framed. At the German side that is the same for Patriot, as far as I know. (#D)

Putting a Patriot unit under another nation's command would come at the price of autonomy, which neither country was prepared to pay. In fact, the idea to do so already led to strong emotions when suggested in a discussion by a German officer, even though there might be plausible tactical reasons to do so (e.g., in case of a frontline in Eastern Europe).

During Apollo Yellow, much of the existing cooperation continued. The two countries went to the biennial JPOW together, even if not necessarily integrated. As one participant explained:

When we went to JPOW, we now went together to that exercise. So (...) on that dossier we got together more often. Especially for all those planning conferences, and all that involves. And you could see that there is more [mutual] understanding, and at a certain point, things start to work. (#Q)

At shared exercises and planning conferences, people got to know each other and developed their network. This seems to have intensified a little during Apollo Yellow. There were also crew exchanges between mechanics, who trained on each other's systems. As a German interviewee said:

Yeah, so I think the Dutch had two launchers brought from Vredepeel, and we had also two launchers. Because they are mainly, there are some differences when it comes to the GPS and to the radio systems and all that stuff... And every nation showed what they have and then we trained a little bit. (#R)

Another part of Apollo Yellow was the development of a shared Concept of Operations (CONOPS), and this was successful. "The binational CONOPS for the Patriot has also come out. We fired with it" (#L). Moreover, the two countries had their evaluations together and acquired the IOC declaration [Initial Operating Capability] for Apollo, showing that the two countries could work together as a Ballistic Air & Missile Defense Task Force. Apollo Yellow had one deployment as a binational taskforce, in February 2022, to Sliač air base (Slovakia), where the level and limits of interoperability between the two countries became particularly clear.

5.5 Interoperability in Apollo Yellow

5.5.1 Interoperability in the technical domain

Interoperability in the technical domain was rather low. From the start, the two countries could operate side by side, with limited cooperation.

So at one point, you have co-existence, which is really nice. Then you get cooperation, that's what we did with Patriot. But the next step, integration, that did not happen. (#D)

According to another participant, at the live firings on Crete, the countries would meet each other and were visited by evaluators of other countries, but operated mostly separately. "We discuss with each other, like, what do you use? But nothing together, really actually together." (#A)

A persistent problem was the technical deviation of the two systems, which in turn caused legal hindrances for cooperation. From the outside, the Patriot weapon systems leased by DGLC and Flugabwehrraketengeschwader 1 look the same, but the configuration of the systems is different. And since the Patriot weapon systems are in use for decades, there are upgrades and developments for it every so often, but countries do not always acquire the same upgrades or features. Additional

software packages or hardware features acquired by one but not the other country complicates cooperation technically or legally, or both, as a Dutch officer explained:

But (...) suppose the Germans buy certain software packages extra, which we are not allowed to see because we don't have that contract. And then it is 'German eyes only'. And the Dutch do this the other way round as well. That doesn't make it easy, I have to say. And at the technical level you have some technical limitations due to which you cannot easily connect a Dutch system at the lowest level with a German system. That's impossible, the plugs don't fit, or something else, you know. That always remains an issue. (#U)

Technical differences caused restrictions, but there would often be ways to solve interoperability issues. For example, regarding different data radio systems, a German officer said:

We are not that interoperable. If you ask whether you could place a German Patriot under a Dutch ICC [Information Coordination Central], I can tell you, by now, yes, but during (...) the multinational deployment, no. That was not possible. Even though we both have Patriot, it was not possible. Because you [i.e., the Dutch] have different data radio systems than the Germans. If the industry says 'it's possible', they mean, 'I've got something on the shelf which you may have for 3 million euro's'. That's what they mean when they say 'it's possible'. (#N)

Here, the technical differences in the end only brought surmountable problems, but the solutions from the industry might come with a high price-tag.

5.5.2 Interoperability in the operational and organisational domain

The two countries can operate together under the German SAMOC (Surface-to-Air Missile Operation Centre), at the level above the ICC (Information Coordination Central). A Dutch fire unit with an ICC, or two fire units with an ICC, could be placed under a German SAMOC. The cooperation with the SAMOC was neither new in Apollo Yellow nor unique for these two countries—it could be any other NATO-country with Patriot capacities. Under the SAMOC, the countries still operated side by side, hence it is not a form of full integration and there was no operational interoperability. The national procedures of the two countries differ sometimes. As a Dutch officer explained:

And what you noticed is, we try very hard to follow our own procedures. And sometimes that conflicts [with German procedures], because the Germans believe they should do it in another way. And they are in command, so we have to do it

their way as well. But that conflicts with our own procedures. And then you get the small differences. And you can see that, if you agree on that for the ICC level, the battalion level, you can very well keep using your own procedures. (#E)

There are small procedural differences between the two countries, and this may cause conflict. It became apparent that it works best to keep using your own procedures up to a certain level. Above the ICC-level, one type of procedure, typically the German, had to prevail. As such, the level of operational interoperability in Apollo Yellow did not change. This was common before Apollo started, and continued during it: Dutch fire units, with an ICC, operating under a German SAMOC, with national procedures being followed at ICC-level, and the German procedures at higher levels.

The Netherlands and Germany both operate according to NATO-doctrines. This brings unity and enables cooperation. Still, some felt that in NATO air defence, this procedural aspect had been a little neglected. If correct, diminishing interoperability would not be merely a German-Dutch phenomenon. Among a few officers there was some hesitation about whether there still is a difference between the Netherlands and Germany when it comes to their concept of self-defence.

I believe the Germans and the Dutch, for example, and that is very fundamental, they differ in their notion of self-defence. That means a lot, of course. When are you allowed to press the button without direct order? Let's say it like this. Even though NATO prescribes basic rules, I believe there is a slight difference concerning self-defence between the Netherlands and Germany. It often becomes apparent in, for example, whereas one country may protect NATO-installations out of self-defence, the other country may not do so without further ado. (...) But if you know this in advance, you can discuss this with each other, thoroughly, train, and say, 'you are slightly more restrictive than I am, maybe let's stick with the restrictive. I'll do the same, so we have no difference.' (#G)

Germans service personnel are said to be allowed to protect the installations of other NATO-allies, but the Dutch not automatically, out of concern for blue-on-blue casualties (firing on own troops). This was perceived to be a fundamental difference, and their cooperation required agreeing on one particular approach.

Also in the organisational domain, it sometimes came down to small details. In the Dutch military, they put the serial numbers for classified laptops in one document; the Germans require a document per laptop. NATO-regulations allow both, but the Germans stood their ground. Small details, but life is full of small details. Generally, these differences became relevant during the cooperation, and

for most of them, a sufficient solution could be found, even though it was an inefficient process.

A Dutch fire unit consists of 36 people, that is, only the operators of the weapon system and a small staff. All support capacities are part of the 800 SQN, which also supports other DGLC-units. A German fire unit consists of 105 people, including not only operators, but also the network administrators, force protection, support and supply coy, and maintenance (Matthias, 2022). This complicates alignment, since German fire units can be deployed independently, whereas Dutch units depend on the support capacities of the 800 SQN that also supports other DGLC-units. Although it affects the organisational interoperability, we did not come across examples of situations where this caused problems. Moreover, as far as personnel of the launchers were concerned, the degree of organisational interoperability was high: “Our launchers could work there, their launchers could work with us” (#L).

5.5.3 Interoperability and the national-political-juridical context

More problematic than the technical differences were national and commercial interests, with their legal implications. For it often meant that military personnel of other countries are excluded from using these systems. States and armed forces may not want to share the intelligence or system modifications they developed themselves. And the manufacturer sells a ‘licence to operate’ to countries, but remains the legal owner of the systems, issuing restrictions on their use. Countries that acquired Patriot systems are not allowed to share certain information with each other. Since the military is dependent on its suppliers, they are compliant with its rules, even if this conflicts with their military purposes.

The exact functioning of elements of the weapon systems remain ‘black boxes’ for their users. For example, how does the radar work exactly, or how does it calculate the hit-probability?

Some of these black boxes we are not allowed to discuss with each other. So that complicates cooperation more than with a weapon system where this is not, or less, the case. (#D)

The information that is ‘Dutch eyes only’ or ‘Nur Deutsche Erkenntnis’ often is not very different, according to one participant:

It's mostly the stuff our own intelligence collected and our own technical centres developed. That's less than 20%, I think. The rest is from the same whitepapers that we all get from America. That's all the same. (#L)

Changing this to a 'mission secret', rather than 'German secret' or 'Dutch secret' proved to be complicated, out of fear that at some point you share sensitive information which the other does not have, but may want. This problem occurred for multiple aspects of the system, already before the Apollo project. As a result, the level of technical interoperability decreased. For example, the Netherlands Armed Forces acquired American features in the Tactical Command System with highly classified encryptions. As one participant explained: "As a result, no foreigners were allowed in that cabin anymore. Because American crypto was being used, that was highly classified" (#G). The same interviewee related that for that reason, initially no German service members could evaluate the system; the evaluation at JPOW could only be done by Americans. Later, they got permission from the Americans to let the German counterparts participate, but with multiple restrictions as to what they were allowed to see. One participant elaborated on the struggle to make it possible for a Dutch operator to work on a German SAMOC. The mission planning in the SAMOC uses information from Patriot weapon systems. Since countries are prohibited by the Americans to read each other's software, mission planning cannot be shared binationally. Information from the American side is 'Dutch eyes only' or 'German eyes only'.

So could I let a Dutch person work there, or let him participate in the engagement? (...) My position has always been: 'You are not the man who tells politics 'This is impossible'. You tell them how it is possible, and what it costs.' It's up to the political level to decide whether they are prepared to pay that price. (#N)

The same happened the other way round. When Germans built their encrypted SAMOC, other countries were not allowed to become familiar with that system either.

A practical result of these restrictions could be that you need more people if you are to cooperate in the sense of sharing systems binationally. This makes cooperation less efficient and less effective.

So you can partly mix, you can place a Dutch crew in a German [system], once in a while, but there always has to be a German there, because there are also 'nur Deutsche Erkenntnis' things in the system. So the Germans always have to pay

attention, like ‘what does the Dutch guy see, what is he allowed to see, and what is he not allowed to see?’ (#U)

When the efficient ways to make systems interoperable are prohibited, there often are workarounds possible, but they are more cumbersome.

Then [i.e., if no prohibitions applied] you’ve got this system, that system, connect them, done. And now we have to bring, from our system, phones and laptops and what not into the German system, and they bring their system to us. Is that a lot of work? No, it’s not that much work, but it’s much easier if you can just connect them. (#A)

Sometimes, the restrictions were eased a little. Formally, the service members of these countries were not allowed in each other’s Engagement Control Station (ECS).

At a certain point, of course, we both had some people coming over once a day. We didn’t make fuss about that, even though that, of course, was not allowed, strictly speaking. If you can’t work together, you’re not supposed to enter each other’s cabins either. But about that we said at some point, like, you don’t..., it stops here. (#G)

In Slovakia, the use of a German C2-phone in the Dutch ECS formally required the presence of a German service member, but this could be left out.

But we put a German phone in the Dutch ECS. The German command-and-control-phone. So that, if they get a message, the Dutch get that message too, immediately. In fact, formally, if you do this, there has to sit a German member next to that phone to keep an eye on it, of course, because it has German crypto in it. Well, we could leave that out in Slovakia. (#G)

Some regulations were perceived to be exaggerated and unnecessary. One officer believed the restrictions are a bit over the top:

I’ve been at briefings, at the start, and was send out later, because I was not allowed to hear certain things. And once I asked, like, ‘what was it actually about? What was I not allowed to know?’ Well, then they come with things about which they themselves concluded ‘well, actually, it’s nonsense, you could very well have been there’. So it’s often over the top, because many people still have these things [prohibitions] in mind. (#U)

National and commercial restrictions tended to make operations in the binational cooperation less efficient, more time-consuming, and more expensive.

At a very practical level, the national context limited particular forms of cooperation. For example, it was not easy to let a Dutch liaison officer join the German Patriot deployment in Poland.

It's almost impossible, because the Netherlands, of course, does not have a mission in Poland. He can come and look around, he can work temporarily for the exercise when we are writing an order, but he cannot be part of the mission in Poland. (#P)

A prominent problem for cooperation, which became manifest during the deployment in Slovakia and often came up in the interviews, was the fact that the Netherlands had been negligent. The Patriot weapon system acquired from the Americans is accredited. But it being subject to continuous development, every new element (radio's, radar's, antenna's, etc.), needs accreditation as well, especially if it involves data processing.

Each part which you change, that processes data, that has to get tested for this accreditation list, and [it must have been] said 'this works the way it is supposed to'. So it's a lot of work. (#L)

When Germany started to use the SAMOC, it got the system accredited. Dutch service personnel thought it was quite hilarious.

I remember we laughed heartily about that: 'Look at that, who is going to accredit an operational system that can't talk to anybody!' In the end, our system is the only one that lacks accreditation and can't talk to anybody anymore. And the Security Authority blocked that in Slovakia, and said: 'You're not getting anyway near to my system, because you don't have the accreditation.' (#L)

The Dutch had miscalculated and started to lag behind in this respect. The problem is not technical; the technical issue could be solved. Two ICCs, or an ICC and an ECS, could be connected. The problem was due to the accreditation regulations. One interviewee recalled the moment in Slovakia that the Germans and the Dutch had agreed to connect the systems. Up to then, they had done so only in a 'laboratory' setting, very small scale:

We went for a coffee break, and they made a phone call to the higher echelon. The chairman went to call the higher echelon, and when we got back, it was 'all too

quick', 'not possible'. [The plan] had to be reviewed. (...) That was a really awkward moment. (#A)

This prohibition prevented the closer integration that was technically possible. It made the cooperation less efficient than it could have been, and was a breach with previous practices.

And then you get this weird situation, when you go to Slovakia with a Patriot unit, and you just have to put the ICCs of the Germans and the Dutch side by side, because you are not allowed anymore to integrate them. Even though you would have needed only one of them, you know. We did that in the past fairly often. But it was not allowed anymore. And that's so stupid. (#G)

At this stage, it was especially the German Security Authority who blocked connecting the two systems. Some considered this part of a broader problem with interoperability within NATO. As someone put it: "So interoperability is our Achilles' heel, for the entire NATO. Whereas earlier, during the Cold War, it was all very well arranged" (#A). He saw this case as typical for cooperation within NATO: the increase of bureaucracy, for various reasons, at the cost of cooperation.

After the "debacle" in Slovakia, the Netherlands tried to start the accreditation process as soon as possible. This required information from the USA, but that took a lot of time. For that reason, the Dutch Security Authority contacted his German counterpart. But this was to no avail, since the Dutch Security Authority did not speak German, and the German counterpart spoke neither Dutch nor English. Some experienced this as frustrating, and unnecessarily bureaucratic.

So we have to jump through 12.000 hoops to fix this. And we spent months to get it done in Slovakia. It failed. The same weapon system! (#Q)

This was especially frustrating, because the two countries cooperate within NATO:

Honestly, I really don't get it, because these are all closed networks. And if you already have a NATO network, with which NATO countries can connect, from The Hague... I understand that you want to test it to check if there is a risk. If there is no risk, then let's go! (#E)

It was felt by some that a pragmatic approach should trump bureaucracy, and will do so when it comes down to it.

They make a lot of fuss about it. Maybe rightly so, maybe rightly so, maybe the red cable in the cabin has to remain 'ugh' [i.e., a particular number of] centimetres away from the black cable, I'm happy to believe that, maybe because they otherwise are going to influence each other, I believe all that. But when it really matters, then you don't believe this is going to be a hurdle. (#U)

But it was acknowledged that the mistake was on the Dutch side. "It was our own stupid fault", one Dutch officer acknowledged. A German officer politely agreed.

5.6 Current status and future prospects for binational Patriot cooperation

Apollo Yellow did not do much for the cooperation with Patriot weapon systems. "It was not an improvement, nor a deterioration of our means. It just got called differently" (#P). This is not necessarily bad. It's a way of maintaining the network of Patriot operators and perhaps developing CONOPS or SOPs.

Has Apollo Yellow been a success? A Binational Air and Missile Defence Task Force (BAMDTF) was established, they developed a CONOPS together, trained together, got certified as a binational taskforce, and were even deployed together. In that sense, the goal was achieved.

Did this binational taskforce work well? The level of technical interoperability was lower than it had been, although this was not due to the Apollo project. Especially during the combined deployment, it became apparent that cooperation at the level of fire units was not possible. This was not so much due to the technical differences between the Patriot weapons systems of both countries, although solving these required extra work and money. Mostly, the lower level of technical interoperability was due to legal restraints (the national-political- juridical context), including commercial restraints, that prohibited the getting acquainted with another country's systems and connecting the systems of both countries, because the Netherlands had not brought its accreditation up to date. This was, to be sure, relevant to, but independent of project Apollo Yellow.

All this did not preclude cooperation in various ways other than combined operations. For example, Germany and the Netherlands exchange missiles (rather than dispose of them at great cost), when they get out of date and using them suits the other's plans better. They sometimes shared maintenance facilities. A Dutch officer talked about German operators using a Dutch Patriot system to get certified:

Last year we went firing, the Germans were not going to fire, because all their systems were in the East. But (...) the shot is a certification for their TCO's [Tactical

Control Officer] and TCA's [Tactical Control Assistant], so they must have fired at some point, to get fully combat ready. So they asked if they could fire with us. They would bring a few missiles. And they fired from our system. That works well. (#L)

The level of operational operability is relatively high, but involves using national procedures up to the ICC-level. Organisationally, despite some differences in configurations, the operators of both countries can use each other's systems.

Apollo Yellow was useful in identifying problems for cooperation with Patriot weapon systems. Cooperation as such does not necessarily make military operations cheaper or more effective. "It has become very clear to what extent you can integrate Patriot as a weapon system, to what level" (#E). Cooperation at the level of the fire units is inefficient, costing more time, labour, and therefore money. The lowest level of sensible and workable cooperation is, according to the interviewees, that of a battalion. Up to the battalion level, countries should use their own procedures and command and control. The higher levels can work binationally. For Patriot, that means battalions under a SAMOC. Cooperation at crew-level is possible, but there is a high probability that it is more difficult and not very useful.

It is possible that a Patriot-crew with a German and a Dutch operator works well. But the chance that it doesn't work that easy is bigger, and then that's for me a reason not to do it. Why would I do it? The only reason to do it is to be able to say, 'hey, we have a nice project here!' (#H)

The level of cooperation currently feasible depends on the structure of cooperation. With the ICC's, the level attained was limited cooperation. Operating under the German SAMOC, the level reached was substantial cooperation. Technical and operational interoperability could also be useful to improve the operational sustainability through the exchange of personnel and parts of a weapon system in a flexible way. If parts of the weapon systems would get destroyed in combat, under the current conditions it would not be possible nor allowed to combine any remaining parts of the systems of the two countries.

You are not able to integrate. You could say, suppose the Dutch had some launchers gone to pieces, and the Germans a radar. You could say, let's put the remaining elements together. The Germans get that Dutch radar. And then you continue the battle. Yes, that's not possible nor allowed at this moment. And that's a shame. (#G)

It is expected that the cooperation with Patriot weapon systems will continue, but the future for Patriot cooperation depends on various factors. First, the classification 'national secret', and the negligence in getting the Dutch systems accredited, prevented forms of cooperation and exchange that could prove useful in exercise and battlefield conditions. Second, shared training and exercises foster the development of a useful social network, and contributes to the identification and solution of cooperation problems. Third, the desired level of cooperation also depends on the envisioned future together. Cooperation still makes sense in many respects—exchange of experiences, knowledge, training, material—but aiming for integration below the level of battalion would be ineffective and inefficient.

6 Apollo Green and the BSTF: integration and cooperation in ground-based air defence

E. Maliepaard

6.1 Introduction

In this chapter I discuss Apollo Green and the Dutch-German Binational SHORAD Task Force (BSTF). I start with contextualising Apollo Green and the BSTF. This theme provides insights in backgrounds and developments of, in particular, the BSTF. It also includes a discussion on the technical interoperability between the involved units. This is followed by a section on the actual cooperation and integration in Apollo Green and the BSTF. I differentiate between operational and organisational interoperability and zoom in on a few (organisational) cultural aspects. The theme “complicating matters” provides an analysis of the bigger picture, in particular of the influence of the national-political-juridical context on the BSTF. Finally, I discuss participants’ reflections and their opinions of Apollo Green and the BSTF.

6.2 Contextualising Apollo Green and the BSTF

6.2.1 Background

Apollo Green consisted of (1) the integration of Flugabwehrraketengruppe 61 (FlaRakGrp 61) in Defensie Grondgebonden Luchtverdedigingscommando (DGLC) and (2) the initiation of the Binational SHORAD Task Force (BSTF) with (elements of) 13 Luchtverdedigingsbatterij and the 3. Batterie of Flugabwehrraketengruppe 61. In the first roadmaps this integration of FlaRakGrp 61 was to be explored, and the actual integration took place in 2018. As one of the officers explained, referring to a working group meeting at DGLC in which lieutenant general Kohlhaus and then major general Wijnen decided that “we will integrate 61 in the chain of command of DGLC. That was like a bolt out of the blue and resulted in many thoughts about what would happen” (#N).

The BSTF was not part of the initial plans for Project Apollo. Interviewed participants did not exactly know why Apollo Green and the BSTF were initiated. It seems that the BSTF was not just a political idea; it was not an idea proposed by ministers or policymakers in the Ministries of Defence of both countries. The BSTF was an idea that emerged at the political-military levels and was decided at the three-star level.

Although it may seem that the decision to integrate Flugabwehrraketengruppe 61 in DGLC and the 3th Battery in the BSTF came out of the blue, interviewees mentioned reasons that led to the initiation of Apollo Green and the BSTF. First, both Flugabwehrraketengeschwader 1 and Defensie Grondgebonden Luchtverdedigingscommando suffered from major cuts, which led to the loss of capacities necessary to provide realistic deterrence. Combining forces would help to maintain capabilities and, thus, the fighting power. Furthermore, quantity is also a quality, one officer stressed. Germany lacked, for example, medium range air defence capabilities and could not provide layered air defence. Second, and related, the geopolitical situation changed with the invasion and occupation of Crimea. A binational unit of German and Dutch air defence would be better equipped to defend a (multinational) brigade.

Since 2015, the army voiced their need for more army organic air defence to protect army units. Both countries quickly realised that they had insufficient capabilities to fill the need. (...) Short distance, low height, we tried it. AGBADS of the Netherlands Armed Forces with the Fennek, medium-short range, combining with the German LeFlaSys short range system. Together we are stronger, that was the political idea, and then more [the founding of the BSTF] happened. (#N)

Third, both countries have a long history of long range air defence cooperation which could pave the way for further cooperation in the medium and short range air defence and thereby create a binational layered air defence. Apollo Green may also be considered a political signal to show the importance of binational military cooperation between the German and Netherlands Armed Forces, emphasising the importance of past cooperation and path-dependency in multinational military cooperation (Németh, 2021). As one officer argued:

And the moment the German Armed Forces decide to put a German unit under Dutch command, that means something. That communicates something. And I think that we all experienced it as a compliment. So we all had something like “we will make it happen. This will be the first international air defence unit in the world.” I think that enthusiasm was well-intentioned. To put it like this, I always have been a big fan of the idea. Because quantity is also a quality. I still believe we could have gained a lot out of it [the BSTF]. (#G)

Others argued that the BSTF was the most tangible and visible manifestation of Project Apollo. One officer noted “we all felt that it was a political decision to create something which had to give political visibility to Project Apollo” (#M), he used the term “window dressing” to characterise the BSTF. The majority of the participants who talked about the idea behind the BSTF argued that there was no

tactical value to the Binational SHORAD Task Force.

The decision to put FlaRakGrp 61 under Dutch command was not only considered a (political) compliment and signal. A few officers mentioned the transfer of the German short range ground-based air defence from army Single Service Management (SSM) to air force SSM, which raised mixed feelings about the position and future of the short range ground-based air defence. A transfer of authority of Flugabwehrraketengruppe 61 to Defensie Grondgebonden Luchtverdediging would imply a return from air force SSM to army SSM, reconnecting with more historical ties and cultures. It also prevented the need to integrate this former army unit into the German Air Force, since the German Air Force did not know what to do with the short range capabilities.

Especially German interviewees suggested that the BSTF was expected to stimulate future interoperability. The binational unit would start with two different weapon systems for respectively the medium range and (very) short range. These systems would approach their end-of-life, which back then could be extended for three to five years, and the BSTF could be an important instrument to jointly procure new weapon systems for the (very) short range and medium range. Several interviewed service members argued that their motivation for participating in the BSTF was to gain experience and write joint procedures, which would be an advantage for a future in which they would have the same weapon systems. To which extent purchasing the same weapon system for the short and medium range was a reason to create the BSTF remains unclear, but various participants understood the BSTF as an “interim project.”

Nevertheless, the decision to create Apollo Green and its tangible manifestation, the BSTF, provided a clear objective for the air defence units involved and motivated participants. “There suddenly was an operational goal, a clear focus, an *objective*. So the ‘why’ of going to work every day became very clear” (#M). The decision to offer the BSTF to the NATO as part of the VJTF (Very High Readiness Joint Task Force) implied that the BSTF had to be certified, which gave it the concrete goal of getting certified to be able to defend Panzergrenadier Brigade 37.

6.2.2 Incompatible weapon systems?

The BSTF consisted of units with three weapon systems; NASAMS (with AIM-120 AMRAAM), Stinger Weapon Platform on Fennek (SWP-Fennek), and the German LeFlaSys (also known as Ozelot with Stinger, mounted on a Wiesel). Therefore, German service members had to learn about the Dutch systems and Dutch service

members about the German systems. Initially, the BSTF would be formed with NASAMS and the German LeFlaSys, two different weapon systems, but it appeared difficult to integrate them in one structure:

It is difficult, but that has nothing to do with the nations [Armed forces of two countries]. It would exactly be the same if you would do that with two German units that are so different, or with two units from the Dutch ground-based air defence. It was difficult because the capabilities were so different. (#H)

Not only the weapons systems were different, the Standard Operating Procedures (SOPs) differed as well. NASAMS operates more static and suits the protection of static (high-value) assets, whereas Ozelot is highly mobile and can join and protect manoeuvre units. They may operate in the same Area of Operations (AOO), but have different functions, places, and roles, as an officer explained:

The weapon system at that time, so when we introduced NASAMS, was considered a more static weapon system, not suitable for the dynamics of manoeuvre operations in which role it was pushed. So what happened was that due to technical limitations on the Dutch side, we had to go further away from the First Line of Own Troops (FLOT) to keep the survival chances for our weapon systems realistic. But the German weapon systems with their high-mobile operations, their total concepts, operate at the front. This resulted in having two nearly independent elements in the field under one command. This meant that the command group, the battery staff, was always caught in a cross-fire. (#M)

Both weapon systems occupy different positions in the Area of Operations. This made logistics more complex: supply routes become manifold and stretch out over the AOO. In practice, due to this and to the different organisational concept, it was decided to keep the logistics separated for the German and Dutch units.

Later on, the BSTF was expanded by another Dutch element: the SWP-Fennek units. The reasons for this as mentioned by the participants varied, but the SWP-Fennek would add additional troops to defend the manoeuvre-units in the rather large AOO of the VJTF brigade. LeFlaSys and SWP-Fennek weapon systems are more similar with respect to mobility and firepower, although a few participants mentioned that SWP-Fennek still is less mobile than LeFlaSys. This is not an issue in a more static scenario, but could be an issue in a highly, dynamic way of operating, according to these participants. Becoming part of the VJTF meant that the SWP-Fennek platoons had to prepare for it. This new tangible objective improved the motivation of the members of these platoons.

According to one of the officers, the decision to integrate 13 Luchtverdedigingsbatterij (first NASAMS, later expanded with SWP-Fennek) and Flugabwehrraketengruppe 61 (the 3. Batterie with LeFlaSys/Ozelot) into the BSTF – horizontal integration (Gareis, 2008) – was not realistic. Ambitions had to be adjusted, according to the service members involved. For example:

It was very difficult to integrate these capabilities. Not so much unit-wise, the people were willing, but the systems were either the same or not suitable or not suitable enough to support combined arms warfare in the land domain. And then they were saying more and more “we could cooperate instead of integrate”, despite that we were given the objective to integrate and make one binational unit out of it. (#D)

6.3 Integration in practice

6.3.1 A difficult construct

It turned out to be too difficult to forge unity at the lowest levels. One German participant shared the type of humour in the BSTF; “always describing it as a super super cool and fine thing without any problems and ‘it was the best decision ever that we did that’” (#T). This humour reflects a broad perception of service members at different levels of the BSTF as a difficult construct that was supposed to become a binational integrated unit, a lighthouse project, but which could never function in that way.

The BSTF was considered a “bad marriage” or as a “forced marriage” by the interviewees, predominantly because it was a politically motivated project combining incompatible weapon systems that had different positions on the battlefield. Nevertheless, at lower levels, “*really* at the level of the boots on the ground, it really was a good marriage. In a good marriage, you need to embrace and use each other’s strengths. That was in the end the solution” (#M). This rational thinking led to a change in objective to cooperation, rather than integration, of the units involved.

Cooperation made more sense, also because the German Armed Forces kept the legal mandate over Flugabwehrraketengruppe 61, despite its integration in DGLC and being part of the BSTF, which was led by a major of the Netherlands Armed Forces. Cooperation instead of integration meant that the BSTF construct changed; the integration was limited to the battery staff level, leaving the platoons purely German or Dutch (“nationally rein” to paraphrase Abel & Richter, 2008):

The battery as such, that remained the same. So the cooperation, the only physical cooperation was on the battery staff level. That was the lowest level of actual cooperation. And the platoons, they saw German colleagues, perhaps drank a beer with them, but that was all. (#C)

Yes, what you see in the BSTF is that just in the Operations (Ops), there are two Dutch and two German service members. That in fact is the only binational aspect of BSTF. The rest just followed the national structure. (#S)

The platoons always acted as platoons and were never mixed. This differed from, for example, Tankbatalion 414, in which crews were (to some extent) mixed.

We had a Dutch and a German platoon. “You are in this left area, you are in the right area. Inform each other about your range and notify the other over the radio if you engage, so we know.” But we actually only met one [command] level higher (#D)

Several participants mentioned that they had been present at Patriot exercises where mixed German-Dutch crews practised engagements (see section 5.3). But a German officer considered it important to keep the platoons of the BSTF organic: the BSTF was working towards the VJTF and an organisational structure that could cause delays had to be avoided:

We cannot accept a system – we don’t talk about an exercise but about the VJTF – that only leads to delays and does not strengthen the effectiveness [of the BSTF]. We would just be showing that we can integrate, but the effectiveness of the battery will be degraded. So we decided “no, we are not going to do this. Now it is about exercises, but in the end it’s about the real deal, and we need to fight as effectively as possible, so we won’t do it. (D17)

In his view, integration at battery level would harm the effectiveness of the BSTF, not just because of legal or tactical issues, but because cooperation between troops with different backgrounds and work practices may lead to delays in, among others, (tactical) force protection (i.e. engagement of air threats).

Integration was limited to the battery staff and battle staff. A battle captain and a battle captain assistant (a non-commissioned officer) worked 8-hour shifts, and a shift leader supervised the shift. It was either a Dutch battle captain and a German battle captain assistant, or a German battle captain and a Dutch battle captain assistant. The shift leader was either the commander of the BSTF or his German counterpart. In this way, expert knowledge on all (weapon) systems could be

incorporated in the staff of the BSTF.

Two participants reflected on the battery staff and Command and Control (C2) issues:

The officers and NCOs involved in the battery staff met several times to develop a Command Post-concept: “How are we going to do the Command and Control?” We organised a few meetings and the Germans mainly came over to discuss and brainstorm about it. Then you notice that there are different perspectives on C2. (#S)

How will you organise Command and Control? How is the relationship between the Dutch commander, who we apparently appointed as the BSTF commander, and the German commander who becomes his deputy? Do they understand each other? Will the one take up the role of the other if he is not present? You need to agree on all these kinds of topics. And on some issues, opinions differed strongly. (#C)

Both quotes show differences in the C2 structures. Here, personal relationships – or egos, as a few interviewees noted – and personal views on leadership were decisive, as well as national interests and national chains of command. Due to the fact that the platoons were kept intact, the national chain of command influenced the functioning of the battery staff and the decisions they made. Officers had different roles and had to juggle different interests in decision-making processes. This led, as some participants explained, to favouring national interests in decision making and different solutions for problems they encountered. In other occasions, it led to confusion:

You all want to find solutions. But then, if you want to solve it, how will you solve it? Will you do it the German or the Dutch way? Is it the Dutch solution because we are in command so we decide it has to be the Dutch solution? Or should you sometimes use the German solution? Yeah, this was a recurring issue. In fact, it led to heated arguments and even to internal arguments within the BSTF. That did not go the easy way. (#E)

6.3.2 Operational and organisational interoperability

Interviewed service members noted furthermore different perspectives on a variety of operating procedures. In section 4.3.4 we discuss how Apollo Black was instrumental for writing the Concept of Operations (CONOPS) for the BSTF: Replying to a question on operating procedures, someone answered:

They wrote a CONOPS, so the BSTF CONOPS, but the document is never complete. It never is a complete document, so we always go back to our own documents. These are hairline cracks in such a project, that you only encounter when you're actually executing it, and that gives friction. These cracks don't always become tangible, because you make it work. That's your job at that moment. (#C)

One needs to test a CONOPS to find out whether it is realistic and effective. This quote is about the CONOPS, but it applies to all types of procedures that are being written down and are to be tested during combined exercises. Opinions differed whether the CONOPS was suitable for integrated operations.

A German officer noted that both units wrote their SOPs in their own language, not in English. Some Dutch service members are able to read German, but German service members are rarely able to read Dutch, according to this officer. A Dutch officer explained that despite the BSTF-specific CONOPS, the units involved had their respective SOPs:

When you talk about use of weapon systems and related procedures, we kept all that national. We had a SOP for the Dutch element, we had a SOP for the German element. We left it like that. No integration, no joint SOP. (#M)

The weapon systems require different operational procedures, and they are incompatible. For example, NASAMS is land-commanded but air-controlled, which means that AIRCOM needs to control engagements. Due to operating in lower altitudes, LeFlaSys and the SWP-Fennek do not require air-control by AIRCOM and can engage air threats independently. As one officer put it bluntly, the operational interoperability between NASAMS and LeFlaSys is nil.

The existence of NATO procedures should make alignment of procedures easier, but interviewed service members discussed a variety of interpretation differences between the German and Netherlands Armed Forces in the domain of ground-based air defence.

The interpretation of.. A NATO-doctrine is leading, but is a guideline. You give your own national interpretation to it. So you can write everything down in a STANAG (Standardisation Agreement), but these are rather general. So what is the interpretation of a state? There are differences in interpretation. You need to operationalise and discuss these things before, but you will only learn in practice what it exactly means, in particular if you do something on the company-level. And you learn that you do not always mean the same thing. (#S)

This quote shows that there is room for interpretation when it comes to NATO doctrines or STANAGS. A Dutch officer described the room for interpretation as “different accents”, but stressed the importance of being aware of this and discussing interpretations at the start of a new cooperation or integration project.

Interviewees furthermore explained that task verbs and all types of “mundane” – internal – procedures differed between Flugabwehrraketengruppe 61 and 13 Luchtverdedigingsbatterij. These more mundane procedures are internalised in national work processes and operational processes and trained for years. One participant shared that working together with Germany, and exchanging information in particular, made him realise how difficult it is to think differently when one is trained the same way over and over again: “And then you realise that service members, we even had service members with thirty years of military experience, are always trained in just *one* way, and they need to think differently...” (#D).

At the same time, people want to or have to understand how the other military operates. To give a simple example:

And these procedures, as simple as weapon handling procedures, you want to understand. You want to hold a German weapon because you work together. If he is down, I have to take his weapon. This is the level we are talking about, but these things were not arranged and we did not have the space to do so because everything we did, we did as our Battery. (#C)

As one German officer noted, it all comes down to the question, “how are you trained to execute your [engagement] tasks?” (#N). These institutionalised processes and taken-for-granted knowledge are not necessarily red flags for multinational cooperation, but are part of the operational and organisational interoperability and may provide challenges that are important to take into account when initiating multinational cooperation or integration at lower levels.

Nevertheless, operations are not only determined by concepts, standard operating procedures and more mundane procedures, but also by organisational concepts. For example, the German unit was more self-reliant. It had a logistic platoon of over 60 people (including medical capacities, maintenance capacities, spare parts, equipment and so on) whereas the logistic platoon of the Dutch counterpart consisted of about 11 people with fewer capacities. This resulted in the decision to make each country responsible for the logistics of their own unit.

Another topic discussed in relation to the BSTF was the role of the NCO. Dutch participants talked about experiences during BSTF exercises in which they learnt that the NCO may have a different role. We cannot discuss examples, but these made clear that German privates were not used to the commanding role of the NCO in the Netherlands Armed Forces; Dutch NCOs needed the help of German officers to make German privates execute tasks. Nevertheless, understanding of the (different) roles of the NCO grew during the combined exercises and meetings, including an understanding of the formal operational and advisory role of the NCO in the Netherlands Armed Forces: in fact, service members of both countries became used to the roles and positions of “the other.” German participants did not note many differences between the role of the NCO in the Netherlands Armed Forces and the role of the NCO in the German Armed Forces. In the BSTF, NCOs and privates were consulted, based on their experience and expertise.

6.3.3 Language in the BSTF

I: So English was the official language of the BSTF?

Y: Yes, on battery staff level

I: So not in the units?

Y: No (...) Dutch or German. Privates really don't speak English. German privates do not speak English. All officers speak English, they all speak it well. English proficiency is sufficient at the officer level, but the Dutch privates... (#E)

This officer explained that there were barely language barriers related to the official language of the BSTF. This was due to the fact that the real integration was on the battery staff level and officers of both countries were proficient in English. This was confirmed by others, who experienced more difficulties among privates and NCOs, especially among older German NCOs who were never trained in English (be it in school or in the military). A German participant added:

At the officer level, no problems. The only problematic level was the sergeant level. Because you guys [i.e. Dutch service members] are speaking English in a very good way. We have some limitations when it comes to that. But they always found a way to somehow communicate. And it was also good that most of you guys understand or speak German. So even if you started with English, you could easily switch to German, and somehow get the information from one to the other. (#T)

Many Dutch service members we interviewed were able to speak German fluently or sufficiently. German is a subject in the Dutch school system, but perhaps more important to our participants was, in this respect, growing up in the border region.

As the German participant added, service members of both countries were flexible and adaptive, but it often meant that language troubles were solved by shifting to German instead of English. Being able to speak German is an important asset for a Dutch service member as it eases the communication, fosters a positive relationship, and is appreciated by German colleagues.

Nevertheless it was not always that easy and service members fell back on their native language when talking with fellow nationals. Language barriers were therefore solved in a pragmatic manner:

As I said, English was not necessarily always used, because everyone was still figuring out how to cooperate. In these situations you often fall back on what you are used to. So sometimes German became the dominant language, and sometimes Dutch service members spoke Dutch among each other. If you are working in the CP and it does not go well, you can keep stumbling in English... So you go back to Dutch, and the Germans to German (#C)

6.3.4 Geography: distance Vredepeel-Todendorf

The Dutch unit, 13 Luchtverdedingsbatterij, was stationed in Vredepeel, in the South of the Netherlands. The German unit, Flugabwehrraketengruppe 61 (3. Batterie) was based in Todendorf, in the North of Germany. They were not located at the same base such as, for example, Tankbatallion 414 or 1GNC. It has been said that Germany considered transferring the ground-based air defence from the North of Germany to Nordrhein-Westfalen for personnel reasons (as the German Navy proved to be a tough competitor for jobs). This would have made the absolute and relative distance shorter.

A trip from Vredepeel to Todendorf would take a full working day, roughly a seven or eight hours drive, which had a substantial impact on the cooperation:

It would have been much, much easier if that distance could be covered in, let's say, half a day. I think we would have met more often, also informally. When you need information you can easily get it. The geographical distance is just too much. You need to travel a full day, I think it's about seven or eight hours driving. I have been there a few times, but that takes some time. You need to stay overnight and the next day you can head back. (#C)

Dutch and German service members travelled to the "other" base to attend ceremonies, formal parties, and sometimes to discuss BSTF matters, but the distance made it more difficult and functioned as an important barrier to the

formation of formal and informal ties between the two units.

Dutch service members who worked at DGLC were only part of the everyday working practices in Vredepeel: they rarely participating in working practices of the German ground-based air defence. Similarly, German service members who worked at Todendorf rarely met Dutch colleagues or took part in work activities of the Dutch ground-based air defence. For example, one participant talked about training of BSTF procedures separately:

So what we did, we did with the battery. As a battery we trained the procedures of the BSTF. The lessons learnt, or the SOP, we trained as a battery. And 361 did the same. We met each other at the next combined exercise and could see whether it worked or not. (#C)

The phrase “we met each other at the next combined exercise and could see whether it worked or not” implies that the main instrument for meaningful interactions was the series of combined exercises. This was confirmed by other participants of both countries. Nevertheless, exercises were mainly about doing instead of about discussing new ideas:

When we met, there was always a big, a huge exercise, where everything needs to work, so we never had that phase where we tried that particular case [capability training] out. (#R)

The distance was a barrier to joint training of procedures or planning exercises and may have increased stress to make exercises successful. As one German participant said, referring to the distance between the two units:

I always said “they need to plan more combined exercises.” And if they were based closer to each other, things would happen automatically. That was also my experience before Apollo. (#B)

Despite the fact that the battery staff level was seen as the only level of integration between both countries, the planning of exercises was also a binational process in which German and Dutch service members together planned several combined exercises. Closer distance, or working from one base, could have been an incentive to plan more exercises.

6.3.5 Meaningful interactions

I worked together with Germans, I know them, I know what to expect. So over the years I developed a preference for working with Germans (...) So the cooperation with the Germans has always been the case and will always be the case. So we had a role with change-of-command ceremonies, receptions, and exercises, which made me understand the culture and my position as [function] in the cooperation with Germans. (#C)

This quote shows not just a preference for working with German colleagues, but also that, by participating in shared practices one comes to understand German service members, the German military culture, and organisational aspects of the German military. By actually working together and relating to each other one comes to understand the (organisational) culture of the other country. This process was confirmed by other service members we interviewed.

Especially due to the geographical distance, the German and Dutch participants in the BSTF did not meet each other enough to become an integrated, socially coherent unit nor to fully understand the work practices of the other military.

Look, if you are here at the base and they are at their base, you are still a unit. And together you are the BSTF, on paper, but there are only a few moments that you really see these guys. (#Q)

Actually meeting the other unit is important to foster a sense of belonging. A sense of belonging does not exist on paper, it emerges from meaningful interactions with fellow service members, as the following interviewee concluded:

You are just limited in the number of exercises or boundary-pushing activities you get. Next to this issue, you are just doing your daily work. So if you really want to intensify the cooperation, I think it's important to include a geographical aspect in the solution. If you are seven hours driving apart, what will you accomplish if you see each other once every three months? (#S)

The frequency of meaningful interactions was low, perhaps once every three months or even less. This was especially true for those who were not involved in the battery staff. Commanders met more often compared to others involved in the BSTF, but frequent visits ("for a cup of coffee") were impossible.

In the early phase of the BSTF, Covid-19 severely limited the possibilities to get together. Exercises were cancelled due to Covid-19 cases among quarantined Dutch

service members and there was no possibility for social events at the start of the BSTF. Social events or teambuilding are necessary to provide a mutual understanding and mutual trust (see also Elron et al., 1999 on teambuilding as integration mechanism for creating a team oriented environment). An officer envisioned the preparations for a future binational unit in this way:

Y: (...) We put them one week in a room “Make the right agreements: how do we deal with each other?” “Commander this is your deputy; he is also a commander, so be aware of ego aspects, let’s discuss expectations from both sides.” So before you start something, just get together with the “triad” [commander, deputy commander, and company sergeant-major], put them in a hotel, in casual outfits, no ranks. Just talk about “how are we going to do it? What’s your assignment? And how do you interpret that?” To get unity of command, especially at the staff level, make the right agreements and then you can start with some teambuilding.

1: A week in Beukbergen [a venue often used for teambuilding and reflection]...

Y: That is necessary to.... Commanders are at the same level, but one perhaps has a different ego compared to the other, while one will be the deputy. They must *explicitly* express mutual trust and mutual expectations. (#J)

Video Teleconferencing (VTC) meetings were common during the Covid-19 pandemic, but also necessary because of the distance between Vredepeel and Todendorf. The communication was mainly functional and could not provide the required depth, according to the interviewed service members.

One of the participants used a vivid metaphor to describe the challenges of the BSTF over the years:

It is like putting oil and water in a bottle. If you don’t do anything, it won’t mix. If you shake the bottle heavily it becomes a mixture. But if you put the bottle away and stop shaking it, the ingredients slowly separate. (#D)

This metaphor makes perfect sense and was confirmed by other participants. Some interviewees believed that the cohesion grew over the exercises, that teams were being formed, and that the importance of rank and nationality faded. Others maintained that the exercises were too infrequent to actually get to know each other. It was said that the BSTF had a slow start:

I thought about it just yesterday evening and I thought like “the first time we really got into touch was like the end of, let’s say, 2018, for preparation and then all the SOP stuff and everything, but the first real training and the first real exercise was only in 2019.” So it took us almost two years to get the “boots on the ground”

together in the binational way [cooperation]. (#T)

Boundary-pushing activities and, especially, combined exercises, were understood as ways to get to know each other, relate to each other, and build social cohesion among the members of the BSTF. At combined exercises, the service members of both countries did not necessarily interact a lot.

To me, the BSTF consisted of the privates up to the commander, that is the whole range of the BSTF in my opinion. They've seen each other at exercises, mainly in the assembly areas. When the exercise started, we stopped seeing each other. The Fennek and NASAMS boys were more or less static somewhere while the mobile LeFlaSys was doing stuff elsewhere. (#H)

Because of the different weapon systems, different objectives, and different positions on the battlefield, the German and Dutch units operated more or less separately during the various exercises. Socially, binational teams seemed to become tighter over the course of the exercises. One of the German interviewees reflected on the social aspects of a combined exercise:

Socially, it all went well from the start onwards. Of course, the first 3, 4, 5 days, they all had their own tents, there were great facility tents, and nobody entered in "the other" tent. Here were the Dutch service members, and here were the German service members. After 3, 4, 5 days, the first service members, the braver ones, visited the other tent "oh awesome music" or "nice snacks" and so on. After two weeks, a kind of community existed, despite the language barriers. Germans are not always good at English, but it all worked out. (#H)

Others went further and contended that German and Dutch service members must engage with each other more intensively and for a prolonged period of time. They claimed that *if* one wants to build a well-functioning binational unit and increase operational and organisational interoperability, the unit should be stationed at a single location:

They should have said: "guys, we as Apollo will get things done at one location." Put the units together, physically together. Because you need to work on a daily basis with each other. You are *one* unit, you need to operate as one unit. You can only create a real unit by working together. Not once every six months, not once every three months, not some occasional calls and "oh we will have a two-week exercise", because you keep reinventing the wheel. You need to get used to each other: "who are you?" "Oh yeah, I've seen you before." "Ah, now I see you without camouflage, that's your real face. What do you normally do?" (#J)

Stationing the BSTF at one location is not a panacea, because work activities may still remain separate (see Abel & Richter, 2008; Pajon, 2008). What is required is to operate as a single unit; thus, working together daily to become a real unit. Only then, one is constantly shaking the bottle with oil and water and keep it mixed, to reuse the water and oil metaphor.

Assessing the degree of integration and social cohesion, one may wonder whether the BSTF developed its own, distinct culture or working practices developed for the BSTF; different from the “usual” working practices and existing military cultures in the units. Two answers:

1: To what extent did a more mixed culture emerge because of the cooperation?
So not a German or a Dutch culture...

Y: No, the time was way too short.

1: You did not cooperate long enough to develop a new culture?

Y: We did not have a BSTF culture, that's my perception. I do not know what the others said, but I do not believe that we had a specific BSTF culture. (#S)

1: And do you think that, during your time at the BSTF ,a so-called BSTF culture existed? A culture that was different from the normal German and normal Dutch cultures?

Y: No, I don't think that's a BSTF culture, it's a normal culture when you are on exercises. I would not call it a BSTF culture, it's just when you... It was different when you went on a binational exercise than when you would have gone on your own somewhere in Germany. But I think it is not related to the BSTF. Just a binational, multinational factor that exists when you work together with other nations. (#T)

Both participants concluded that no distinct BSTF culture emerged. The cooperation was not long or intense enough to actually develop a distinct culture for the binational unit. German and Dutch service members did not change their work practices as they operated “nationally” and used their own SOPs. Identification with the BSTF was limited and participants shared that being part of the BSTF did as such not make them proud. On the battery staff level, the cooperation was most visible, tangible, and intense, but mainly for the duration of the exercises. Work practices of the Netherlands Armed Forces were dominant in the BSTF, which was not strange since the BSTF was commanded by a Dutch officer.

6.3.6 Combined exercises: enough exercises?

Combined exercises are a means “through which cooperation and incorporation can be achieved” (Elron et al., 1999, p. 88). They are important to gain a better

understanding of the challenges of the BSTF, to train and to develop operating procedures. The cooperation between the German and Dutch units improved over time, according to interviewed service members. One officer reflected on the progress over time:

So, the first combined exercise, I think that was Cerberus Knife in 2021... That was the first big combined exercise that I saw. Then, there, the coordination was not yet... the SOP was still being developed, so a lot still had to be done by then. But all the things I've seen, (...) because there was Cerberus Knife and then Cerberus Dagger in 2022. After these exercises I felt like "it is going to work out." And that was the reality until the end. It became better and better, but there is always room for improvement. Nevertheless, I have seen that the cooperation between the German and Dutch troops became better and better over time. (#B)

Although the BSTF had NATO doctrines and protocols as well as the existing SOPs to work with, participants described a cycle of creating, testing, adjusting, and after action reviews. Lessons learnt were implemented in preparation of new (combined) exercises, and changes were tested during subsequent combined exercises.

Exercises were the core of the meaningful interactions, but whether the BSTF trained enough is not an easy question to answer. The majority of the interviewed participants who discussed the training frequency of the BSTF maintained that there were not enough combined exercises.

Let's see, in general a level 4 exercise is easy to arrange, a bit oversimplified, but easy to arrange and to execute. Getting a German unit from Todendorf and a Dutch unit from the Peel together in one place, that is rather difficult to organise. These combined exercises were organised by DGLC, so we had these combined exercises once or twice a year, I think, but that was it. (#F)

As noted before, 13 Luchtverdedigingsbatterij and FlaRakGrp 61 (3. Batterie) often trained in their own areas and separate. Combined exercises were said to be difficult to arrange, partly because of logistical challenges or incompatible planning cycles. Planning a combined exercise takes a long time, and exercises need to be planned two years ahead, as one German officer said. When asked whether they trained enough, one interviewee replied:

Given the tasks we had, as far as I understood them, we trained enough. Because in my view the tasks were to get to know each other and the military planning process of the countries involved. It was sufficient to develop Tactics, Techniques,

and procedures (TTP), “do this for that reason,” so... We also still had the task to conduct our own exercises and train our skill set. I think having one or two combined exercises each year is adequate. And in the year before the VJTF we really had four or five big exercises. So yeah. (#H)

What is interesting here is that this officer argued that “we trained *enough*” for the assigned tasks. These tasks were not to operate as a fully integrated unit, but to learn about the planning procedures and to get to know each other. Other interviewed officers (Dutch and German) confirmed that the number of combined exercises was sufficient to improve the functioning and effectiveness of the BSTF. This could be understood as a realistic perspective that takes into account the context and framework for the binational unit (“given the circumstances we trained enough”). At the same time it implies that there was room for improvement when ambitions would be higher.

Others, in particular NCOs, argued that the BSTF lacked sufficient combined exercises, which, they felt, impacted the trust in the military effectiveness of the binational unit. Here, military effectiveness has to be understood as the output or performance of the BSTF (cf. Moller, 2016). One of the interviewees argued:

I: Do you think that you were able as a BSTF to train enough to be well equipped for the fight?

Y: No. I think the first thing that you would have done or that should have been done is somehow, you know, when you think it a 100% [commitment to the BSTF], you would have to relocate the batteries to the same space somewhere. And if you don't do that, you have to train, like, on a more frequent basis. Not only for one or two big exercises in a year, but on a daily basis, somehow, or a weekly basis. But of course, you cannot take out one battery and put it into the Netherlands or, I mean, maybe you could, but that's then a 100% [commitment to the BSTF] way of thinking, you know. (#T)

This German participant argued that relocating may be the best solution to increase the effectiveness and combat readiness of the BSTF, whereas more combined exercises would be the “second best solution.” This does not necessarily involve the platoons all the time, but could also be other types of training, such as capabilities training, or report and return discussions, the SOP(s), or something else.

Finally, the BSTF had to be NATO-certified to become available for the VJTF. Simply put, the BSTF successfully completed its certification programme, including all tactical procedures, during subsequent Cerberus exercises and a successful final

live firing on Crete (high scores were reported by participants). The certification process and relevance of the certification were differently interpreted by the interviewed service members, but being certified and achieving FOC (Full Operational Capability) does not automatically mean that the unit is completely combat-ready. The question whether one would have trust in the BSTF on an actual battlefield will be discussed later on.

6.3.7 BSTF in Mali: positive experiences

The German Armed Forces were deployed to Mali (Gao) as part of the UN-led mission MINUSMA. The German camp was defended by the German ground-based air defence in the context of *Sense and Warn*: to alarm the service members on the camp in case of, among others, incoming mortars. The MANTIS system (as a standalone concept: just the sensors, not the 35mm guns) was manned by a battery of FlaRakGrp 61, but there was a shortage of officers and NCOs due to low personnel numbers in the unit. As an officer explained:

Back then, colonel [name], the then commander of DGLC said “61 is under my command, it’s my unit, from an operational perspective, so we can contribute to the mission.” Yet it became complicated. From a military perspective it was easy, from a political perspective it became more complicated. The Netherlands deploys their personnel with a German system on a mission, but the Netherlands had already decided to leave Mali (...) It took three months before they made a decision, they probably thought: “who are we going to ask? And at which level?” The service members just said “let’s do it.” (#N)

German and Dutch officers worked together to arrange the deployment of Dutch service members to Mali. Project Apollo was used to provide a framework for the deployment of Dutch service members with the Flugabwehrraketengruppe 61. Participants did not discuss the political process and negotiations, although one participant expected that the experiences of this deployment may help future decision making for this type of scenarios.

Being deployed with FlaRakGrp 61 provided Dutch troops with a chance to get deployment experience, to be trained on a different weapon system, and to engage with meaningful tasks, whereas it helped the German side in reducing the deployment pressure on the ground-based air defence. Contributing to the Mali deployment was also seen as a chance to use Project Apollo and further develop the binational cooperation in the ground-based air defence domain. DGLC contributed one officer (Tactical Control Officer) and one NCO (Group Leader) to each rotation.

Dutch troops would join German contingents to Mali, but they had to be trained to meet the German standards of combat readiness.

They had to do the complete basic training on the German system, German weapons, machines, guns, vehicles, everything. (#N)

Dutch service members were sent in different groups, consisting of multiple rotations, to Todendorf for a three-months training. As one participant explained:

It was a super start, they were really welcoming. Yeah, you do feel like you are a guest. They organised everything really well. The MANTIS training was in German, but was more than doable for all of us. It was a great time [in Todendorf]. (#F)

The Dutch service members trained together with German colleagues from Flugabwehrraketengruppe 61 and other units (e.g. Patriot) in small classes, making it a truly binational experience. Nevertheless, as this interviewee explained, he still felt like a guest during his training; a Dutch service member in Todendorf still had a “special” position. This position does not mean that they necessarily were *treated* as outsiders. In fact, he shared that it was a great time and that social ties and friendships were formed.

The deployed service members worked in 12-hours shifts and “just did their work”, not much different from serving in a unit of the Netherlands Armed Forces. They worked, lived, sported, and socialised together. German and Dutch service members worked in mixed-shifts and, according to one of the German officers involved, the mixed crews were a success:

It was a huge success. The Dutch service members are still in touch with the Germans. That was really... Of course, no-one sends their worst personnel to support a partner. The Netherlands, DGLC, sent top guys to Mali. They integrated really well. (#N)

This German officer concluded that the Dutch contribution to the German mission in Mali was a success and that German and Dutch service members were able to fully integrate and work together – of course being trained in the same system and procedures. The Dutch troops received a German medal for their MINUSMA-deployment with Flugabwehrraketengruppe 61.

6.4 Complicating matters: the bigger picture

6.4.1 working well together

All the time, I had the sense that (...) within the BSTF, if people had skills, were professionals, whether Corporal or Sergeant, if it's known that he has a level of expertise, and he says something, then he is listened to. Whether it's done that way, that's a different story, but [officers] take them serious, I believe. (#H)

German and Dutch participants alike stressed that the boots on the ground worked well together, irrespective of rank or nationality. Their common army origin helped them to work together, according to the German officer. German officers worked together with NCOs of 13 Luchtverdedigingsbatterij and vice versa. Participants said that they worked together on the basis of expertise, rather than nationality or position. Later, we delve deeper into the cultural and organisational aspects of the BSTF which will complicate this understanding, but the interviewed service members made it clear that cooperation and integration worked well on the interpersonal level. As one key player told us:

1. Do you want to add anything, something you thought about before this interview, that is important for us?

Y: So, what I want to say is, if I had to do it again, I would do it. So yeah, things did not go well, but I do not think something like "never again." Definitely not... you bring professionals together and you are going to make something good out of it. (#M)

The BSTF consisted of professionals who worked together to make the BSTF happen. This not only reflects a "can do" mentality, it also reflects the respect for each other as professionals in the domain of ground-based air defence. In this section we focus on the "things that did not go well", but it is important to stress that most of the issues that hampered the cooperation were beyond the control of the service members involved in the BSTF, often part of the national-political-juridical context. They took place "above my paygrade", as interviewees said. For example:

Y: (...) They really did their utter best to make it work at the battery level.

2: But less successful?

Y: But that is not the fault of these guys, these did their utmost best

1: It's the conditions?

Y: Exactly, and that is the most important thing. And this needs to be mentioned:

they have done their utmost best, did all the stinking exercises and were finally certified. And after all, they are not being deployed. That really sucks for these guys. (#E)

The lack of the necessary preconditions, resources and facilities hampered the success of the BSTF. It also negatively influenced the functioning of the boots on the ground and their survivability. Someone involved in the battery staff recalled:

And you really focus on “what can I do to improve the survivability of the men and women of the BSTF?” Both the German and Dutch men and women, there was no difference, but how can we realise that? How can we train as good as possible to increase the survivability? How can we organise or structure the BSTF, so we can make it work? Yes, that fairly regularly led to situations in which we were standing together, looked each other in the eyes, and said “we really feel terrible”, *just* because of the absence of the right conditions and facilities. (#M)

6.4.2 National-political-juridical context I: national regulations

National regulations in both countries caused some of the difficulties for the BSTF and impacted the everyday functioning of the unit. For example:

We once went to [Location]. Here we go again: Germany-the Netherlands. We have to stock ammunition, which is freaking bureaucratic. We have Stingers, the Germans have Stingers. These are the same Stingers. They are stored in a box. In the same box we have a German manual and a Dutch manual. They are not allowed to use ours, and we are not allowed to use theirs. And if I stock them, they have to be separated, because... And I think, what the f... (#I)

[Talking about weapon systems] There were many legal issues. Is a Dutch service member allowed to fire a German weapon? Can a German service member fire a Dutch weapon? Is the same German service member allowed to fire a (Dutch) Stinger? All these types of questions, questions that, looking back, it would have been logical to address them in advance, at the beginning of the BSTF. Could a Dutch service member go into German medical facilities? And how does that work? These aspects were, in my opinion, never sufficiently answered. (#M)

These “practicalities” were not arranged before the BSTF started, and considering the second quote, they were not always solved during the BSTF. One of the participants ascribed the lack of a coherent legal framework to the context of the foundation of the BSTF: they did not take into account actual operations or exercises. Many of these questions relate to national sovereignty and responsibility. For example, could a German technician repair a Dutch Fennek, or vice versa? How to transport material with a *secret* stamp across the border?

All these (unresolved) questions show the lack of institutional cooperation and integration of the Netherlands and German Armed Forces. They were above the paygrade of the service members we interviewed, but severely impacted the functioning of the BSTF. National regulations prevented to “train as you fight” or to “organise as you fight”, assuming that many of these questions will lose their relevance on the battlefield.

Another prominent issue was related to working hours and exercises. Some interviewees referred to the EU Working Time Directive that guides, or in fact limits, the working hours of German service members during exercises. Dutch service members get a training allowance for the full period of the exercise, but German service members have a “time for time” rule: If German service members work extra hours, they need to be compensated with extra hours. As one Dutch interviewee recalled:

What I still recall, and what I learnt from the Germans, is that their system of training allowance and overtime is totally different from what we have. Which one is better I can't say, but it has an impact. If Dutch service members take part in an exercise they go on for the whole day; we have tasks to complete, we make sure to do so and then, if we can get some rest, we would do so. Work is our focus, during the whole exercise. Germans, only when the *actual* exercise starts they get a training allowance, so when a run starts, so to speak. I don't know the name of that allowance anymore. Before, during the preparation and after, they have a different, time-for-time rule. (#C)

Dutch participants told us how German service members stopped working at 5pm, “the moment they handed in their weapons”, while they were still preparing exercises, doing their analyses, preparing orders, and so on. German service members had their evenings “off” and were allowed to drink alcohol, while this was forbidden for the Dutch service members. This, of course, could lead to negative feelings, but the main consequence was that exercises had to be adjusted to ensure that the BSTF was able to train several 24/7 shifts. As one officer explained:

Nevertheless, if we have a two-week exercise, we want to have the same rules for everyone. We demanded this, and we agreed on that (...) So we said, if we want this, we should enforce these rules; we want to train with these guys, also in the evening so we can do 24/7 shifts, even if in a more limited period of time. I want to know my frame of action, so we can make a plan. (#Q)

As this officer argued, it took some improvisation to adjust plans and to enable

sufficient training hours. It was also a matter of acceptance: these are the rules, clearly communicated by the commander and, despite the willingness of German counterparts, they could not change or bend the rules much.

6.4.3 Technical interoperability and its impact

If you put me with German colleagues in the same battery post, we will make it work and we will try to survive. If we have to do an air defence task, like the BSTF, I don't see it happen. That is mainly due to things beyond our control. The interoperability of weapon systems and communication systems, these facets... (#C)

I mean, all the engagement things, the connections between weapons systems, we don't even use the same radio. (#T)

The general perception was that German and Dutch service members are able to work together on a personal level. The main bottlenecks are the lack of interoperability of the weapon systems and Command, Control, Communications, Computers, and Intelligence (C4I); C4I mainly refers to communication systems and computers that support Command and Control. When asked about the main problems of the BSTF, a participant answered:

Y: The hardware was not organised in such a way that we could execute our tasks. So we encountered many problems, in particular in the C2 structure, so to speak.

1: Connectivity?

Y: That was the core issue. It really was improvisation, we had to find out, explore, think, "how can we solve this?", instead of being interoperable from the start. (#S)

Germany and the Netherlands used different communication systems and it was not possible or allowed to connect the systems in order to, for example, create one functioning C2 support system. Temporary solutions were found to connect the German and Dutch systems. For example, a German service member was stationed in a Dutch CP, or vice versa, but this potentially caused delays in communication and complicated it. A Dutch participant recalled:

I want to work with Germans, but I can't even reach them via the radio. How can I communicate an order? So you need to have a German service member in your CP, who does not speak Dutch, and you should communicate the order to him, so he can communicate it over the German radio. Yeah, that's really bad. (#I)

To clarify, the Dutch interviewee did not blame the German for not speaking

Dutch; he pointed out the lack of interoperability between German and Dutch radios. The lack of radio interoperability was already known, but not addressed, before the BSTF started, and it led to delays in the readiness of the BSTF.

Participants shared how the units were creative and managed to make it technically work with the help of waivers (approval by security authorities of both countries) that allowed them to create alternative ways to link the systems. Nevertheless, this does not necessarily result in an interoperable fire control, as was pointed out.

Later on, 13 Luchtverdedigingsbatterij was provided with the German C2 support system, but it came with restrictions and its own difficulties (e.g. how to deal with confidential versus secret information, lack of IT material for manoeuvre operations, short cables to connect systems). On the one hand, it strengthened the technical interoperability with Flugabwehrraketengruppe 61 and the German brigades. On the other hand, it decreased the technical interoperability with army brigades of the Netherlands Armed Forces.

Perhaps a bit exaggerated, but it was more an automatism because they thought “we work together for years. And German [the German communication system] is also good.” It would be much, much easier if we all *had* the same system. At the same time, we encounter other problems, because if we were to buy exactly the same as the Germans, we would be completely interoperable with the Germans, but not with our own brigades. If I have a German radio in my air defence platform, I cannot call the Brigade HQ. So, the weapon system IT would be the same, great, but the country-specific IT would not be. That’s kind of strange. (#D)

This quote shows the dilemma posed by a solution at battery level: helpful for tackling one problem, but creating others. Implicitly, he referred to decisions that are or should be made on a higher level. Procuring the same C2 support system for both Armed Forces would be a sustainable and institutional solution instead of a temporary solution for just the BSTF. Interviewees voiced rumours that the Netherlands Armed Forces will buy the German C2 support system, but this has not been confirmed yet, although some considered it an important solution to foster C2 interoperability.

6.4.4 National-political juridical context II: Lithuania deployment

Like von Clausewitz’ famous quote “war is just politics with different means”, the armed forces of most contemporary states are a political instrument and national governments decide how armed forces are organised and when and where they are deployed (e.g. Brinkel et al., 2010). To contextualise the mandate of the BSTF

commander, one of the interviewees stated:

[Name of the BSTF commander] was, of course the commander. And I think that on the tactical level, regarding ways of operation, he could make decisions. Everything beyond that was out of his reach, because that is about political-military cooperation and that is above his paygrade, most likely also above the paygrade of the DGLC commander. (#F)

This quote reflects the difficult position of the BSTF commander, a major of the Netherlands Armed Forces. The commander could make decisions at the tactical level, but other issues were above his paygrade and were decided on the highest political-military level (the one-star and three-star level, and the level of national governments). One of the most difficult moments for the BSTF was the decision of the German government to send the German element (the “LeFlaSys guys”) of the BSTF to Lithuania when Russia invaded Ukraine. At that point, the BSTF was still in the process of certification, and had to take the final hurdle: a live firing at Crete. This was a political-military decision but as one German officer said:

The LeFlaSys guys were the only ones ready for, you know... they were at a readiness state, because they were part of the VJTF. It was the only air defence asset that you could bring into the Baltic area in such a short time. So that was the reason why they did that. (#T)

Who “they” were, was not mentioned, but it is believed that this decision was made on the one-star or three-star level. Although the decision to send air defence to Lithuania is understandable, it raised questions for two important reasons: (1) the short notice and the lack of communication between the Netherlands and German Armed Forces, and (2) the impact of the deployment on the BSTF as a binational unit.

First, the BSTF was on a (command post) exercise in Wildflecken and suddenly, without formal notice to the commander of DGLC and the commander of the BSTF, the German part of the BSTF was ordered to pack up their kit and leave for Lithuania. There were no formal pre-warnings that this deployment could happen, and it raised some eyebrows, especially among Dutch service members. This is an important instance in which communication and transparency from the higher political-military level was absent. Moreover, it shows that national interests can undermine the functioning of a binational unit.

After the German troops left, the Dutch service members continued with their

exercise, but the departure of the German part of the BSTF had an impact on how service members perceived the BSTF. Just after the decision was communicated, it raised many questions. One German participant recalled:

I: Did it impact the future collaboration between the Dutch and the Germans?

Y: In the beginning, yes, because when we received the information that we had to leave, there were immediately some Dutch officers speaking to me, they were like, is this now the end of the BSTF? And I was like, “I have no clue, that is not my level, and I don’t think so”, but they had that in their head, that it could be the end of the BSTF, because “why are they sending just the Germans and not the whole BSTF?” (#R)

Of course, the German and Dutch units worked and trained more or less independently during the years, except for the combined exercises. Therefore, the direct impact on the activities and planning was relatively limited, as was the impact on the platoons. One German officer noted, however, that the other ranks (privates, corporals) and NCOs of the LeFlaSys doubted the (tactical) usefulness of the BSTF after four months of training in Lithuania. After the return of the LeFlaSys platoons, the BSTF did only one significant combined exercise before the live firing on Crete.

The main impact was on the perception of the BSTF. One participant compared the BSTF to a swingers club (in and out of the BSTF according to priorities/preferences). Others argued that it felt like the end of the BSTF because of the national decision to send the German battery, instead of the entire BSTF. This conflicted with the understanding of the BSTF as a political project to foster binational cooperation and integration, and it conflicted with the VJTF objective of the BSTF. These perceptions, as well as the perceptions of others, raised the question of how realistic, credible, and sustainable the BSTF was. Several participants shared that they engaged in wider discussions about this question, including with the other ranks (privates and corporals) in the platoons.

One Dutch participant argued that it could have been a good way to strengthen integration in, and perhaps the identification with, the BSTF, despite the feeling that “we were not ready for that [a BSTF-deployment].” He explained:

I would fear the worst, if we would have joined the Germans to Lithuania, just after the Russian invasion of the Ukraine. We would have been four months on top of each other. Finally we would have been integrated really well, but it would have caused some fuss. Small moments of friction. In the end, it would have been the perfect instrument for integration, because you *have to*. But we were not ready

for that. (#J)

6.4.5 National-political-juridical context III: procuring new weapon systems

Although never the objective of the BSTF, it was mentioned by (mainly) German colleagues that the BSTF could become a vehicle for joint procurement, since existing weapon systems were reaching their end-of-life phase. It would not necessarily save personnel and costs on the fighting capacities, but it could have saved personnel and costs on, for example, the maintenance of weapon systems and support systems, logistics, and the procurement of spare parts. Despite discussions between both armed forces, and a guideline of the Royal Netherlands Army “to buy German, unless...”, the Netherlands Armed Forces chose the Norwegian NASAMS-3 over the German project *Nah- und Nächstbereichsschutz* (NNbS, with IRIS-T SLM as medium range weapon system).

We will not go into the reasons behind the choice for NASAMS-3 over IRIS-T SLM, which are partly technical and conceptual, but may (indirectly) also involve questions of sovereignty and national interests. It has impacted the thinking about the BSTF and the German-Netherlands military cooperation in the field of ground-based air defence:

So in Germany it was NNbS, I don't know if you heard of it, and the Netherlands side said “no, we are not going for that, we are going for our own thing”, and then I guess everyone asked themselves, “okay, so is it really necessary that we work together anymore on that?” Not that Patriot side, because they do that still, but everything else, you know, that is not Patriot. Does it really make sense to get a lot of energy into that project if we do not go with the same, if we do not go the same way? I think that was a big factor. (#T)

The decision to procure different weapon systems resulted in feelings that the BSTF had no future anymore. Would it make sense to keep the BSTF when both countries use different weapon systems? This question was raised by several interviewees of both countries: it is still possible to cooperate, but it would not make sense to integrate or remain integrated, especially given that one cannot freely exchange information (e.g. due to commercial disclosures). One of the participants warned against this type of thinking:

A lot of people, I still try to convince them time and again, they say “we chose different weapon systems, so we do not need to cooperate anymore.” I say “yes, we *must* cooperate because we operate in the same range. The weapon systems both work in the same range.” (#U)

Nowadays, Germany and the Netherlands both have a weapon system for the medium range and weapon systems for the (very) short range. Cooperation is not just possible, but perhaps also necessary to strengthen the combat force and the sustainability of (engagement) operations, despite differences in weapon systems. Finally, as said before, ground-based air defence is a small world and countries all have limited capabilities. For that reason, it makes sense to cooperate on layered ground-based air defence, to know about each other's weapon systems, and to facilitate communication between different units.

Several interviewees, both German and Dutch, mentioned that the decision to buy different weapon systems, in essence the decision of the Netherlands Armed Forces to procure NASAMS-3 instead of NNbS, most likely led to the political-military decision to transfer the authority over Flugabwehrraketengruppe 61 back to Flugabwehrraketengeschwader 1. For example, why would a country transfer the authority of their newest weapon system to another country? We cannot verify this hypothesis based on the collected data. A detachment of Dutch service members who were involved in Project Apollo and the BSTF attended the transfer of authority ceremony in Todendorf (1 April 2025).

6.5 The BSTF: a worthwhile project?

6.5.1 BSTF on the battlefield

Would the BSTF be successful in a combat situation? Research participants provided different answers to this hypothetical question. Some interviewees were cautious, for instance because of the lack of training as BSTF:

They did not train enough at all (...) You need to go into the field to get experience. You need to keep training, constantly, even if you're sick of it, you need to keep training. Finally, that training will become your experience. If you lack that experience, you won't be able to function (#E)

Others mentioned the lack of technical interoperability, in particular regarding C2 support systems which would make it difficult to function as an integrated unit. The most common reply was that the BSTF could fix it, they will make it work and be effective – but under one condition:

Despite [the lack of C2 support systems interoperability] we successfully completed the tactical firing on Crete. Later on we did several exercises and we did all the things we had to do, checking all the boxes. To this day, I still believe that

if we had been deployed, we would have been effective. However, that would only be the case if we were deployed in their own capabilities. (#M)

The phrase “in our strengths” refers to operating side by side, or, more precisely: the German unit with LeFlaSys would join the manoeuvre-units, whereas the Dutch NASAMS platoons would be used to defend more static assets (e.g. base or HQ protection). This was confirmed by other Dutch and German participants. Operating as a fully integrated unit would hamper the combat effectiveness and the survivability of the members of the BSTF. Nevertheless, participants were confident that the privates, corporals, NCOs, and officers could make it work: it would take some time, but in war-time scenarios they would come up with pragmatic solutions. This would mean abandoning national regulations and finding ways around other hampering factors (e.g. incompatible radios).

It is also a mindset issue. If it is war, “you don’t fight the war with the weapons you want, but with the weapons you have.” One German participant told us:

Y: (...) I mean, all the engagement things, the connections between weapons systems, we don't even use the same radio. But you know, I mean, it's war then. We will have some other problems and I guess we will have some bigger problems. And I have absolutely no doubt that the troopers could find a way to deal with all that.

1: Yeah, it's also quite a typical mindset, you know, we can do it, we can always do it.

Y: Yeah, we have no choice. I mean, we can now cry about all the problems and limitations. And that's also something I tell my subordinates all the time, you know, don't spend too much time crying over things you cannot change. Focus on the things that you can change and let everything else go, because it just takes time from your overall time, which you could have spent much more efficiently on fulfilling a task in the best way that you can. (#T)

Notwithstanding the military can-do mindset emphasising that service members will make it work, there are serious obstacles. In addition to the lack of technical interoperability (and related operational interoperability), cooperation is hindered by the rotation systems in both armed forces. Service members who trained with the BSTF and were part of the certification process of the BSTF, now occupy other functions; expertise easily drifts away due to the rotation system. To quote one of the participants:

But if we described it [CONOPS, SOPs etc.] all correctly... And if you have to tell new BSTF members “this is what we are going to do”... That won’t work. (#S)

6.5.2 A learning project

Perhaps Apollo Green and the BSTF did not achieved all the objectives that were set for the BSTF, such as a full integration or having more fire power for one's operations, but it was NATO-certified and was put on a notice-to-move.

One of the main gains of the BSTF was the important lessons learnt. As one participant reflected:

Y: I think what we achieved is that we gained the insight that binational cooperation should not focus on the company-level.

2: Okay

Y: And this is something important: we got the experience together and agreed on this together. My personal opinion... I think we accomplished stuff with the thinking and the conceptual thinking in Apollo regarding the intensification of the cooperation. We have shown that binational cooperation is possible if one has the right mindset. And despite lacking the hardware, one can be creative to find a solution. That's why I said a clear "yes" to the question "could we be successfully deployed if the shit hits the fan and they say 'let's reactivate the BSTF?'" So I think that we could make it work. Whether this would be the preferred solution is a different question. But I think we have shown that cooperation is possible. And now we have a lot of experience that shows that it may not be smart to integrate on the battery-level, although it *could* work. (#S)

This lengthy quote represents the dominant line of thinking: it could work, and did work to a certain extent, but the right (pre)conditions were not there. Here the participant only talked about technical issues and, thus, technical interoperability. The BSTF was insightful because the service members gained experience they would not get otherwise. Only through cooperation can one truly learn the problems and possibilities of binational military cooperation, according to several interviewees:

I think that the people who once made the decision "let's start with the BSTF", foresaw that it would lead to problems. But you only see the real problems the moment you are doing it. (#E)

1: The issues we discussed, couldn't a three-star general have thought of these issues when he decided "Apollo [Green] will happen"?

Y: Yes, that was something, because the working groups already existed: we had to talk about this, talk about that. Information was lacking. So in terms of the process, that was taken care of, but we had to design it and arrange everything. Of course we knew that C2 would be a challenge because the Netherlands is different from Germany. But is it really too different or could smart people come up with a

black box to enable interoperability? Would that be possible? But these things you need to find out when the project starts.

I: So you find issues and solutions only because of working together?

Y: Yes, and you will have the time for it. You get paid for it, German service members have 40 hours per week, Dutch service members 38 hours, to explore problems and find solutions. (#P)

The main conclusion is that integration at the battery-level is not wise. Integration should take place at a higher level. Main reasons are the lack of technical interoperability, which makes operations (including command and control) less effective. Participants had different views of the optimal level on which units should cooperate or integrate: some interviewees said battalion-level, others mentioned brigade-level, arguing that the number of hampering factors is lower or less consequential at those levels. This conclusion challenges the process of transnationalisation, identified by King (2005), as the post-Cold War ideal: military cooperation or integration on (much) lower levels.

Already working together with service members of another country is an important learning experience: learning about other military cultures, other military practices, and about working together with brigades and divisions of other countries. As one Dutch officer explained the military merit of the BSTF:

Yeah... militarily 100% [a learning experience]. I worked a lot, really a lot, with the Germans, but also on the longer-term I gained a lot of experience which helps me, also in international military cooperation (...) It has given me super much, because I have been abroad for many times, I have seen how a German brigade works, a German division, and currently a Dutch brigade under a German division. That really is great. (#F)

Several participants reflected on the value of the BSTF for all the other service members: for the privates, corporals, and NCOs in the platoons. A Dutch participant shared:

It really was an amazing experience for our guys. We came from a time with just a few exercises, no connection with manoeuvre units. So it was a whole new world for all of us. I still can recall how some of the guys were looking when we were in Germany and a company of German tanks were driving past us, "welcome to the manoeuvre world." (#M)

A German officer reflected on the impact of the BSTF on professional networks, but also on the mindset that German service members developed through overcoming

difficulties in the BSTF.

Y: (...) And I guess also for the service members that fought together on all the exercises, they learnt a lot. They learnt a lot. And when I transfer that to something that could happen, you know, the *Kriegstüchtigkeit* and fighting somewhere in the Baltic area, I mean, we still don't have that much air defence and the, yeah, the *Wahrscheinlichkeit*, I'm missing the word.

2: Probability. Is it probability?

Y: Yeah, the probability that we would fight together, because there is not much air defence and the 10th Panzer Division is almost alone somewhere in Lithuania when things start to get serious. I think it's good to have that in a pocket, that, you know, it can work out, even though there are some big problems. We will still be able to reach the goal, with some limitations, but we did that before, you know, like that's a mental thing that I think is an advantage. (#T)

It was also a worthwhile and learning experience for other reasons. Obvious examples are learning about the (weapon) systems of the other country and expanding professional networks. This second advantage is helpful as the ground-based air defence world still is a small world and one will most likely meet again in the future, for example in Eastern Europe seeing the latest developments or during other (combined) exercises. Personal networks also help to exchange information on the latest developments and to become boundary spanners.

6.5.3 BSTF in the future

With the transfer of authority on 1 April 2025, the Flugabwehrraketengruppe 61 is now back with Flugabwehrraketengeschwader 1. There is currently no plan to reactivate the BSTF. Participants disclosed they were willing to work in a multinational military organisation or unit. Nevertheless, they questioned whether an integrated structure would be the best option. Not just because they had concluded that the integration had been attempted at too low a level, but also because Germany and the Netherlands had procured different weapon systems. One of the participants maintained that two conditions should be met: (1) incorporating the lessons learnt from the BSTF and (2) having interoperable weapon systems. He contended:

I think NASAMS and IRIS-T are two systems that are interoperable. You can't compare these modern systems with AGBADS and LeFlaSys. These modern medium range systems are interoperable. If also the data radios would be operable, we could continue with a taskforce whatsoever. (#N)

Others argued that German and Dutch ground-based air defence units should still

cooperate but in a different context. One participant talked about a “brother/sister constellation” between a German and Dutch unit which should include combined exercises by independent units within a larger unit (e.g. a battalion). Such a constellation would involve a tight information bond that could help to strengthen professional networks and provide a new framework for cooperation.

Another suggestion was to let the units of both countries take their time to get acquainted with their new systems, to train personnel, write SOPs, and restructure their respective organisations (with the substantial investments in mind), and only then explore forms of future cooperation or integration between weapon systems in the same range:

Yes, these [Germany and the Netherlands procuring weapon systems in the same range] are chances to strengthen the binational cooperation. What is important is that there must be *willingness* to do so. The Germans are currently thinking about how to use the IRIS-T system. So they need to think about their own Concept of Operations, the SOPs and everything: “how are we going to do it?” This is normal, we should give them the time. (...) Both countries need to figure out how they will use their systems. And if that is done, you can go back and say “okay, how can we do things together?” (#U)

According to other participants, two aspects remain important for future binational cooperation or integration between German and Dutch ground-based air defence. First, incorporating lessons learnt of Apollo Green and the BSTF is essential for any new binational or multinational cooperation project in the field of ground-based air defence. Secondly, participants contented that future cooperation projects and structures should start with a clear mission and clear objectives.

6.6 Conclusions

The Binational SHORAD Task Force was perceived as a forced marriage. Nevertheless, those participating in it did their best to make it work. Many of the interviewed service members looked back at interesting and exciting times, although they had encountered a variety of problems. These concerned the differences between the weapon and communication systems and the resulting lack of technical interoperability, the different operating procedures and national regulations, the geographical distance between Todendorf and Vredepeel, national regulations, national interests, and so on. Could or should these problems have been foreseen at the moment the decision was taken to integrate

the two units in the BSTF? Participants provided different answers to this difficult question, but the dominant idea was that by *doing*, by actually working together, they experienced the nature and gravity of the problems and the impact it had on their work and on the effectiveness of the BSTF.

Several issues were known beforehand, whereas more mundane but important questions were raised when they became relevant. For example, whether, when a German had to go to a doctor, he/she should see a Dutch or a German doctor, became relevant the moment German service members were bitten by harvest mites during an exercise in the Netherlands. The different positions of NCOs in the German and Netherlands Armed Forces only became apparent through the combined exercises. Other (potential) obstacles were known or knowable before the decision was made to initiate the project: differences in weapon systems and C4I systems, in procedures and regulations, and in language abilities, for example.

Many problems were solved along the way. Sometimes it simply had to be accepted that some problems could not be solved and would hamper the functioning of the BSTF as it was originally conceived. Keeping the German and Dutch units intact and using them in their strength was the solution to structural problems of the binational integration and cooperation that had been initiated at too low a level. The decision to limit the integration to the battery staff level prevented participation in each other's working practices or creating joint working practices. Both countries used their own SOPs. No BSTF culture emerged, and moreover, participants questioned whether the BSTF actually was a *unit* instead of only a cooperation structure.

7 Cultural dimensions of binational military cooperation in Project Apollo

W.T.C. Bisschop

7.1 Introduction

The cultures meeting in the Dutch-German air defence cooperation Project Apollo could be delineated in multiple ways. First, of course, the people involved came from two different countries and their national cultures. Second, the German contingent involved personnel from the former East and West Germany. And third, the units of both nations had mixed military backgrounds. Flugabwehrraketengruppe 61 used to be part of the German Army, and was changed into an airforce unit, with air force officers. The Dutch ground-based air defence command, the Defensie Grondgebonden Luchtverdedigingscommando, is a mixed group of army and air force personnel, originating from army (Korps Luchtdoelartillerie) and air force (Groepen Geleide Wapens) units, now under Single Service Management (SSM) of the Royal Netherlands Army, and commanded by either an army or an air force officer.

The main focus of this chapter is on the organisational (military) cultures of the countries involved, but includes aspects of national culture, like language. It explores two dimensions of the broad concept of culture, and their ramifications for future multinational military cooperation. First, the more horizontal dimension, the everyday social interaction between the individuals and groups of both nations. How did they perceive each other? Did they trust and respect each other? Was there a willingness to work together? And, practically, how well could they communicate, given that they do not share a native language? Second, the more vertical cultural dimension of hierarchy and leadership. This is a generally relevant topic for the study of military cultures, since military organisations are characterised by some sort of hierarchy and have implicit and explicit leadership styles and structures. Moreover, it directly affects the coordination between groups, including, in our case, groups from different national backgrounds. It is also a topic recognised by almost all our research participants. The third part of this chapter explores the ramifications of these cultural dimensions for potential future bi- and multinational military cooperation projects.

7.2 Social interaction and language

7.2.1 Perceived cultural similarity

When asked, just generally, how close or different German and Dutch cultures are, many participants emphasised that they are relatively close. As one German participant explained:

I think we are not that far away from each other. (...) And I guess the difference that you could feel..., you could say that it is not because of the culture, but because of individual leadership. (#T)

Perceived differences were sometimes ascribed to individual traits, and not always to a difference in national or organisational culture. Although differences were generally acknowledged, the cultural closeness was emphasised, especially in comparison to other (European) countries. For that reason, a German officer maintained that if cooperation would not be possible between the Netherlands and German Armed Forces, it would not be possible with any other country:

If it does not succeed with the Dutch to get a common ground for integration or procedures, then it will not succeed with an Italian or a Hungarian; there the cultural difference is much bigger. (#N)

The cultural differences with armed forces of Southern and Eastern European countries were perceived to be larger than between the German and the Netherlands Armed Forces. On multinational deployments in Afghanistan, Iraq or elsewhere, some interviewed service members had encountered members of other armed forces. One participant elaborated on his experiences in an earlier deployment:

[T]here were also other countries, also European, with which the cultural differences were clearly larger. (...) Without mentioning specific countries, but how they work, how they address issues, how they do things... I had problems with that, personally, when I see that, (...) when they arrive at work, when they leave again, those sorts of things. There is a very big difference. (#B)

The different work ethos raised eyebrows and made this participant consider close cooperation complicated. A German officer noted that “Eastern-European countries are very eager, I think. With Southern European countries it gets a little more complicated” (#P). Another perceived difference, reported by a Dutch participant in the context of Eastern European armed forces, but not necessarily

limited to them, was the very central position of the commander in these armed forces. This is very different from how he perceived the Netherlands Armed Forces, in which, as we will see, responsibilities are perceived to be given to as low a level as possible, with the consequence that leadership does not depend entirely on the commander.

In the general perception of the participants, the Netherlands and Germany are culturally relatively very close, compared to other countries. But, as we shall see, when talking about the cooperation in more detail, differences in (organisational) culture were identified that complicated the cooperation between the ground-based air defence of the Netherlands and German Armed Forces, and could even be a reason not to seek cooperation at a low organisational level.

7.2.2 Motivation and trust

Project Apollo provided a new sense of urgency, a new direction, and new objectives for the military personnel of the ground-based air defence units in both countries. This in turn strengthened their motivation to work for the project. When talking about the service members involved, one participant maintained:

The people themselves, they were willing and capable. And there really was a drive to make it [i.e., the cooperation in Apollo] happen. (#G)

Most of the interviewed service members stressed that the ones actually involved in the cooperation tried their best to make Project Apollo, and its manifestations, work. This included pragmatically tackling problems and working around issues that were impossible to solve or were beyond their circle of influence. As one participant described his view:

You know, working with other countries is always nice. It also leads to frustrations, but the least so at the workplace level. As an officer, it already started when I was a lieutenant, I was deployed to [country] and worked together with [country] and [country]. You see how it goes; it is always simple at the workplace level. It just gets stuck at the top levels. (#I)

There was a will to understand each other and to cooperate within the various Apollo manifestations. Furthermore, participants provided various examples of the two countries helping each other with practical issues during shared exercises: sharing mosquito nets, helping out with medical issues, et cetera. Reflecting on working together with German service members, this Dutch participant was very positive about German hospitality and the helpfulness of his German colleagues:

Yes, they have a particular leadership culture, but they are very sympathetic. I noticed that the army is very open. Whether you need to send people to the infirmary, or to get things done... If you know the right people (...), they are very willing. Very hospitable. I have to say that. I think it is fantastic. (#I)

In general, military personnel of both countries engaged on the assumption of trust and respect, and tried to make it work. Which is not to say they did not have to get acquainted to each other's cultures.

7.2.3 Styles of communication and social interaction

As regards styles of communication, multiple Dutch participants described Germans to be more formal than themselves. In Germany, it is common to address others with the polite and formal 'u' (Dutch) or 'Sie' (German), rather than the informal 'jij' (Dutch) or 'Du' (German)—a distinction that cannot be made in English. A Dutch officer noted:

It's all 'u', you know. That's what it starts with, for a long time. And the more senior person has to offer 'you may say 'jij''. But that's only after three or four years of cooperation, you know, even if you share the same office. (#U)

In Germany, unlike the Netherlands, academic titles are used more often in addressing people, and not just upon first acquaintance:

However often you would see each other, however many meals you shared together, it was always 'Herr Doktor'. Yes, that's different for us. (#O)

In social interaction, a Dutch officer noted that Germans are more reserved, and care more about privacy. Upon first acquaintance, he would be careful to avoid asking about the other's private situation.

Similarly, in the German Armed Forces, e-mails tend to keep to a more formal format. In the Netherlands Armed Forces e-mails are more informal: calling the addressee by his/her first name, with informal greeting formulae, and a short, informal formulation of the request. German formats require a topic statement, maybe a list of the attachments, a formal greeting formula, a description of the request in third, not first, person, and again a formal greeting formula. Just as a small example, a Dutch participant noted that German colleagues often added 'im Auftrag' to their e-mails. He read this as presenting the e-mails message as an order—although it might in fact mean that the signatory is writing on behalf or on authority of somebody else. Moreover, in the German Armed Forces, professional

communication goes over institutional accounts (e.g., for the S1, or the S3), rather than personal accounts, like in the Netherlands Armed Forces. This suggests a prevalence of functions over persons in professional communication.

These were mainly perceptions of Dutch participants about differences in their social interaction with Germans. Compared to them, several Dutch participants described themselves, Dutch military personnel, not only as more informal, but also more as direct and perhaps unwieldy. On the other hand, a German officer noted the collegial atmosphere among his Dutch officer colleagues:

I think you [the Dutch] are much more collegial towards one another. I mean, the team effort, looking around and checking, 'Hey, is he ok, is he doing well? Can we support each other?' So, the German idea of Kameradschaft, that's of course still very strong, but mainly up to the tactical level. And then it waters down, the higher you get. (...) And that's better here [in the Netherlands], I have to admit that. (#P)

The differences in social interaction sometimes led to misunderstanding, but most participants emphasised that in this respect, the cooperation went smooth.

7.2.4 Language gaps and bridges

Formally, the language of communication in Apollo was English. The officers of both countries spoke it sufficiently well. A number of participants noted that proficiency in English was lower at the level of the NCOs and the other ranks (privates and corporals), and then especially on the German side. A German officer noted:

At the officer level, no problems. The only problematic level was the sergeant level. Because you guys [i.e., the Dutch] are speaking English in a very good way. We have some limitations when it comes to that. (#T)

The difference in perceived English language proficiency was not merely between officers and NCOs or privates. Some interviewees mentioned that the German Air Force was said to get more acquainted with English during their training than the German Army. And older colleagues from former East Germany had learnt little English at school—in East Germany they taught Russian instead. However, some Dutch interviewees noted that the English proficiency among Dutch privates is also low. According to one participant:

The German private, he does not speak English. And the Dutch private has very little English too. The only English the Dutch private knows is 'Yo, baby, yo'. And that's it. (#E)

During Apollo, the actual cooperation did not so much take place at the level of privates and some maintained that linguistic barriers were not an insurmountable problem for the cooperation at the higher levels. Certainly, the technical and legal issues were larger. But others did ascribe a number of problems to the linguistic barrier. For example:

In cooperation, and especially the tactical coordination over the radio in English, that all went wrong. There were really baby steps made to prevent language barriers, to create shared solutions for SOPs [Standard Operating Procedures], for coordination. (#P)

SOPs were written in either Dutch or German, which complicated the use of English as a working language.

Meetings of the working groups were sometimes negatively affected by insufficient ability or confidence to speak English when it led to not participating in the conversation, or not understanding correctly what was being said, or not being able to express oneself clearly.

You noticed that, especially at the German side, the senior officers speak perfect English. And that goes fluently back and forth. And rather quickly, you notice that people who speak it less well, that they lean back and do not participate in the conversation. (#A)

This was true both for Dutch and German colleagues. For example, one participant said about one of the working groups of Apollo:

But there the language was English. And that lead to a barrier sometimes, I should say. To understand each other, both from the Dutch side as well as from the German side. One speaks it fluently, the other not at all. There were project teams at both sides, who in their field, say ICT, shoot a 9 or a 10, but for English maybe a 2 or a 3. That was a little tiresome, because it became dependent on the breaks, during which some technician would tell you, 'I had wanted to say this and that, and what this German colleague is saying now, we are not able to do.' But he did not feel comfortable to raise this during the meeting. (#A)

For some people, it took time before they felt comfortable or were able to speak a foreign language during meetings. But although everyone speaks English, professional conversations about air defence, with technical jargon and formal doctrines, could be difficult. This was also felt during the exercises. As one of the interviewees said:

So you think you agreed on some issues. To you they are clear, and you assume the other to understand them as well. (...) But that's not always the case for the other party." (#S)

This sometimes led to workarounds. Apart from English, quite a few of the Dutch service members could understand, speak and translate German. A number of air force personnel who were part of the Groepen Geleide Wapens had lived in Germany, back in the days of the NATO missile belt. And a substantial number of Dutch military personnel of DGLC had grown up in the German-Dutch border region; the Dutch Defensie Grondgebonden Luchtverdedigingscommando is also close to the German border. They functioned as translators whenever communication in English failed. As one German participant explained:

But they always found a way to somehow communicate. And it was also good that most of you guys [i.e., the Dutch] also understand or speak German. So even if you started with English, you could easily switch to German. And somehow get the information from one to the other. But the official language always was English. (#T)

In case they could not figure it out, people turned to their mother tongue in communicating with colleagues of their own nationality, and to German with the Dutch, when there were people present who understood the language and could translate it. In this way, communication gaps were bridged. The German proficiency of some (younger) Dutch colleagues actually stimulated German colleagues to speak German. This was considered undesirable, and addressed.

There were a number of colleagues who spoke German very well, so they helped out every now and then. We noticed that it worked counterproductive, because the Germans are not so versed in English. So the moment they noticed that there were some colleagues who speak German well, they fell back to German. And then he becomes a sort of interpreter. At some point we have said, 'we are not going to do that anymore, except...'. (#C)

And of course, there was the issue with the Security Authority, where the lack of a shared language prevented communication and the solution of problems (see

section 5.5.3). The relevant official would reportedly come to a meeting but could not speak English, translation via an interlocutor proved to be difficult, and English documents could somehow not be translated.

You wouldn't believe it's possible, the Security Authority, the highest level. 'It got delayed because your request was in English and we could not translate it well'. I don't know what happened. (#A)

With the German Apollo exchange personnel in Vredepeel, the situation was very different. Initially, the instruction was to do all communication in English. But at some point, it was decided that Dutch would be the standard language for the Apollo officials at DGLC, contrary to the original plans. Translation to English was only done for whatever had to be shared with the German 61 Air defence Battalion. The German military exchange personnel all had to learn Dutch because Dutch was the official language. Dutch participants were very positive about their German's colleagues command of the Dutch language: "I thought it was amazing how good he already was when he arrived, with his Dutch vocabulary. That was really fantastic" (#A). This was true for the majority of the German military exchange personnel. The language investment cashed out even more when officers did the Dutch senior officer training (Hogere Defensie Vorming).

A Dutch officer told us that if one was the only Dutch person in a German staff meeting, the language used was German. Proficiency in German made a big difference for the cooperation, according to him. "A Dutchman who does not speak German is two goals down" (#M). Having no language barrier was mentioned as a condition for successful multinational military cooperation. As someone concluded: "There should be no language barrier anyhow, because otherwise you're not getting the most out of it" (#A).

English as shared language was not always sufficient. In Apollo, much depended on, especially, the German proficiency of some Dutch members of the military. The exchange officers were praised for their Dutch proficiency. Linguistic barriers were often overcome, but the need to do so complicated the cooperation.

7.3 Hierarchy and leadership

7.3.1 Ranks and hierarchy

Dutch participants maintained that the German military is more hierarchical than the Dutch military, and that this has many implications. One interviewee noted, just in a by-sentence, that “in Germany, unfortunately, rank really matters” (#D). From their engagement with German colleagues, Dutch participants recalled that having the ‘appropriate’ rank is important in Germany. For example:

And some German Lieutenant-Colonels, when you are Captain or Major, they look at you differently than when you are Lieutenant-Colonel. (...) So when you send somebody that way, a Captain or somebody else, they send him back. Because they come with, like, ‘Nein’. So you notice that a rank really is important. And it doesn’t matter what guy is behind it, what knowledge or experience you carry with you. But the rank, that does a lot. (#Q)

This officer has had the experience of climbing the ranks and felt his rank, and not expertise or character, dominated the perception his German colleagues had of him. Only the ‘right’ ranks communicate with each other. A German officer recognised this:

Ranks are in Germany more important than in the Netherlands. In the Netherlands it is common that a Lieutenant or a Captain suggests something and the Lieutenant-Colonel says ‘okay, do it like that’. In Germany that’s slightly different. (#P)

Apart from a (perceived) cultural difference, a background factor might have been that in Germany, there is a stronger connection between starting qualifications and rank. Part of the explanation of this difference might be the different ways in which people can become an officer. In the Netherlands, it is more common for experienced NCOs to enrol in officer training and continue their career as First and Second Lieutenants. This is a rarity in Germany. It means that “junior” officers in the Netherlands Armed Forces can be older and more experienced service members as compared to their German counterparts.

And they are mid-thirty, end-thirty, and then there comes this 25 years old First Lieutenant from Germany with the self-image of ‘I now am something with an experience of nothing’. And they have to cooperate. That is challenging for both sides. (#P)

Size also makes a difference. In the experience of a German officer, at least in the Royal Netherlands Air Force, it is more common to know one's colleagues in and beyond one's own unit. This makes it easier to get in touch, independent of ranks:

You [in the Netherlands] are with less. (...) Those air force guys, they all know each other, from Lieutenant-Colonel to three-star-General, also because, of course, the air force is even smaller [than the army]. Not just when you are a pilot, but also when you are a logistician. So they have shorter lines of communication to the top. In Germany, we are much slower. The processes take much longer. (#H)

In a smaller group, it is easier to get to know everyone, and decision making involves fewer people. Moreover, a German participant who spent part of his military career working in the Netherlands contrasted the importance of hierarchy in the German Armed Forces with the importance of personal and professional networks in the Netherlands Armed Forces, which had the advantage of leading to quicker results:

Networking is something that is more important in the Netherlands and that I miss in Germany. In the Netherlands you can rely on your network. And nobody feels attacked if you use your network. In Germany you have to follow the Dienstweg [chain of command]. In Germany, if I want something, I have to go to my boss, and he goes to his boss, and he goes to his boss. That's the official process. If you go three steps further outside of this process, someone is going to feel attacked, and will let you know that. (#P)

In the experience of our participants, ranks and hierarchy trumps expertise and network in Germany.

7.3.2 Freedom of action and mission command

Another indication of a more hierarchical system was the observation of several Dutch participants that German counterparts operate less independently and need to ask permission more often. A Dutch officer reflected:

Something easy to misjudge, sometimes, is that the Germans are a bit more hierarchical, of course. My section (...) works fairly autonomous. The officials are adjutants and captains. They can just do their own job. I do not expect to have to give permission for every step, or to take things over, because the [higher rank] has some ideas. (#K)

His German subordinated colleagues would ask him to send a particular e-mail, or to sign something, which their Dutch counterparts would do themselves. This also

became apparent in the mandates with which people attended meetings. A Dutch officer shared the view that in Germany commanders give less freedom of action to their subordinates. Whereas in the Netherlands, according to Dutch interviewees, lower ranks can operate fairly independently, following the commander's intent, it works differently in Germany:

The Germans also want to know how it goes and how you plan to do it. And then the Colonel says like 'well, you can better do it like this'. Then I think by myself, 'yeah, very tiring all this'. (#U)

Seeing commanders interfering with processes all the time, having to ask permission continually, getting this little freedom of action—it could feel cumbersome to interviewed Dutch participants when they came across it in exercises or during other Apollo activities, or noticed it in their counterparts.

Recalling exercises before Apollo in which both German and Dutch troops participated, one participant described a difference in procedure for the repair of a broken part of a weapon system. Dutch service members would repair it on the spot, whereas the Germans would withdraw the system, diagnose it, bring it to the next echelon, diagnose it, and so on, up to returning it to the industry. In the eyes of this Dutch participant, the Germans restrain their own people, preventing them from doing what they had to do. He gave another example:

So, for example, on the firing range they had a weapon jamming. And they went to fetch us, because we solve it. Otherwise, they had to wait a day before they could fire again. (#I)

The German colleagues had to follow more extensive procedures and sometimes had to wait for permissions and orders, while their Dutch counterparts had more freedom to solve a problem when they encountered it.

The importance on the German side to work along hierarchical lines also became apparent in the planning of shared exercises. Several Dutch participants observed that their German counterparts planned meetings, exercises and even deployments on a very short notice. One of the Dutch interviewees maintained, as an explanation, that his German counterparts were all dependent on information from higher levels, and were not allowed to make relevant decisions themselves.

When we go on an exercise, we start to work on the preparations six months in advance, let's say. And then we say, 'I want information'. Yes, but the Germans are

not there yet, because they are waiting for their superior. And the superior is waiting for his superior. And that superior is waiting for his superior. So two days before the exercise starts, we get the information. We have had that a few times. (...) They are all looking up. Because without him saying something, [they] do nothing. (#I)

Without order, they won't do anything independently, they are not like, 'O, that's something I can do' or anything like that. No, because you may get called back by your boss, like, 'Hey, what are you doing, that's not your task at all, that's not something you have to think about.' (#U)

In the eyes of some Dutch participants, Germans act on orders, and on orders only. Without orders, nothing happens, and the order had to come from the right superior, related to the right rank. In the experience of a Dutch NCO, it was fairly natural for his Dutch colleagues to cooperate and help others with their tasks when possible, whereas the Germans confined themselves strictly to their orders and their job description.

So I noticed that we, as Dutch, understand very quickly that we have to cooperate, and that I listen to a German colleague, and that I help that German colleague when I see that he, say, is setting up his tent; I go over and just start helping with the tent-poles. I see that the Germans don't have that at all. They'll wait. They stand at the side of the road, watching, or they walk away, 'This is Dutch and that's weird and it's not ours, we don't have anything to do with that'. But within their organisation it is the same, because they have their own tasks, and that's what they do, without taking any further initiative. (#C)

The difference in freedom of action and the taking of initiatives was noticed at several points. According to another Dutch participant, the preparations for exercises of his German colleagues were much more detailed. That is, the *how* of the operation was prescribed as well. The Dutch left more room for adaptation than the Germans.

So he would have, like, 168 slides with all the details. I felt like, 'come on, let's go!, what margins are left for these men? What are we going to learn there if everything is written up from step to step?' We are not like that. We are like, 'Okay, we give an order, we want the men on the shooting range to reach a particular effect.' And where you are going to stand, to the left or to the right—who cares? We are training procedures here. And this leeway, they [the Germans] have trouble with that. (#Q)

Not all German participants would agree. A German officer elaborated on his experiences with drafting orders in the Netherlands. He argued that orders in the Netherlands are much more detailed as compared to in Germany. Another German officer maintained there was truth to the common, and probably stereotypical view:

To say it a little black and white: if you want a quick, logical solution according to the handbook, go to the Germans. And if you want a creative solution for a problem, you may not find in the handbook, go to the Dutch. (#H)

To explain the differences in leadership culture, several interviewees referred to mission command or *Auftragstaktik*. The concept is, simply put, that the commander states his commander's intent—*what* must be done—and the receiver has to find out *how* the intended goal can be reached most efficiently and effectively, given the circumstances. In the Netherlands, the mission command concept makes commanders delegate authority to lower levels compared to how German service members operate, one Dutch participant claimed:

And in my view the Dutch military delegates [authority] to a lower level, really to the professional, the specialist on the ground. And he has to think with the purpose in mind, like, 'What do I have to attain?'. And he gets that freedom of action. (...) We state the what, and let them come up with the how. I have the impression that in the German military the how is determined at a higher level. The rest just executes. But then it is, like, 'I have to stay there, and I cannot go to the left, and I cannot go to the right', (#I)

This was the general view of the interviewed Dutch participants: Dutch service members get more freedom of action, and are stimulated to take initiative, whereas their German colleagues acted upon orders only and limit their activities to job description. A Dutch participant noted this as the biggest cultural difference. In contrast, the German culture was perceived to be rather at odds with this idea of mission command: they have a more centralised leadership style, less freedom of action, and are more dependent on orders. As a Dutch officer noted:

But then we get back to cultures. If a problem occurs in the field, the Dutchman starts working. Within the margins he has, within the commander's intent that he received. The German says he does that too, but only executes what he is told to do. And then it stops, unless he is under physical threat, maybe then he makes a different decision. (#C)

In the opinion of a Dutch officer, the Germans (Prussians) invented *Auftragstaktik*, but right now, “nothing. There is nothing to be found of it anymore” (#U). But perhaps rather than not using mission command, Germany has a different conception of it. A German officer explained about mission command that it should not ignore the chain of command, it should not lead to situations in which a private with a great idea or an issue go directly to the battalion commander, passing by the battery commander. Nor the other way round. The chain of command should always be in place, that is, according to him, part of mission command. Mission command should not lead to neglecting the hierarchy. However, this was mainly about communication in the chain of command, not about freedom of action.

In Germany, it's maybe a pyramid, you know, that's how it is done. In the Netherlands it's a ball. That both has its advantages, you know, a pyramid is very steadfast, you won't get it changed. In the Netherlands is much more complex, but also much faster in some processes. So it both has its advantages and disadvantages. (#P)

The German organisational culture combines a strong hierarchy with authority centralised at officer level. The Dutch organisational culture combines a weaker hierarchical structure with more freedom of action. It should be noted that these are perceptions of mostly our Dutch participants, although several German interviewees held a similar view.

7.3.3 The role of the NCO

A position where this difference in leadership culture was felt in particular is that of the NCO. The German and Dutch counterparts do not have the same place or function in the organisation. The highest in rank and most senior of the NCOs in a German unit (often company) is the *Kompagniefeldwebel*, called the 'Spieß'. The Dutch equivalent, the *compagnies sergeant-majoor*, is modelled on the American Command Sergeant Major, and has a formal advisory role in relation to the company commander. This is not the case for the Spieß. It's not that NCOs in Germany are not consulted. Rather, this is not a formal advisory role. According to a German officer:

But he [the Spieß] is not really an advisor of the leader. That's what his officers are for. A smart commander does listen to his NCO, sure, but that's not prescribed. It's not structurally arranged. (#P)

The German Spieß is responsible for developing the social aspect of work, recreation and cohesion, perhaps in a more dedicated and structural way than in the Dutch military. One Dutch participant was very positive about integrating this in the BSTF.

They don't see you in this advisory role, but your responsibility is the recreation. The Germans like that. They work hard, they work a lot, they work in a structured way. But when it's time for relaxation, there really is time for relaxation. They care about that a lot. (#I)

In the Netherlands Armed Forces, NCOs also have a leadership task, more so than in the German Armed Forces. As one participant explained:

How am I going to say this politely? Role, tasks, and responsibilities lay at a different level. The officers are there [in Germany] in the lead. But in the Dutch military the NCO has, one of his pillars [here, main roles] is also 'leader'. And I noticed that this is less the case in the German military. (...) I won't say it's wrong, but it is different, it is a different culture. (#J)

In the BSTF, experiences differed. A German participant recalled that despite the formal differences, NCOs were taken seriously in the BSTF by all officers:

Officers asking the sergeants. There was no, oh no, we are the officers, we have to take the decision. (...) So no officer from the German side being afraid to ask the Netherlands sergeant what to do. (#T)

Other research participants likewise maintained that, when it comes to skilled personnel having the ear of the commander, independent of their ranks, there was, at least in the BSTF, no big difference between the Dutch and German military. A German officer shared this perception about the BSTF:

All the time, I had the sense that (...) within the BSTF, if people had skills, were professionals, whether Corporal or Sergeant, if it's known that he has a level of expertise, and he says something, then he is listened to. Whether it's done that way, that's a different story, but [officers] take them seriously, I believe. (#H)

He considered it one of the strengths of at least both the German and the Dutch military, and some other Western militaries as well, that troops are trained to take a broader view than only what affects their own direct responsibility. In that respect, he did not note a cultural difference, although he recognised, as an officer, that this might have been experienced differently by NCOs.

But a Dutch NCO who participated in the BSTF felt that he had to adjust to working with German colleagues of other ranks. In his experience, authority in the German military is more based on position, that is, the position of the officer, whereas in the Netherlands expertise gives credibility and the authority to take initiative. According to him, “especially as an NCO, you’re negatively affected by this” (#C). It was not a matter of feeling less valued by the German officers or units. The NCO has a respected position in both countries, but it took time to understand the different positions of NCOs in the German and Netherlands Armed Forces. “At first, of course, your initial feeling is, ‘What’s going on here?’” (#C). It took him some time to understand the subtleties of these differences. If the German commander was absent, German service members were more open to join a Dutch initiative. The moment the German commander returned, they would become more passive and wait for orders. “Very interesting to work with, but I had to learn how to deal with it” (#C). One of the interviewees shared an anecdote of a combined task where the Germans had finished their part and a Dutch NCO was very busy with his part. The Germans went for coffee, and let him struggle with his work. When a German Corporal asked if they could do something, he made his intent explicit, but it was not carried out. Only when their Captain came by, heard what had to be done, and ordered his men to help carry out the work, they started moving and fixed it. In his view, this was very different from how the Dutch military operates. Reflecting on why this happened, he noted it might be the case that in the German military, taking initiatives might indicate that the commander is doing a bad job. Alternatively, these experiences show that the national chain of command remained dominant in the BSTF, even if this was a binational unit.

In contrast, a German officer who has been working in the Netherlands for a long time voiced the view that the distance between an NCO and an officer is larger in the Netherlands than in Germany:

I actually believe the distance in the Netherlands between an NCO and an officer is larger than in Germany. In Germany, in the air force, where I grew up, that’s my frame of reference, I would say, there a NCO will talk more freely with an officer about something, than what I experience at the DGLC. But that [in Germany] there is an authoritarian system and in the Netherlands they are more loose, no, that’s not the case. (#N)

The military branch might matter here. He compared the German Air Force with the Dutch DGLC, which consists of both army and air force personnel. He agreed that Dutch service members tend to get more freedom of action, but maintained

that in the German Air Force, there was less distance in communication between NCOs and officers than in the Royal Netherlands Army.

The Dutch NCOs liked the role they had in the Dutch military. Future cooperation would, in their view, require securing the place of the NCO according to the Dutch model.

That is the professional, the leader, the instructor. With a role next to the commander, in a pyramid. Who can exercise influence at all levels to make it feasible in the workplace. That problems at that level, via this informal line of the NCO, can reach the top. (#C)

If NCOs do not have this official advisory role to the chain of command, this interviewee believed some information does not get through, some problems will go unnoticed, and possible solutions would be ignored.

7.3.4 Meetings and decision making

The German and Dutch military cultures are perceived to be very different regarding meetings and decision making, according to both Dutch and German participants who took part in the working groups. Almost all Dutch and German service members we interviewed said something like: 'In Germany, a decision is a decision, whereas in the Netherlands, a decision is the start of a discussion.' This seemed to have become a truism among the Dutch and German military personnel whom we interviewed. One example:

Now, when I, in my role as commander [in the Netherlands], take a decision, it is often the start of the discussion. In Germany, a decision is a decision, we go do it, and only after carrying it out we may revisit it. That well-known 'polderen' is no stranger to the [Royal Netherlands Army]. (#D)

He referred to the famous Dutch verb 'polderen' to describe this: all stakeholders get to have their say, and the aim is to reach a form of consensus. Both Dutch and German participants noted this as a difference. A German officer said he believes both countries still have too many meetings, a way of working that is not sustainable given the current situation of upscaling the military, with the increasing threat from the Russian Federation in mind. "I personally think you then won't have time anymore to have meetings five times a week, three hours long" (#B). In general, German participants noted that their Dutch colleagues had more meetings that also took longer, and that were less structured and often had

unclear outcomes. As one German officer concluded: “the Dutch *really* like meetings. They love it” (#P).

A German officer believed that German meetings are more effective than Dutch meetings, which, he added, does not necessarily make them better. In Germany, the relevant options are considered in the preparation for a meeting. During the meeting, the commander shares his decision, and this is the decision that is carried out, unless there is a big change of circumstances. Not so in the Netherlands:

In the Netherlands, (...) if the commander says in a meeting that it is option 3, I don’t anymore go out of the meeting, like in the first year, and start carrying it out. I have learned: that is the start of the discussion. Later, I waited two months. Twice it was said in a meeting that it had to be option 3. Discussion would come. And my experience is, it is never going to be option 3, the first decision of the commander, because first we carry on until everyone present is happy. (#N)

A decision is more like a proposal, starting a discussion that aims for something like consensus. This could give Germans that were present the sense of not quite understanding what was going on and how the organisation actually works. It could also be frustrating. “About some issues you should not argue anymore” (#P), a German officer believes. He was at first frustrated by the Dutch approach. His more German approach, when chairing meetings himself, may be not always appreciated by his Dutch colleagues, he thinks. He would strictly keep to the agenda and postpone any issues raised during the meeting but not on the agenda.

They are not very happy with it, often. (...) Maybe I should be a little bit more Dutch, and the Dutch should think a little bit more German. (...) But when I arrived in [city name] I very much had to get accustomed to it. And it was also really frustrating, I have to admit. (#P)

A German style may be frustrating to the Dutch, and the other way round. This could impair the communication and decision-making processes. But some Dutch officers appreciated the German approach and considered it something the Netherlands could learn from. “Once they have an order, they have to carry it out. That’s something we could learn from them” (#U). German participants were open to see some positive sides of the Dutch approach. As one German interviewee maintained:

The good thing is, you are a little more adaptive. Germans, once they have made a decision, are in my view a little bit more diehard in carrying it out, up to a point

that you feel, wait, maybe this isn't the best direction. In such a case, we may not be the best ones in changing course. (#H)

Another German officer noted that the Dutch strive for consensus at every level. This may keep people motivated.

You know, the strength of the Netherlands is, *once* you all agree with each other, you really have a top product. In Germany, not everyone has to agree. But once that machine goes rolling, it cannot be stopped anymore. (#P)

He connected this German approach to a more directive style of leadership, with less room for participation in decision making.

Meetings might take longer, but decision-making processes outside of meetings are, according to both German and Dutch interviewees, faster on the Dutch side, partly due to the difference in size and to differences in organisational structure. It has both advantages and disadvantages, according to a German officer: fastness versus carefulness. He gave an example of the Netherlands Armed Forces buying a particular weapon system, with relatively few people having a say in the discussion, or asking pertinent questions, leading to decisions that were hard to understand for him.

On the one hand, it's very neat, because it makes it really possible to be clearly much quicker. On the other hand, there is of course the side of mistakes, of 'did you consider this and that?'. As always, it has advantages as well as disadvantages. (#H)

A German officer noted a difference between internal meetings, within the Netherlands, and meetings with other countries.

The Netherlands is very quick in decision making. When we were at a NATO meeting, it happened that I said, 'Ok, I am off, and I am going to discuss that next week in Cologne with someone, and then you hear back from me'. The Dutch went out of the meeting, took to their phone, came back, and said 'We're going to do it'. So back then I thought, 'The Netherlands is very good in making quick decisions'. But I have to disappoint you, it's not the case. The Germans are much quicker in making decisions than the Dutch when you are in the workplace or in meetings. The Dutch are discussion partners, but not for decisions. (laughs) I was totally surprised by that. (#N)

The Dutch chain of command could produce quick answers when participating in international meetings: the organisation is smaller, the lines of communication are shorter, and there is more freedom of action at the respective echelons. But in their own meetings, there is a lot of room to discuss and reconsider decisions, striving for consensus, thus slowing down the process of decision making.

7.4 Impact of cultural differences on cooperation at the battery level

Cultural differences—in a broad sense—were perceived to be consequential in Project Apollo. This not only concerned language, but also aspects of the organisational (military) culture, like leadership styles, decision-making procedures, and mandates.

Much depends on the specific structure of the cooperation or integration. In the context of Apollo Green at the BSTF (see section 6.2), participants identified cultural differences with (potentially) negative impact on military effectiveness.

At this level of tactical execution, we need to be able to read, see, understand each other. There should be no noise between them. This sort of projects creates noise. (#C)

Yes, and I think it is very important to have that conversation and to explain it. But in fact, you don't want to explain it, because it takes time. And you think, 'yeah, but this is again at the expense of my time to prepare my unit'. And those cultural differences, I think you have to accept them from each other. And that's why I say, 'Just stay in the national line. Don't do this [integration] at company level, do this at battalion level. (#S)

In these quotations, a lack of mutual understanding is explained in terms of cultural differences. Making cooperation or integration work would require a lot of extra communication, and thus extra time. This was considered potentially risky, as it may diminish survivability, partly due to the cultural and procedural differences:

Even stronger, I think it [binational cooperation] harms your own survivability. Because you are not trained the same way. You don't work together daily. You speak a different language. Different procedures. And air defence is already complex when it is pure Dutch. (#D)

Several participants drew (also) from the cultural differences the implication that integration or cooperation should not take place at levels below that of the battalion.

7.5 Conclusion

Germany and the Netherlands are relatively close in national culture. Mutual trust and social interaction was common in Project Apollo, in the working group structure as well as in Apollo Yellow and Apollo Green. Especially in the Apollo working group structure and the BSTF, language was sometimes a challenge often only overcome due to the contingent fact that quite a few of the Dutch participants were proficient in German, for example due to the fact that they grew up close to the German border. The German exchanges at Vredepeel were generally praised for their Dutch language skills. The different perception of the nature and function of hierarchy within the military organisation was sometimes a cause of confusion within the BSTF. The rather different culture of meetings and decision making was at times frustrating and a cause of delays. Interviewees noted this difference, in particular in the working group structure, and the need to be aware of it, without denouncing one style or another. Project Apollo seemed to stimulate the development of cultural awareness.

This suggests that differences in (organisational) culture, even between countries relatively close otherwise, have a substantial impact on binational military cooperation. Though positive about future binational cooperation, all participants maintained that military effectiveness could be affected by cultural differences, in particular at the lower levels.

8 Sovereignty in binational military cooperation: the case of Project Apollo

W.T.C. Bisschop

8.1 Introduction

Sovereignty is hardly ever absolute, but states differ in the degree to which they approach it. Both Germany and the Netherlands are sovereign states, in the sense that they are internationally recognised states to whom the principle of non-intervention applies and that have, to a certain degree, internal authority and control within their territories. They are also both members of the European Union, and therefore lack, to a significant extent, sovereign authority on many issues—currency, border control, migration policies, agricultural policies, and so on.

Apollo was a relatively small project. As such, it is not to be expected that it had a massive impact on the sovereignty of the two countries. But decisions, organisational structures, and events in a binational military project are likely to touch on issues pertaining to sovereignty. Moreover, national sovereignty affected the cooperation. The aim of this chapter is to examine the experiences of the participants in Project Apollo with the impact of the binational project Apollo on each of the five factors contributing to a state's sovereignty, as well as the other way round—the impact of these factors on project Apollo. The five factors were listed in the Introduction of this report, and are: sovereignty in the sense of non-intervention, of border control, internal sovereignty, sovereignty in the sense of international recognition and, finally, of self-sufficiency.

8.2 Non-intervention

A basic factor contributing to a state's sovereignty is states not intervening with another states' internal affairs. Coalitions can clearly strengthen a country's sovereignty in this sense when a state is unable to defend itself against an aggressor. According to a participant, speaking of ground-based air defence, this applies to all European countries:

And if you consider the current threats—everyone has deficiencies, so we have to integrate. It's that simple. However you look at it, we have to integrate. Because not a single country has that much air defence capacity to cover the whole of Europe. So you have to integrate, you have to cooperate. (#1)

Shortage of weapon systems and a desire to be sovereign make international military cooperation desirable, and not just in air defence. More generally, there was a strong awareness among participants that their country depends for its self-defence on coalitions, like NATO.

Because I think we have to realise that we as the Netherlands Armed Forces are not able to defend our own territory. And we should not want to do so. (...) Because the Netherlands could say, 'We just mind our own business and we will do it on our own', but then we will be quickly done for. (#F)

Cooperation can contribute to sovereignty in the sense of freedom from intervention. That cooperation seeks to strengthen the *de facto* sovereignty in the sense of non-intervention was also reflected in the observation of several participants that defence budgets correlate negatively with cooperation initiatives.

One always sees, and I'm not saying it's good or bad, that in times of scarcity, let's put it that way, so when it isn't going very well with Defence and when we have less money to invest—it's then that there is an awful lot of studying and chatting together. And it's then that we make the most beautiful plans in NATO context. Really, the one even prettier than the other. But when there is money again, we all throw all those plans away. (...) That's my experience a little bit. (#O)

A Dutch participant considered this to be one of the reasons that at some point less effort was put in Project Apollo. When, after the Russian invasion in Ukraine (2022), countries like Poland, Germany and the Netherlands started to invest a lot of money and to restructure their armed forces, the attention for Apollo was noticeably fading:

At some point we noticed that there was a gap. In fact, Germany saying, 'It's so small, this Apollo project... Look at what we are working on right now!' We got the impression that the Netherlands was a little too small, at this moment. (#A)

According to this participant, Germany worked on an expansion of their air defence capabilities, and even if the Netherlands did the same, it still was considered to be too small to make a significant contribution. Similarly, a German officer observed:

And now we all have money, we don't have personnel, but we at least have money, and now we all go back to our national corners. The question is, of course, why? (#H)

Our research was not sufficient to establish this suggested causal relation between increasing budgets and decreasing cooperation initiatives, but it was mentioned by several interviewees. The desirability of sovereignty, in the sense of non-intervention, would explain why cooperation is attractive when a state is not prepared to invest more in its own security, and less so when it finds the means and/or political will to invest in its military power.

8.3 Border control

A sovereign country can determine who and what can cross its borders. This may seem unlikely to cause any problems in case of a politically initiated cooperation project, but regulations still can cause problems here. One participant related a story about the complexities of getting a German radar system to the Netherlands for an exercise. Because the radar contained elements labelled as 'secret', German regulations required the transport to be accompanied by armed personnel. But armed personnel was by Dutch law not allowed to cross the border. A solution was found, but "that's this political level, that's between two countries. These little rules—it's hard to find the right person at the right level to sign for this and say, 'just go do it'" (#N). Project Apollo came with border crossings only for a few specific exercises. Perhaps also for that reason, this aspect of border control affected the binational cooperation in Apollo, but more as a nuisance than a serious problem.

8.4 Internal sovereignty

Internal sovereignty concerns the power to rule within one's territory, that is, to prescribe and uphold laws, to take and lead collective action, and to act on behalf of the collective. Military cooperation is likely to come at the cost of this power. Decisions about the deployment of troops and weapons systems may have to be taken in concert with other states, or left to other states or institutions entirely.

In Apollo, the default position seems to have been that the national interests prevail over the interests of the binational cooperation. One participant expected that, ultimately, countries will always use their systems and units where they think fit, independent from international and cooperative structures.

It's what you often see in international matters: where a state's own interests are concerned, systems are deployed where that state thinks it's necessary. (#E)

The only exception he noted was NATO, with, for example the enhanced Forward Presence (eFP) battlegroups, or other future NATO battle groups under command of the Supreme Allied Commander Europe (SACEUR). In a sense, NATO already affects national sovereignty, both in the sense of internal sovereignty and self-sufficiency (see below). A country may think it needs air defence for force protection, or for its role in host nation support. But in case of war, NATO-countries are expected to put national capabilities under command of the SACEUR. Some participants noted a tension between this commitment to NATO and the wish to act in accordance with national interests. For that reason, one participant pointed out that the idea of a country having national assets does not sit well with the actual NATO-structure.

What's not entirely fair in the debate is, you may have political interests regarding your air defence systems, but it's not up to you to decide, because AIRCOM [Allied Air Command] in Ramstein decides where your air defence-capacities are deployed. Because if you have Patriots, then you have a 'priority one', one of the most needed and most scarce resources, and AIRCOM is going to decide about them. (#N)

This illustrates the tension between internal sovereignty and participating in a military coalition.

For the same reason, when asked for their views on a possible future European Union Armed Forces, several participants listed multiple obstacles: technical, cultural, industrial politics, but also the sovereignty of the nations involved.

I don't think there will be many countries that will say, 'Well, ok, commander, I give you twenty thousand people and you can deploy them wherever you like'. (...) This part of sovereignty, this decision power... I don't believe a country will easily give that up. (#G)

Added to the observation that among states involved in the EU there is at times much division, many of the participants considered the prospects of an EU Armed Forces dim.

An example of the prevalence of national interests and authority in Project Apollo was exemplified during an exercise of the BSTF, so with both German as well as Dutch service members. The war in Ukraine had just broken out, and Germany decided to send a unit to Lithuania (see section 6.4.4). Since it was the only unit on a short Notice to Move, they tasked the 3. Batterie of Flugabwehrraketengruppe 61

(*leichtes Flugabwehrsystem* (LeFlaSys), light air defence system) with the protection of German troops in Lithuania. It was currently under command of a Dutch major in the binational taskforce, and took part in an (command post) exercise in Wildflecken (Germany). Multiple participants remarked that Germany acted in this on their own. There was no discussion of possibilities, there was no communication with DGLC or a higher level in the Netherlands Armed Forces. The Dutch were simply ignored and the German unit was taken out of the exercise. The case shows that the binational cooperation notwithstanding, national interests prevailed. The binational taskforce as a whole, so including the Dutch contingent, might have been able to meet the need, but we can only speculate as to why the BSTF was not deployed. More generally, participants did indicate that communication at the military-political levels (one star general) often was suboptimal.

Another example concerns the differences in laws and regulations regarding the HR-system. There was a German officer tasked with the HR-matters of the exchanges at Vredepeel. But it also affected the shared exercises. In the Netherlands Armed Forces, when service members go on a multiple day exercise, they get an exercise allowance. This consists in money for the extra hours worked, and comes with specific rules and restrictions for these exercises. In the German Armed Forces, also at exercises, service members work their normal hours, and the evenings are typically free, without extra restrictions. Extra worked hours would have to be compensated with hours at a later point in time (a time-for-time rule). This was felt during shared exercises of the BSTF. It raised practical issues regarding the exercise. One Dutch participant described a typical situation.

And that's interesting, because, if you plan a briefing at 19.45 pm, and you're done at 20.00, you expect, as a Dutchman, that all subtasks and analyses are carried out that evening, in order to be ready in the morning. But you shouldn't be surprised when our German colleagues start with their subtasks and analyses the next morning, because then their time starts. And that leads to very strange, yes, very strange moments. (...) Only a few of them, mostly, and that's positive, mostly the direct colleagues of the battery staff, so, for example, my battle captain, they would continue working at night. Because they felt the pressure and the loyalty. (#C)

Whether processes of planning and preparation during the exercise were synchronic depended on the individual decisions and loyalty of the German counterparts. It also raised questions with some of the Dutch service members. One participant described the feelings of some of the privates: "I can't drink beer,

but you can, even if we are part of the same unit, and are in the same exercise. That's weird" (#S). Before Apollo started, no arrangement was made for the differences in HR-system. In the end, a compromise was found that allowed for 24-7 shifts for a limited amount of time. This simple difference illustrates how the consequences of internal sovereignty, i.e. rules and regulations in armed forces, may impact a binational exercise directly.

A third example, at the individual level, is the place of military exchange personnel in deployment situations. During Apollo, there was a Dutch liaison officer in the German Patriot mission in Poland.

It is almost impossible to let him go to the mission in Poland, because the Netherlands does not have a mission in Poland, of course. (#P)

The exchange officer was allowed to be involved in various ways, but could not officially be part of the mission. When political stances diverge, the military cooperation is directly affected. Acting from a position of internal sovereignty can conflict with the interests of military cooperation.

8.5 International recognition and equality of the member states

This external factor of sovereignty concerns recognition by other states and supranational institutions. It can take the form of diplomatic representation and the development of all sorts of inter- and binational relations. It is a mark of state sovereignty that a state can participate in international and supranational institutions and projects, including military coalitions. The Apollo project is itself an example in case. Thus, the fact that one can be a partner in a military coalition is due to this aspect of sovereignty, even if participation in military coalitions tends to diminish sovereignty in some other respects.

In the system of international relations, any equality independent of size or power is a matter of formal recognition. In reality, such differences could in fact matter. Sovereignty in this respect would be affected if this difference negatively influences one of the other factors of sovereignty, for example the power of a state to make its own decisions. Germany and Netherlands are markedly different in size and power, also with respect to the armed forces in general and the ground-based air defence in particular. A Dutch officer has the experience that Germans 'feel' themselves bigger than the Dutch indeed—which, in fact, they are.

In my experience, the Germans look at the Dutch a little bit like, 'O, yeah, you've got some Patriots too'. Don't forget that the German unit that is there, it's 2.400 people. And it will grow to 3.000 people, just air defence. That's a huge difference with De Peel, which has now over 700 people, and will perhaps grow to 1.000, or maybe a little more. So that's how Germany sees itself a little bit, of course. Germany thinks of itself as the bigger partner in this regard. (#U)

The factual differences in size may officially not be used as an argument in decision-making processes, but are hard to deny. Other officers said that this difference was not strongly felt, with several Dutch officers maintaining that Germany and the Netherlands were equal partners in the cooperation.

In my experience, it never was a 'big brother, little brother' discussion. We were seen as equals, also because in Apollo we were complementary to each other. (#D)

One officer ascribed this to the two German chairmen that were involved.

8.6 Self-sufficiency

This contributing factor concerns the independence from other states in executing desired policies. Earlier, we noted that upholding the principle of non-intervention could be served by military cooperation. But cooperation implies dependence on others, and this comes with vulnerabilities. Especially the factors of self-sufficiency and internal sovereignty make this apparent.

Our research participants were very clear: neither Germany nor the Netherlands are self-sufficient, also not with regard to their military power. In Apollo, the lack of self-sufficiency was felt by Germany during their mission in Mali. They did not have enough personnel, and the cooperation in Project Apollo naturally suggested the possibility of Dutch service personnel joining the mission (see section 6.3.7). But the Netherlands had decided to leave Mali. Discussions at the political level were needed, but this took time:

Are the Netherlands going to offer help, or is Germany going to ask for help? Politics and making decisions... At the work floor, we said 'we'll do it'. I could get the list complete within eight weeks. (#N)

The participant suggested that asking help with a mission of your own can be difficult at the political level. In addition to the irresolution and the legal complexities, it might have been slightly painful to admit the lack of self-

sufficiency in this regard. At the military level, it was fairly easy to make the necessary arrangements.

Strategically, it makes sense to cooperate in air defence with other countries against particular threats. Hypothetically, one could argue for a division of labour between Germany and the Netherlands. For example: the Netherlands could do medium- and short-range capabilities, and Germany take care of the long range and ballistic missile defence (Patriots). If NATO gets involved in a conflict, the SACEUR will decide how to deploy the military assets of the participating countries. Yet, as multiple participants pointed out, countries may worry that they do not get the assets they deem necessary for the protection of their national interests:

Who will tell whether the Netherlands, if it is divided this way, that the Netherlands gets the highest priority to defend objects in the port of Rotterdam or whatever? NATO will decide that, right? So there is always a political reason to maintain assets for yourselves. (#U)

The Netherlands wants to maintain some sovereignty. The Germans as well. And if necessary, be able to do things yourself. (#U)

Task specialisation would affect sovereignty in the sense of self-sufficiency, and possibly also in the sense of autonomy, in a direct way. Countries develop their military usually hoping they do not need to employ them. But if the situation requires military action, and this military action requires military capabilities that only another country has, you depend on the willingness and agreement with other countries to take the military action you deemed necessary. Both countries consider the Patriots to be part of their strategic capacity, and not as tactical assets.

Patriot or submarines or F-35 capacity, those are strategic capacities. At least, this is how the Netherlands sees them. You can use them purely technically or tactically, but this is how the Netherlands sees them, and how it is framed. At the German side that is the same for Patriot, as far as I know. (#D)

Putting a Patriot unit under another nation's command would come at the price of sovereignty, both in the sense of self-sufficiency as well as in the sense of internal sovereignty.

Currently, an interesting case is the Arrow 3-system. It is an exo-atmospheric air defence system against ballistic missiles that could cover almost all of Europe.

Germany bought it nationally. Would it make sense for the Netherlands to buy it nationally as well?

We would put this system, that could cover almost all of Europe, on our small little country. And if all European countries will do such a ridiculous thing [by each individually buying the system, instead of cooperating], we are going to waste a lot of money. (#0)

The scope of this defensive system goes beyond a single country. Self-sufficiency would not only be expensive, but perhaps also unnecessary (and impossible).

8.7 Conclusion

Although Apollo was a relatively small binational project, it was affected by the sovereignty of the countries involved, and it affected their sovereignty as well. Regarding the influence of the various aspects of sovereignty on Project Apollo, the conclusions are mixed. The project was positively affected by sovereignty in the sense of international recognition, because it enabled this binational cooperation in the first place. The project was negatively affected by internal sovereignty, because national decision making prevailed over cooperative decision making, which became particularly apparent during the deployment in Slovakia and the withdrawal of the German part of the BSTF to be sent to Lithuania. A binational project like Apollo might have been affected by sovereignty in the sense of border control, but this seemed to have been a rather neutral factor; it was at most a minor issue that could be solved fairly easily.

Regarding the influence of Project Apollo on the sovereignty of the states involved, sovereignty in the sense of non-intervention was positively affected, because the project became a way for Germany and the Netherlands to maintain their ground-based air defence capabilities, which enable defence against military intervention. A binational military project has a potentially negative influence on state sovereignty, but this seems to have been very limited in Project Apollo. Sovereignty in the sense of self-sufficiency is at odds with certain forms of cooperation, like task specialisation, but this was not really at issue in Project Apollo. Moreover, a binational project might affect internal sovereignty if one state dominates in the other states' decision making, but this was not really an issue during Project Apollo either. Germany's withdrawal of its contribution to the BSTF-exercise in 2022 did, however, impact the operational plans of the Dutch contingent. And thirdly, although the equality of states can come under some pressure in a binational

cooperation—with a potential negative impact on the smaller state—this was not strongly felt to be the case in this project.

This case illustrates that in thinking about sovereignty in the context of international cooperation, it makes sense to distinguish between the various aspects of sovereignty, and to consider that the direction of influence may go both ways. Moreover, it illustrates how sovereignty is a relevant factor even in relatively small binational cooperation projects.

9 Reviewing Project Apollo: conclusions, discussion, and recommendations

E. Maliepaard & W.T.C. Bisschop

9.1 Introduction

The final chapter of this report aims to contextualise and interpret the findings of the previous chapters. In this report we aim to understand Project Apollo, its structures, processes, and activities (see Kraft 2024a, 2024b), as well as its different manifestations (Apollo working group structure, working groups, and Apollo Yellow and Apollo Green as most tangible projects). Every section starts with one of the research questions we introduced in chapter 1. As said before, this study focuses on the original Apollo (see section 4.1) and does not encompass “Apollo 2.0.”

9.2 Contextualisation of Project Apollo

In this section we answer research question 1: which contextual factors and decisions led to the initiation of Project Apollo?”

The initiation of Project Apollo should be understood in a specific time period in which Western armed forces had shifted their focus from protecting their respective countries and allied territories towards peacekeeping and peace enforcement missions in Africa, the Balkans, and the Middle East. This implied transnationalisation and concentration processes in the armed forces (King, 2005). The deployments were often related to the War on Terror and against non-state combatants who did not have significant aerial threats (e.g. missiles, aircraft, drones). The relevance of cost-intensive ground-based air defence was questioned in these times due to the absence of external threats by state actors. Of course we now know differently, since we have learnt that ground-based air defence is essential in current conflicts such as the war between the Russian Federation and Ukraine and the hostilities in the various Middle East conflicts.

Project Apollo was not *just* a sharing and pooling initiative, role specialisation or a joint force generating initiative (see Miethke, 2020), nor primarily based on legitimacy-motives (see Kraft, 2024a). Project Apollo was understood to be the only way to save the ground-based air defence of the Netherlands and German Armed Forces from the budget cuts in post-Cold War Europe and post-financial crisis Europe. Over the years, the ground-based air defence witnessed substantial budget cuts that had already resulted in diminished capabilities and there were rumours

about the dissolution of all ground-based air defence capabilities. In that sense, by virtue of the fact that German and Dutch ground-based air defence capabilities still exist and are currently expanding, making it a political issue by putting a binational flag on it proved successful.

While financial motivations, i.e. cost-efficiency, were not at the core of Project Apollo, the cooperation and integration between German and Dutch ground-based air defence units could contribute to sharing and pooling (especially for the long range air-defence) and joint force generation (all ranges). Germany's lack of medium range air-defence could be "compensated" by the BSTF and the NASAMS systems that would become available. Joint procurement of new weapon systems was never the primary aim of Project Apollo, despite that German and Dutch systems for, respectively, the short range and medium range were about to reach their end-of-life phase. Shared procurement itself would become a separate working group in the Apollo working group structure, but ambitions were limited to co-writing or exchanging programmes of requirements.

Project Apollo should not be seen independently from the ongoing (and intensifying) cooperation between the German and Netherlands Armed Forces, including the integration of the three combat brigades of the Royal Netherlands Army into the German Army. Both countries have a history of cooperation, including in the domain of long range air-defence. The ground-based air defence world is rather small and could be understood as a small security community (Németh, 2021) that frequently met, and meets, at exercises. It was assumed that Project Apollo could be a "copy-paste" from Project Musketeer and Project Taurus, but that was not true since Project Apollo involved cooperation between the German Luftwaffe and the Royal Netherlands Army, and the cooperation between (former) air force and army units of both armed forces. This resulted into the involvement of different people (from different organisations), a fact that does not necessarily align with the path-dependency, a success factor for multinational military cooperation, according to Németh (2021). Moreover, the organisations involved were already highly complex in themselves (Matthias, 2022).

Legitimacy-based motives for Project Apollo could be identified in the branding of the project as a Lighthouse Project and as an example for binational integration, similar to Tankbatallion 414. This may be related to the ongoing political cooperation between Germany and the Netherlands and the wish to show one's commitment to each other in the military domain. Kraft (2024a) focuses on

political willingness and commitment, but Project Apollo shows the importance of military willingness and commitment to cooperate.

The binational cooperation and integration in Apollo was initiated by (staff) officers in both armed forces, following other (army) projects such as Musketeer and Taurus. It built on a decade-long cooperation in the field of long range air-defence (Patriot) which can be traced back to the Cold War era and intensified after the First Gulf War. The political level was instrumental in creating a supportive situation (Németh, 2021), in particular the relationship between the Dutch and German Ministers of Defence who together identified opportunities for further binational cooperation and integration. Project Apollo was initiated following a series of political and military opportunities. This shows the importance of a key success factor for multinational military cooperation as identified by Németh (2021): personal social ties.

9.3 Key structures, processes, and activities

In this section we answer research question 2: what are the key elements of Project Apollo and how did Apollo develop since the beginning of the project?

Project Apollo

Project Apollo consisted of three levels: (1) the steering group, which met (at least) twice a year, (2) the working groups, which met multiple times a year (depending on the workload and progress), and (3) individuals who worked on the plans that were made in both the working groups and the steering group. The three-level project functioned quite well, despite the “slow” start in which service members of both countries aimed to get a better grip on the what and how of the ground-based air defence of the other country. The autonomy of the steering group and the working groups was limited by the wider structures and processes—the institutional context of national military organisations, national procedures, and national regulations in which they operated.

Structures are relevant, but not as relevant as processes, if we stick to Kraft’s (2024a) typology. She argues that processes are the framework and support the functioning of structures (i.e. military organisations), but this report shows that in Project Apollo political and military decision-making processes actually create the structures. The Ministers of Defence of the Netherlands and Germany decided to strengthen the German-Netherlands military cooperation, and Project Apollo was supposed to be a lighthouse project for the cooperation between these countries. The BSTF was initiated by senior military leaders to provide a tangible manifestation of

the German-Netherlands military cooperation and to put a visible binational flag on the involved ground-based air defence units. Political and military decision making had a strong governing impact on the binational structures and the effectiveness of these structures. This can be seen in the different working groups. For example, Apollo Blue was “hindered” by national procurement processes, political decision making, and unsynchronised budget or financial planning. Apollo Purple was hindered by connectivity issues, security authorities and so on. Apollo Black was hindered by restructuring processes in the armed forces, lack of technical and operational interoperability and so on.

These processes often took place “above the paygrade” of the military personnel involved. It does not mean that they had no autonomy, but it means that different organisational practices in the German and Dutch military limited the effectiveness of the steering group meetings and the meetings of the different working groups. The national lines, and national chains of command remained in place and limited the decision making potential of the military personnel involved. This contributed to the slow progress and the difficulty to reach objectives.

Through participating in the working groups of Project Apollo, the service members got better insights into the cultural and organisational processes of the “other” military, for example related to mandates, job descriptions and tasks, and hierarchy. This also led to an increase in cultural capital, cultural sensitivity, and understanding of the “other” military organisation. A well-known challenge in military organisations is the constant rotation of military personnel. This “increases the challenge of achieving high coordination, ‘swift trust’, and smooth operation” (Elron et al., 1999, p. 83). Indeed, rotation of service members influenced the stability and smooth cooperation in the working groups as well as the other manifestations of Project Apollo.

Apollo Yellow

In Apollo Yellow, the Dutch 802 squadron, based in Vredepeel, cooperated in Patriot exercises with Patriot units of the German Flugabwehrraketengeschwader 1 (FlaRak Geschwader 1), based in Husum. Apollo Yellow was very much a continuation of the German-Dutch cooperation on Patriot weapon systems that had been in place for over two decades. Both countries were early users of the system, the Netherlands since 1987, and Germany since 1989. Since the end of the Cold War, the number of Patriot systems had been reduced to, respectively, four and twelve at the start of Project Apollo. In 1999, the USA, the Netherlands and

Germany established the Extended Air Defence Task Force (EADTF) to stimulate interoperability and the development of common tactics, techniques, and procedures (TTPs). In 2014, this was transformed into the German-Dutch Competence Centre for Surface Based Air and Missile Defence (CC SBAMD).

Germany and the Netherlands, but also other countries with Patriots, participate in the virtual command post exercise Joint Project Optic Windmill (JPOW) and the live firing on Crete, both bi-annual. Moreover, in Apollo Yellow, a shared CONOPS was developed, the two countries got certified as a binational taskforce, and a Binational Air and Missile Defence Task Force (BAMDTF) was established.

Before Apollo, the Dutch and German Patriot units had taken part in the NATO-operation Active Fence in Turkey, at the border of Syria (2013-2015). During Project Apollo, they were deployed as a binational taskforce, in February 2022, to Sliač air base (Slovakia). There, the level and limits of interoperability between the two countries became particularly clear. Some technical, but mostly legal, commercial, and political factors enabled only limited cooperation with the ICCs, and substantial cooperation if the Dutch systems operated under the German SAMOC (see below).

Apollo Green & BSTF

Apollo Green initially consisted of the exploration of an integration of the German FlaRakGrp 61 into DGLC. This was eventually followed by the actual integration of this German ground-based air defence unit into the Dutch DGLC. Although this may look like an administrative integration, it was decided that a Binational SHORAD Task Force (BSTF) was to be formed to provide ground-based air defence (short and medium range) for a German-led multinational brigade that was offered to the VJTF. The BSTF itself, consisted of the German LeFlaSys platoons (3. Batterie) and the Dutch NASAMS contingent, was understood as a political project that had to make Project Apollo more tangible and concrete. It was a type of political symbolism, despite the conviction that it would have no tactical advantages on the battlefield. Later on the BSTF was expanded with the SWP-Fennek contingent of DGLC.

The objective of the BSTF structure was to integrate the German short range and Dutch medium range ground-based air defence capabilities. The BSTF structure was clear: the commander would be a Dutch major, and his deputy a German major. The battle captain and the battle captain assistant would also be mixed to ensure that service members of both units were represented in the chain of

command. Nevertheless, the BSTF commander had a limited mandate and military personnel of both countries remained part of their respective national chain of command as well as under national laws and regulations. This makes sense, since one of the fundamental principles of multinational military cooperation is to maintain sovereignty over their own armed forces and troops (Van Veldhuizen et al., 2017), but it had a serious influence on the BSTF structure and the functioning of the battery staff, battle staff, and finally the platoons.

Despite the integration objective, full integration never took place. This was due to what Kraft (2024a) calls processes rather than structures. Important processes were: (1) operating different weapon systems, (2) different standard operating procedures, and (3) the lack of C4I interoperability (see also section 9.5). The lower level of interoperability – probably between limited and substantial cooperation – resulted in the decision not to integrate at the lowest level but to cooperate and use each other in their own strength; a decision to maintain effectiveness and a higher level of survivability and effectiveness on the battlefield as the BSTF would be offered to the VJTF. Processes, and the limitations of these processes, led to a different structure of the BSTF: only integration at the battery staff and battle staff level and no integration between the platoons, who worked according to their own Standard Operating Procedures (SOPs). In fairness, this reflects the motto “organise as you fight.”

As both units stayed at their original base, their work activities remained national. The distance between Todendorf and Vredepeel was a significant barrier for actual cooperation beyond the combined exercises. This meant that these exercises were essential to create a well-functioning BSTF and to train the SOPs to certify for the VJTF. National regulations – part of the national-political-juridical context – made it difficult to “train as you fight”, in particular due to the different labour regulations (training allowances versus time-for-time regulations). Differences in national planning cycles made it difficult to plan combined exercises, although most officers argued that they trained *enough*. They trained enough to be effective on the battlefield, but it is questionable whether it created a *real* unit, as unit cohesion partly relies on familiarity and homogeneity of a unit (e.g. Bartone et al., 2002). The conclusion that units with a high level of social cohesion can improve combat readiness dates from analyses of the combat performance of the Wehrmacht (Shills & Janowitz, 1948) and was confirmed later on in work on, among others, the Israeli Defence Forces (e.g. Yagil, 1995). A systematic review on cohesion concluded that cohesion is positively correlated with performance, and in particular group performance (Oliver et al., 1999). Although there is discussion

about the conceptualisation of concepts such as social cohesion and unit cohesion and methodological approaches (see e.g. Brandebo et al., 2022; Schieffer & van der Noll, 2016).

The differences between Germany and the Netherlands in processes like budget cycles, procurement, and preferred weapon systems explain why Flugabwehrraketengruppe 61 was reintegrated in Flarakgeschwader 1. The Netherlands Armed Forces decided to acquire NASAMS 3, an off-the-shelf product, whereas the German Armed Forces already decided to procure systems from the NNbS consortium (including the IRIS-T SLM for medium range). This contributed to the decision to dissolve the current structure. Currently these systems are being implemented in the Netherlands and German Armed Forces. The level of technical and operational interoperability between NASAMS 3 and IRIS-T SLM is a question for the future.

There were no activities (Kraft's (2024a) term for actual operations or deployments) in Apollo Green. But the binational cooperation, and the BSTF in particular, was instrumental for the integration of Dutch service members in the Sense and Warn task of the German ground-based air defence in Gao, Mali. Two service members, an NCO and an officer, of the Netherlands Armed Forces contributed to each rotation of the German unit responsible for the Sense and Warn task which gave them valuable deployment experience and provided respite for the German air defenders. The Dutch service members were trained in Todendorf on the MANTIS weapon system and were integrated into the German detachment. They had to conform to Dutch regulations for their Mali deployment.

Although the BSTF was on a notice-to-move after the certification for the VJTF, they were never deployed as BSTF. The German element was deployed to Lithuania, after the Russian Federation invaded Ukraine, which confirms the influence of the national-political-juridical context, and political and military decision making on the BSTF structure.

Conclusion

Currently the working group structure has come to a standstill. Nevertheless, we can conclude that Project Apollo, as the sum of structures and activities, maintained (but not strengthened) the military effectiveness of the German and Dutch ground-based air defence in a timeframe of reduced relevance of ground-based air defence, shrinking armed forces, and constant budget cuts (see section 9.2). Military effectiveness is here not conceptualised as the output or performance

of militaries or military units (a performance-based notion of military effectiveness), but as the capacity to create military power from existing resources (a process-based notion of military effectiveness) (see Moller, 2016). Project Apollo was the starting position for the current investments and expansion of the ground-based air defence in both countries.

9.4 Impact on day-to-day life

In this section we provide an answer to research question 3: to what extent did Project Apollo influence the day-to-day life of the German and Dutch service members of the ground-based air defence?

The impact of Apollo varied significantly, due to the function and the role of the service members in Apollo and the time period they were (or still are) involved in Project Apollo. The impact was most visible at DGLC which was reinforced by up to 15 German colleagues who participated in the everyday work activities of DGLC, supported the integration of Flugabwehrraketengruppe 61, and provided the link between DGLC/Royal Netherlands Army and Flarakgeschwader 1/German Air Force. They became part of the team and worked the majority of their time for DGLC. The impact of Apollo in Husum was limited due to the small Dutch contingent at Flarakgeschwader 1. It meant that the Dutch military exchange officer in Husum had to blend in even more compared to the German military exchange personnel in Vredepeel who had support from fellow nationals.

The time service members spent on Apollo differed for the various working groups. It was rarely the case that service members spent 100 percent of their time on Apollo. Military personnel involved in Apollo Black had to write and rewrite CONOPS for the BSTF, but at a certain moment this work was finished. Other working groups such as Apollo Blue and Apollo Purple came with more work: exchanging programmes (or sets) of requirements, exploring possibilities for joint procurement, mapping connectivity aspects, and testing solutions to solve the lack of interoperability and interconnectivity between (weapon) systems of the Netherlands and German Armed Forces. Especially in the early phases of these working groups, it took time to get familiar with the content of the work. Nevertheless, despite some successes, these working groups were halted for external reasons.

Regarding the BSTF, which has to be understood as a form of horizontal cooperation (Gareis, 2008), the impact on everyday life was limited for most of the service members. Only for the officers and NCOs in the battery and battle staff, and

a few others who were part of the DGLC staff, the BSTF consumed more time with visits, (preparing) exercises, and keeping the BSTF running. They all considered it a complex and challenging time, but often also as a positive and an interesting experience. Service members in the platoons mostly cooperated during joint exercises and even then the actual cooperation was limited, since the battery staff and battle staff level were the only places of actual integration. Of course, their everyday work and their training of SOPs all took place in the BSTF framework but meaningful interactions between German and Dutch other ranks (privates, corporals) and NCOs at the platoon level were rare.

For the service members involved in the Patriot cooperation, Apollo Yellow did not change the day-to-day life very much. They would meet at the regular exercises and during the deployment. With the aim of cooperation, the technical and especially the legal and commercial obstacles for interoperability could be frustrating and perceived to be unnecessary.

9.5 Interoperability assessment

In this section we provide an answer to research question 4: what was the degree of interoperability reached in Project Apollo? In this section we discuss technical and operational interoperability. Cultural aspects of organisational interoperability will be discussed in section 9.6.

Technical interoperability

Technical interoperability issues can partly be traced back to the manufacturers, commercial interests, and foreign disclosures, but also to differences in configurations of the systems. This means that technical interoperability is not limited to technicalities; it also results from organisational, political, and interpersonal processes. This applies to C4I interoperability and connectivity as well as to the interoperability of weapon systems.

In general, the technical interoperability, including interconnectivity, was at the level of limited cooperation. Despite others (e.g. Baker, 2009) arguing that modern Western armed forces are highly interoperable, the reality is rather different. Especially C4I interoperability was limited, confirming previous studies (Biehl, 2008; Hartel & Chaimberlain, 2000; Lasschuyt & Van Hekken, 2001). Service members had to find ways to make communication work, either by technical work arounds or by using communication systems of both countries with extra personnel in the CPs.

In general, it is technically possible to strengthen interoperability and interconnectivity, but security authorities, foreign disclosures, and commercial interests are important barriers to solve these interoperability issues. Relying on technical solutions is questionable as it implies “repairing” interoperability problems, instead of preventing system interoperability issues from occurring.

The level of technical interoperability was for the Patriots lower than it had been, although this was not due to the Apollo project. This became especially clear during the combined deployment in Slovakia: cooperation at the level of fire units was not possible. The technical differences, however, could be solved with extra work and money. Technical interoperability was mostly constrained by the national-political-juridical context. Since the Netherlands had not brought its accreditation up to date, the two countries were legally prohibited from connecting their systems. Despite some differences in the configurations of the Patriot weapon systems, the operators of both countries can use each other’s systems. Cooperation or even integration at crew-level or at the level of the fire units was felt to be inefficient, mostly because of legal and commercial constraints to sharing information and connecting systems, and because of the small procedural and operational differences that had become entrenched in training. For that reason, the view was widely shared that up to the battalion level, cooperation should only be limited, with countries using their own procedures. At the battalion levels, operating under a SAMOC, binational cooperation could be substantial.

Operational interoperability

Before Project Apollo started, the two countries could operate with their Patriots under the German SAMOC. This has not changed during the project. In principle, this could be viewed as a form of substantial cooperation in the technical domain, if the national political-juridical context does not prevent this (cf. the accreditation troubles). Interestingly, this high level of technical cooperation enables limited cooperation in the operational and organisational domains, because the SAMOC integrates fire units at a battalion level. National procedures would be followed within the fire unit, and at higher levels the German procedures.

Due to the lack of technical and, consequently, operational interoperability in Apollo Green, and the BSTF in particular, the decision was made to cooperate instead of integrate, which was a sensible solution for the nearly incompatible differences between both units. The staff created a CONOPS for the BSTF, but it was not possible nor desirable to create a single SOP for the BSTF as a whole because it

would negatively affect the effectiveness and the survivability of the taskforce. The lack of operational interoperability thus had a profound impact on the cooperation in the BSTF.

The Standard Operating Procedures differed strongly between the 3. Batterie of FlaRakGrp 61 and the NASAMS element of 13 Luchtverdedigingsbatterij. This makes sense as the weapon systems of both units were different and had different objectives (e.g. short range versus medium range, protection of manoeuvre units versus static assets). Beyond SOPs, there is a multitude of other “less significant” or “more mundane” procedures and practices in which the two units differed, despite NATO requirements (e.g. STANAGs). Such “less significant” or “more mundane” procedures and practices shape the functioning of units. They limit substantial cooperation or integration between units on a lower level.

Organisational interoperability

Ground-based air defence units are not necessarily interchangeable from an organisational concept point of view. German ground-based air defence units need to be self-sufficient for a longer time than the Dutch units. This is reflected in the size and makeup of the units. For example, German ground-based air defence units have a more extensive logistics component to be less dependent on other units for repair, maintenance, or spare parts, whereas the Dutch units rely on a support squadron. This different organisational concept was felt, but did not have a major impact on the BSTF structure, since they already functioned relatively independently.

Organisational interoperability was limited in Apollo Yellow and Apollo Green because the service members were stationed at their own bases and mostly met at joint exercises, instead of constantly working together in one location and participating in shared work activities. The structures did not require a high level of organisational interoperability as structures mostly functioned nationally instead of as binational integrated units.

9.6 National and organisational culture

In this section we provide an answer to research question 5: to what extent did national and organisational cultures influence the cooperation in Project Apollo?

We invited our interviewees explicitly to reflect on any cultural differences between Germany and the Netherlands, and between the German and the Netherlands Armed Forces (see Annex I), and for almost all of them this was a live issue.

Germany and the Netherlands are culturally quite similar, especially compared to other NATO countries (e.g. Eastern and Southern European countries). We may wonder whether distinct national cultures exist, but one's geographical background appeared to be relevant. Service members who grew up in East and West Germany were socialised differently, as became apparent in, for example, their English proficiency. That the Dutch service members we interviewed who spoke German well were raised in the German-Dutch border region, suggests that their cultural capital was influenced by their living environment. Language issues influenced cooperation especially at the lower levels: officers were proficient in English, and if difficulties were experienced, they usually shifted to German, since most Dutch officers were able to understand and speak German. The historical military cooperation between Germany and the Netherlands also contributed to Dutch officers' German language proficiency: some of them worked and lived in Germany. Nevertheless, German-Dutch interactions on the lowest level were limited because of the decision to work with single nation platoons – a decision partly influenced by the need to speak the same language to avoid delays in operations.

The German military exchange personnel who were based at DGLC received a robust language course, but this was not necessarily tailored to military jargon. Nevertheless, speaking Dutch was not an issue for most of them, and they spoke it (almost) fluently. Linguistic challenges were overcome by a mixture of English, Dutch, and German.

Organisational cultures were more important, although there is no single German or Dutch military culture. Project Apollo is, in that sense, quite complex. It is not only complex in terms of complex organisations (Matthias, 2022), but also in terms of cultural backgrounds and military socialisation. DGLC consists of both air force (long range air defence) and army units (short and medium range air defence) and personnel, and both were involved in Apollo.

Differences more ingrained in the overall *organisational* culture concerned hierarchy, mandates, (narrow) job descriptions and tasks, leadership styles (and specifically perspectives on mission command). These aspects are all relevant to organisational interoperability. Hierarchy is stronger in the German Armed Forces, and this proved sometimes to be difficult in communication, exercise preparations, meetings, and so on. The hierarchy in the German Armed Forces was mostly felt at officer level, but less felt at the level of the NCO or the other ranks (privates, corporals). In Germany, especially in staff environments, the *Dienstweg* is

highly valued. Hierarchy also relates to limited mandates (which could impair decision making in meetings) and to the strict job descriptions in the German Armed Forces (not being allowed (or feeling allowed) to go beyond one's job description). In the Netherlands Armed Forces, hierarchy and job descriptions are less pronounced, and the use of informal networks in solving problems is more acceptable. Mission command (or *Auftragstaktik*) is not a uniform concept, and it appears that the German and the Netherlands Armed Forces have different perspectives on mission command.

The impact of differences in organisational culture was mostly felt in the working group structure and to a lesser extent in the BSTF and the Patriot cooperation. The short range air defence of the German Air Force originates in the German Army. In that sense, the BSTF was an army-army cooperation with the German short range and the Dutch medium range (and later on expanded with the Dutch SWP-Fennek short range capability) air defence. The troops, i.e. the platoons, remained in their national chain of command. This led to limited cultural interactions between Dutch and German other ranks (privates, corporals) and NCOs. Dutch NCOs described the different positions of NCOs in the German and the Netherlands Armed Forces as a bit of a culture shock, but quickly adapted to the (perceived) differences. NCOs formally have different roles in the armed forces of both countries; NCOs in the Netherlands Armed Forces have a formal advisory role, while this is not the case in the German Armed Forces. Nevertheless, it was said that NCOs were taken seriously on basis of their expertise. The actual distance between officer and NCO was experienced differently, so we cannot draw robust conclusions about the position of the NCO in practice.

Of course, there were some hiccups in the actual cooperation between the platoons and non-commissioned officers of the battery and battle staff. Understanding the organisational culture of the other military organisation helped to accept and deal with cultural differences. In general these were minor challenges. Language was perhaps seen as most challenging, in particular because older Germans and Germans below officer-rank often were less proficient in English. Because most Dutch officers spoke German sufficiently, they used a mixture of German and English to cooperate; German and Dutch service members spoke their own language in national environments.

9.7 Sovereignty

In this section we provide an answer to research question 6: to what extent did the sovereignty of both countries affect Project Apollo and how did Project Apollo affect the sovereignty of both countries?

Although Apollo was a relatively small binational project, it was affected by the sovereignty of the countries involved, and it affected their sovereignty as well.

The project was positively affected by sovereignty in the sense of international recognition, because it enabled this binational cooperation in the first place. Negatively, the project was affected by internal sovereignty, because national decision making prevailed over cooperative decision making, which became particularly apparent during the deployment in Slovakia and the withdrawal of the German part of the BSTF to be sent to Lithuania. A binational project might be affected by sovereignty in the sense of border control, but this seemed to have been a rather neutral factor; it was at most a minor issue that could be solved fairly easily.

Vice versa, concerning the effect of this binational project on the sovereignty of the states involved, Project Apollo positively increased sovereignty in the sense of non-intervention. The Apollo project became a way for Germany and the Netherlands to maintain their ground-based air defence capabilities. The negative impact of Project Apollo on state sovereignty seems to have been very limited. Sovereignty in the sense of self-sufficiency is at odds with certain forms of cooperation, like task specialisation, but this was not really at issue in Project Apollo. And a binational project might affect internal sovereignty, if one state dominates in the other states' decision making, but this was not really an issue during Project Apollo either, although Germany's withdrawal of its contribution to the BSTF-exercise in 2022 impacted the exercise. Thirdly, although the equality of states can come under some pressure in a binational cooperation—with a potential negative impact on the smaller state—this was not strongly felt to be the case in this project.

This case illustrates that in thinking about sovereignty in the context of international cooperation, it makes sense to distinguish between the various aspects of sovereignty, and to consider that the direction of influence may go both ways. Moreover, it illustrates how sovereignty is a relevant factor even in relatively small binational cooperation projects.

9.8 Success factors

In this section we provide an answer to research question 7: what are the main challenges and success factors of Project Apollo?

In the previous sections we discussed the main challenges (i.e. lack of technical, operational, and organisational interoperability, the national-political-juridical context, and a variety of processes discussed in section 9.3). To avoid repetition, we limit ourselves in this section to the main success factors of Project Apollo.

First, and most importantly, the service members and their can-do mentality were a success factor in Project Apollo. They created a functioning working group structure, prepared and trained the BSTF for its NATO certification, and contributed to the cooperation between German and Dutch Patriot units. Creating a new structure implies troubleshooting and learning on the job. The decision to cooperate but not integrate in the BSTF is an example of the realistic approach of the service members involved. Despite being limited by hierarchies, job descriptions, and other factors, the military personnel used Project Apollo, formally and informally, to solve issues and create new synergies. The Dutch contribution to the Warn and Sense mission in Mali is a good example of a “project” because of Project Apollo.

Second, several officers involved were boundary-spanners for the military cooperation between Germany and the Netherlands, and Project Apollo in particular. These key people embodied Project Apollo, fostered a constructive environment, and created support for Project Apollo. They helped to get things going, involve other service members in Apollo, pioneered, solved problems, and, most importantly, connected military personnel of both countries. Some of these key people still have an active role in relation to the initiation of “Apollo 2.0”, whereas others moved on to other positions.

Third, stationing German military exchange personnel at DGLC strengthened connections, prepared the integration of FlaRakGrp 61 in the DGLC chain of command, and contributed to the various structures and processes of Project Apollo (in addition to participating in the everyday work activities at DGLC). It was also a political signal that emphasises the importance the German Air Force attributed to Project Apollo.

Fourth, the language skills of the service members involved helped to smooth the cooperation. German military exchange personnel who were stationed at DGLC

had to learn Dutch and often spoke it (almost) fluently, whereas the Dutch military exchange officer at Flugabwehrraketengeschwader 1 had to speak German. Most Dutch service members involved in the actual cooperation spoke at least sufficient German to interact with German colleagues in case of insufficient proficiency in English of the German colleagues, especially among the older officers and NCOs,.

Fifth, political decision making was instrumental in initiating Project Apollo. Political willingness to further the German-Netherlands military cooperation, and build on existing binational cooperation and integration projects as well as the Common Army Vision, provided the opportunity to not only save the ground-based air defence of both countries, but also provided a general framework for the cooperation in Apollo. This, however, is not to say that the national-political-juridical context provided the right preconditions for the proposed structures and ambitions in Apollo.

9.9 Theoretical discussion

9.9.1 Structures, processes, activities

Some theorists argue that states exist by virtue of their armed forces, because they are an instrument through which states can protect their citizens against external threats (e.g. Gareis, 2008; King, 2005; Moelker et al., 2010). Armed forces, and the use of force, are in principal national matters. States have their own defence politics and armed forces submit to domestic laws. Multinational military cooperation makes this more complex: it may challenge the authority of national governments over their troops, international and defence politics, and national interests.

At the same time, one can argue that currently no single country is able to defend its territories against all external threats, which (in)directly impact the sovereignty of individual countries (King, 2005). Multinational military cooperation (MMC) is not a choice, but a necessity to deter external threats (Lundqvist & Widen, 2016; Van Velthuizen et al., 2017). It is not an end in itself, although it may show commitment to military alliances one participates in (see Kraft, 2024a). Rather, it is a means to generate joint force to provide a realistic deterrence against external actors and thereby to consolidate the absolute power of a state over its territory. MMC may affect the internal sovereignty (superior power to rule and control, create and uphold laws), the self-sufficiency (independence of other states to

design and execute policies) of states and the equality of states (also Bisschop, 2025; Johnson, 2014), but also is affected by these aspects.

Kraft's (2024a, 2024b) differentiation between structures, processes, and activities is helpful to analyse MMC. It is particularly helpful to focus on the underlying processes that often rely heavily on the national-political-judicial context. These processes steer how military organisations are directed, formed, and how they have developed over the years. This means we need to differentiate between (a) processes *within* the structures and (b) processes that exist prior to and/or beyond the structures (e.g. procurement processes). Processes, then, create the framework or preconditions for structures. The preconditions required for a successful structure depend on the type of structure, the tasks within the structure, and the objectives set for the structure (see section 2.3.4).

9.9.2 Interoperability Assessment Model

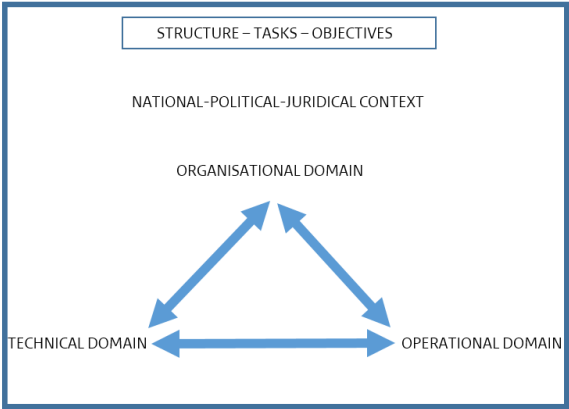
In section 2.3 we discussed the concept of interoperability, criticised existing interoperability models¹¹ (e.g. Moon et al., 2014; NATO, 2023, 2025), and introduced a new model to assess interoperability in three domains and to categorise levels of interoperability in cooperation and integration projects. Our dynamic model (Figure 5 on the next page) focuses on three different elements: (1) the national-political-judicial context, (2) the structure, tasks, and objectives, and (3) the three domains of interoperability.

There is no doubt that the national-political-judicial context (see section 2.3.3) is a significant influence on the start and flow of cooperation projects. Interoperability issues can be mostly traced back to the national-political-judicial context and the decisions made on political and high military (1 star, 3 star) levels. This is by no means all new information, but it is important to explicitly connect interoperability in different domains with this context. Our study shows, similar to other studies, that most interoperability issues are structural, even though they do not affect all cooperation initiatives, or all structures, the same way.

¹¹ We discuss other interoperability models elsewhere. Most of these models focus on technical interoperability (Levels of Information Systems Interoperability Model, the Levels of Conceptual Interoperability Model, and the NATO C3 Technical Architecture Reference Model for Interoperability), one on organisational interoperability (Organisational Interoperability Maturity Model). It is beyond the scope of this report to delve deep into these models here.

The type of structure, its tasks and objectives, can be identified for every cooperation or integration project. Interoperability is not an end in itself, but a means to achieve an end (see also Deni et al., 2025). This “end” is found in the military effectiveness of a structure, its tasks, and objectives. These three aspects already provide a focus on the relevant interoperability domains.

Figure 5: Interoperability assessment model
Own design



The working group structure of Apollo, the BSTF, and the Patriot cooperation in Apollo Yellow were three different structures in which interoperability played an important role. Organisational interoperability was way more important to the working group structure than to Apollo Yellow or the “final” BSTF construct. Apollo Yellow mainly saw challenges in the technical domain, and some in the operational domain, but less in the organisational domain due to it not being relevant for Apollo Yellow, its tasks and objectives. The structure could function under the SAMOC. The BSTF initially consisted of two very different weapon systems that occupied different positions and functions in the AOO, and had their own standard operating procedures. For this reason, it was decided not integrate NASAMS and LeFlaSys, but to cooperate and use each other in their own strengths. This implied a change to the intended structure. This changed structure, with platoons staying in their national chain of command, and an integration of only the battle and battery staff, required less interoperability in all three domains. For example, service members rarely participated in shared work practices due to the new structure, changed objectives, and clearly demarcated tasks: most work practices did not need to be negotiated (see e.g. Barmeyer et al., 2019; Brannen & Salk, 2000; Romani et al., 2011 on negotiated cultures in binational cooperation projects, be it in commercial organisations).

One of the main technical interoperability flaws in the binational military cooperation between the German Armed Forces and the Netherlands Armed Forces is the lack of C4I interoperability. The impact of C4I challenges was mostly felt in the BSTF and the Patriot cooperation, within the operational units, but could not be solved in these structures, nor in Apollo Purple. While we do not agree with Moon et al's (2014) interoperability pyramid and the implication that technical interoperability should be in order before one can work on operational and organisational interoperability, C4I interoperability remains a big challenge for the binational military cooperation between Germany and the Netherlands. This is a defining obstacle in multinational military cooperation between other countries as well, and particularly consequential for cooperation on the lowest levels.

To conclude, as this paragraph has shown, assessing interoperability, and understanding interoperability challenges requires to incorporate the structure, tasks, and objectives to understand which interoperability domains are relevant for the cooperation project, and to what extent. Ignoring the national-political-juridical context would draw a partial picture of the interoperability realities, challenges, and opportunities.

9.9.3 Successful multinational military cooperation projects

In theory, multinational military cooperation projects are initiated for a variety of reasons: maintaining a credible collective defence, enhancing alliance cohesion, reinforcing the transatlantic partnership, strengthening the European position within NATO (Gareis, 2008; also Lundqvist & Widen, 2016; Bisschop, 2025), but we cannot ignore (financial) scarcity (Maliepaard, 2024; Miethke, 2020), and legitimacy-based intentions (Kraft, 2024a) as reasons for multinational military cooperation. From a military point of view, it should always come down to the motive that multinational military cooperation is necessary to provide a realistic defence, and thus, deterrence, against external threats (see e.g. Lundqvist & Widen, 2016), be it joint force generation, military sustainability, or otherwise.

As Apollo was formed in a time of austerity and budget cuts, it is easy to say that Project Apollo helped the ground-based air defence capabilities of both countries to survive. It seems to resemble efforts in Project Taurus to maintain knowledge and experience with the MBT, the Leopard 2 tank, although there was one major difference: Taurus was more about repairing the damage of the governmental decision to sell all tanks and dismantle the tank units (the Royal Netherlands Army officially leases tanks from the German Army and is now in the process to regain tank capacity), whereas in Apollo the binational flag was used to avoid dismantling

the ground-based air defence capabilities. Currently, both the German and Netherlands Armed Forces are expanding their ground-based air defence capabilities and are still able to use the knowledge, expertise, and people to undertake this major task.

The developments of the various working groups have been discussed in section 4.3.4. It is clear that the energy in these working groups went downwards and that the success rate – measured in achieving set goals – differed between them. This was not necessarily due to the service members in these working groups, but to the limits of the working groups, which were determined by processes in the national-political-juridical context or otherwise beyond the Apollo structures. Some of these processes, often framed as challenges, were known beforehand, whereas others, or at least their breadth and depth, were only discovered through Project Apollo. Participants mentioned lessons identified and lessons learnt as wins of Project Apollo. In other words, although not all formulated objectives reached, important insights were gained for future MMC projects. In abstract terms, not meeting effectiveness, efficiency, or reciprocity criteria – as outlined in the German-Netherlands Common Army Vision - in the project itself does not mean that a project does not have added value beyond the project.

Project Apollo, and other binational military cooperation projects, provided insight into the possibilities and limitations of military cooperation. Most importantly, this pertains to the level at which cooperation and integration is feasible, and the structural processes that may frustrate MMC projects. A number of challenges were solved in Apollo, whereas other (more structural) challenges still exist today. According to Zapfe, “if multinational cooperation is to be successful, it should focus on facilitating the inevitable improvisation ” (2015, p. 12). The challenges faced in Project Apollo may help to facilitate the inevitable improvisation in MMC projects, in particular related to the national-political-juridical context.

Was it all worth the cost? What is or was the return on investment? Answers to these questions require the quantification of the gains of the projects and the costs. This should not be limited to actual costs (i.e. labour costs, material costs, and all types of secondary costs) or gains (sharing and pooling benefits), but should be measured against effectiveness, efficiency, and reciprocity.

It may be well that multinational military cooperation is less efficient or effective, compared to working independently (Stelz, 1996). Working independently, of

course, means that armed forces can stick to what they are used to, military personnel and military organisations do not need to get used to the other, they do not need to adapt and service members can use the familiar technologies, systems, procedures, and ways of working. Of course, Project Apollo and its manifestations required extra efforts in getting to know each other, finding ways to work together, and identifying and trying to solve encountered problems.

The question is whether layered air-defence without binational cooperation between Germany and the Netherlands is realistic for the future, seeing it is impossible to tackle all external threats alone. Stelz (1996) poses that most operations are multinational, so it could be fruitful to already train and organise for such multinational operations:

But doesn't it make sense to create cohesive, well trained; and in terms of multinational cooperation, experienced formations now, if we agree with the logic that future operations will require such forces? Even if these forces are not employed exactly in the way they are organised in peacetime, they provide a reliable core upon which to build (Stelz, 1996, p. 2).

This is an argument to focus on effectiveness, efficiency, and reciprocity in times of deployment. There is a fundamental point that it is not possible to examine the actual return on investment. Perhaps we should refuse talking about the successfulness of MMC as either a success story or as a failure, the reality is not black or white. We would suggest to focus on perceived effectiveness, efficiency, and reciprocity of projects, or more specific structures, in battlefield conditions. We believe that a focus on technical, operational, and organisational interoperability should be the core focus to assess the perceived effectiveness, efficiency, and reciprocity.

9.10 Recommendations

Project Apollo will be revived and although Apollo 2.0 will be substantially different from the Apollo working group structure and, working groups, and cooperation between German and Dutch units (Apollo Green, BSTF, Apollo Yellow) analysed in this study, the 1.0 version provides opportunities to learn from the problems the service personnel encountered over the years and implement relevant changes. We formulated several recommendations for Project Apollo 2.0 and for the German-Netherlands military cooperation in general with special attention for hampering structural processes.

9.10.1 Recommendations for the binational military cooperation in ground-based air defence

1) Strengthen the binational cooperation with a new long-term vision and long-term objectives.

The ground-based air defence domain is a small world and both the German and the Netherlands Armed Forces use different expensive capabilities. The existing and previous cooperation between the ground-based air defence of both countries provide a solid base for future cooperation between ground-based air defence units. The integration of Dutch brigades in German divisions, and the intensifying cooperation between the German Army and the Royal Netherlands Army, make it important to formulate a long-term vision and long-term goals for cooperation in the field of ground-based air defence. This is especially the case for the short and medium range, because ground-based air defence offers invaluable capabilities for troop protection against an array of air threats. Furthermore, binational cooperation contributes to the exchange of knowledge, operational procedures, and developing and maintaining professional networks.

2) Facilitate binational cooperation in the national-political-juridical context.

The national-political-juridical context provides the preconditions for cooperation. They influence the technical, operational, and organisational interoperability between the German and Dutch military units and ultimately the effectiveness of the cooperation structure. It is important to review processes that led to challenges in Project Apollo and where possible coordinate and align these processes to strengthen the interoperability and the effectiveness of the cooperation structure. Procurement processes need specific attention because joint procurement improves the technical and operational interoperability, and possibly also the organisational interoperability (see recommendation 5).

3) Continue the binational- cooperation on the short range and medium range air-defence.

Cooperation on the long range air-defence has a long history and will continue, but cooperation on the medium and short range less so. The German and the Netherlands Armed Forces both possess (or will possess) these capabilities. It is advisable to explore possibilities for cooperation between Dutch and German short range units and Dutch and German medium range capabilities as both countries operate in the same or adjective AOO(s). Lessons learnt in Project Apollo should be implemented to provide realistic objectives for cooperation on the short and medium range air defence.

4) Review exchange officer policies.

The German contingent in Vredepeel has been reduced with the reintegration of Flugabwehrraketengruppe 61 in Flugabwehrraketengeschwader 1, but is still substantial. The Netherlands Armed Forces sent only one of the five promised officers to Husum. To strengthen the reciprocity in Project Apollo, it is advisable to expand the Dutch detachment in Husum. Exchange officers might be valuable for the military and political goals of military cooperation, but this is conditional on the possibility to genuinely integrate and contribute to the day-to-day work in the host country. This requires not only clear goals and job descriptions, but also the removing of administrative, legal and regulatory hurdles that impair working in the host country (e.g., with regard to IT-systems). The viability of exchanging personnel must be established beforehand, both regarding the allocation of personnel and regarding their tasks.

5) Make interoperability a priority.

Despite that previous studies concluded that modern western armed forces are highly interoperable, the reality proves different. The required degree of interoperability depends on the structures, tasks, and objectives of cooperation. It seems that for operational units, technical interoperability is the most important challenge. This requires organisational awareness and willingness to synchronise or jointly approach procurement processes – well beyond creating a joint set of requirements.

[9.10.2 Recommendations for the binational military cooperation between Germany and the Netherlands](#)

We also formulated recommendations for the military cooperation between Germany and the Netherlands. The recommendations may be applicable to binational or multinational cooperation and integration between other countries too.

1) Assess the national-political-juridical context to ensure that necessary preconditions are in place.

The military cooperation between Germany and the Netherlands has a long history, dating back to the early Cold War-period. Currently, cooperation between both countries can be found in all branches. It is important to ensure that the preconditions for successful multinational military cooperation are in place to avoid obstacles in the cooperation that could hamper the effectiveness of the binational military cooperation. Most challenges, as discussed in this study and related studies on binational military cooperation (1GNC, Tankbatalion 414), can

be traced to the national-political-juridical context: national politics, national regulations, national interests, and national political and military decision making.

2) Prevent short-term projects in which the return on investment is low. Instead, aim for structures embedded in existing frameworks with a long-term vision and objectives.

Project Apollo proved to be a labour-intensive (and thus cost-intensive) project as service members involved had to get to know each other, develop social and professional connections, and had to pioneer to try making the cooperation and integration projects successful. Furthermore, problems mainly arise *during* the cooperation between, and integration of, structures of the countries involved. These projects take time and should be allowed to mature. A long-term vision and long-term objectives foster a long-term commitment, and make it less dependent on personalities and social ties, which will help the return on investment. Even so, embedding new structures in existing political and military agreements increases the sustainability of these new cooperation (or integrated) structures.

3) Improve technical and operational interoperability by joint procurement of weapon systems and C4I systems.

Service personnel is willing to cooperate and they are able to solve or work around obstacles as Project Apollo and its subprojects Apollo Yellow and Apollo Green have shown. Their can-do mentality is instrumental, but the basic preconditions should be in place to make binational military cooperation successful, in particular when tactical-operational units of both countries cooperate or integrate. Joint procurement may help to solve issues on commercial interests, disclosures, and different “features”, and may save personnel costs and material costs (logistics, maintenance, and spare parts). Interoperability of weapon systems and C4I systems is essential for every cooperation structure.

4) Prioritise military effectiveness over other motives for binational cooperation and integration.

Train as you fight and *organise as your fight* are two guiding principles to prioritise effectiveness of a unit. Binational cooperation and integration should not be an end, for example for political reasons, but should be a means to increase the effectiveness of a unit (or units). Joint force generation, lethality, survivability, and sustainability should have top priority in the design of new cooperation structures. This requires rational decision making over political decision making and balancing the presence, or absence, of the necessary preconditions with the ambitions of new cooperation structures.

5) Avoid integration on the company level.

Currently, integration on the company level seems not realistic. There are currently too many obstacles, related to technical, operational, and organisational interoperability and the national-political-juridical context, that will hamper the military effectiveness of an integrated structure at the company level.

6) Review job rotation for key figures and boundary-spanners in binational cooperation and/or integration structures.

Job rotation is central to military organisations and serves its purposes. Due to the organisational and cultural complexities of bi- or multinational military cooperation, a longer commitment of key figures and boundary-spanners is advisable to get a better understanding of the complexities and therefore increase the possibilities to navigate the organisational (and interpersonal) complexities of binational military cooperation.

7) Invest in cross-cultural education.

Interoperability of the mind, or being culturally sensitive, is important to understand the similarities and differences between military organisations of different countries and to improve cross-cultural leadership (Maliepaard, 2026b). The Royal Netherlands Army is well integrated in the German Army which make it realistic that close cooperation will occur in (joint) exercises, operations, and deployments. Service members in other branches are involved in a variety of binational and multinational cooperation structures as discussed in this and other studies. Courses or modules could be introduced in (non-commissioned) officer education, advanced officer education, as well as in preparation trajectories for military personnel who will occupy functions in bi- or multinational structures (similar to a module on multinational military cooperation to prepare service personnel for deployments).

[9.10.3 Recommendations for future research](#)

To conclude, we propose two new research directions for future research on multinational military cooperation.

1) Study the role of military exchange personnel in (preparing) military cooperation projects and structures.

Militaries exchange military personnel to strengthen military and political cooperation between two countries, or between a country and a multilateral organisation such as NATO. Their contribution to cooperation projects and structures is currently understudied. It is advisable to study the role of military

exchange personnel in (preparing) military cooperation between two or more states. Such a study, most likely based on interviews with (former) military exchange personnel and senior officials involved in cooperation projects and structures, should focus on military, political, and personal benefits for cooperation projects and structures, and challenges encountered by, military exchange personnel that may have hampered (the preparation of) these projects and/or structures.

2) *Compare the job description, responsibilities, and formal and informal status of NCOs in partner countries with those in the Netherlands Armed Forces.*

Non-commissioned officers fulfil essential jobs in armed forces worldwide, as leaders and (often) as advisors to officers. Their specific job descriptions, formal status, and informal status may differ across armed forces. This can impact binational or multinational cooperation at, in particular, the lower levels, for instance during exercises or deployments. It is valuable to understand possible similarities and differences in job descriptions and (in)formal status of NCOS in the Netherlands Armed Forces with NCOS in armed forces of our strategic partners. This could be a mixed methods study using analyses of official documents, observations in tactical units, as well as interviews with NCOs, officers and other ranks (corporals, privates) in these tactical units. Extra information could be obtained by including NCOs who were deployed to multinational missions. An extensive comparison between NCOs in the German Armed Forces and the Netherlands Armed Forces would be a good starting point.

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DGLC een binationale eenheid? Interoperabiliteit en soevereiniteit

Persoonlijke achtergrond

Hoelang en in welke functie(s) ben je zelfverbonden/verbonden geweest aan DGLC of voorlopers? (CLAS of CLSK achtergrond)

In hoeverre heb je ervaring opgedaan met internationale samenwerking vóór je betrokkenheid bij project Apollo? (op uitzending, vredesbedrijfsvoering, in het bijzonder met Duitse militairen/militaire cultuur)

Project Apollo (voor personeel dat met name betrokken is geweest bij de totstandkoming en eerste implementatiefase)

In welke fase(s) en rol(len) ben je betrokken (geweest) bij Project Apollo? (totstandkoming, implementatiefase, recent – welke functie(s). Iets over uitweiden, voorbeelden geven)

Wat hield de samenwerking toen in? Kun je ons daarin meenemen? (ontwikkelen beleid, opzetten nieuwe verbanden, kenniscentrum, opleidingen, procedures ontwikkelen, afstemmen van materieel. Voorbeelden geven). Werkte je daarin veel samen met DEU collega's?

Lukte het om een gezamenlijke doctrine en procedures te schrijven voor inzetten? Is/was er sprake van een duidelijke commandostructuur?

En hoe is de samenwerking nu, anno 2025? Beoordeel je de samenwerking nu anders? (nog niet uitgaande van “einde onder bevelstelling”)

Ervaring met samenwerking in vredesbedrijfsvoering

Wat merk je, of merkte je, van de samenwerking in jouw functie(s)? (Voorbeelden geven)

Hoe heb je die samenwerking in het begin ervaren? En is dat later veranderd?

Is die samenwerking anders dan met Nederlandse collega's? Zo ja, waarin verschilt die? (cultuur, hiërarchie, machtsverhoudingen, werkhouding, taal)

Hoe gaan jullie om met de taalverschillen?

Merk je dat werkwijzen zijn aangepast vergeleken met werken in een “exclusief Nederlandse” eenheid? Kun je voorbeelden hiervan geven vanuit je functie? (bevelsuitgifte, besluitvorming, overleggen, regelgeving, kazerneleven, kantoorleven, anders...)

In hoeverre denk je dat de (huidige) werkwijze het gevolg is van de DEU-NL samenwerking binnen DGLC? Zitten daar bekende Nederlandse, Duitse of nieuwe elementen in?

Zijn werkpraktijken echt geïntegreerd?

In hoeverre zijn er informele besluitvormingsprocessen binnen de samenwerking?

Hoe kijk je zelf aan tegen de samenwerking met Duitse collega's? *Bevalt dat?*

Hoe zit het met het vertrouwen in de DEU collega's?

Interoperabiliteit

In hoeverre is er sprake van een echte samenwerking of integratie, in jouw ervaring? (*soevereiniteit, samen oefenen, samen opleiden, binationale eenheid*)

Wat zijn voor jou überhaupt kenmerken van een goede samenwerking/integratie of interoperabiliteit?

Hoe verloopt de samenwerking tijdens de opleiding en oefeningen? (*wellicht 1 voor 1 bespreken*)?

Is er echt sprake van samen opleiden, samen trainen? (*Denk aan 13 Luverbat Ypenburg en Raketengruppe 61: Bi-National Short Range Air Defence Task Force*)

DGLC zit deels in Vredepeel en deels in Todendorf, wat doet dat met de samenwerking tussen DEU en NL militairen? (*waarom überhaupt met deze eenheid?*)

In geval van een inzet (uitzending, hoofdtak 1 inzet), in hoeverre denk je dat het DHLC hier als een binationale eenheid ingezet kan worden? *Gedacht vanuit de interoperabiliteit? En vanuit de soevereiniteit? Wie beslist over een inzet?*

Toekomst

Wat zijn de grootste uitdagingen van werken in een binationale eenheid?

In de roadmap van Project Apollo staat dat de binationale samenwerking (formeel of informeel) uitgebreid kan worden met andere landen. Is dat werkbaar op basis van je huidige ervaringen? Is het verstandig op basis van je huidige ervaringen? *Waarom wel/niet? (Joint Forces Air Component, Air Defence Artillery)*

Tot slot, Flugabwehrraketengruppe 61 valt nu niet meer onder DGLC, zou je weer opnieuw in een binationale eenheid willen werken?

Informatiebrief binationale samenwerking DGLC

Wat voor onderzoek?

Internationale samenwerking is een gegeven in de werkpraktijk van de Nederlandse krijgsmacht. Vanuit de Nederlandse Defensie Academie vinden wij het belangrijk om de ervaringen van militairen met DEU-NL samenwerking te onderzoeken. Bijvoorbeeld, hoe is de samenwerking ingestoken? In welke rol(len) en hoe heeft u hiermee te maken (gehad)? In hoeverre is er sprake van interoperabiliteit binnen DGLC? Doel is inzicht verkrijgen in de complexiteit van internationale samenwerking en hiermee een bijdrage leveren aan vraagstukken die leven binnen binationale of internationale eenheden.

Hoe werkt het onderzoek?

Dit onderzoek bestaat uit het afnemen van een interview (1- 1,5 uur) waarbij uw ervaringen centraal staan. Het interview wordt opgenomen zodat we alle aandacht bij het gesprek hebben. De opname wordt achteraf uitgeschreven. Voordat het interview van start kan gaan dient u een toestemmingsformulier te ondertekenen, deze nemen wij mee.

Wie kan er meedoen?

In wezen alle militairen van DGLC die te maken hebben met DEU NL samenwerking.

Privacy

Uw privacy is heel belangrijk voor ons. We zullen geen informatie doorspelen aan collega's of leidinggevend. Uw persoonsgegevens en wat u zegt tijdens het interview is enkel toegankelijk voor het onderzoeksteam. In een eindrapportage (*vorm nog onbekend) worden citaten gebruikt uit interviews. Wij gebruiken daarbij pseudoniemen, nooit uw echte naam.

Bewaren van gegevens

De uitgeschreven tekst en uw persoonsgegevens worden, apart van elkaar, versleuteld bewaard. Het toestemmingsformulier wordt fysiek bewaard in een afgesloten kast. Alleen het onderzoeksteam heeft toegang tot uw data die tot 10 jaar na afloop van het onderzoek bewaard worden. De audiofile wordt na uitschrijven binnen twee weken vernietigd.

Vrijwilligheid

Meedoen aan het onderzoek is op basis van vrijwilligheid. Voor aanvang van het interview wordt u gevraagd een toestemmingsformulier in te vullen om uw vrijwillige deelname te bevestigen. Als u tijdens het onderzoek niet meer mee wilt doen kunt u dit tijdens of binnen twee weken na het interview) aangeven.

NLDA Onderzoeksteam

Dit onderzoek wordt uitgevoerd vanuit de Nederlandse Defensie Academie. Het onderzoeksteam bestaat uit dr. Emiel Maliepaard en dr. Wout Bisschop. We werken binnen onze onderzoeksgroep ook samen met militaire collega's, maar niet binnen dit specifieke onderzoek.

Heeft u nog vragen over het onderzoek of uw privacy? Emiel Maliepaard is te bereiken via:

Tel: [censored]

E-Mail: [censored]

Toestemmingsbrief “Binationale samenwerking DGLC” versie 19 feb 2025

Interviewnummer [in te vullen door de interviewer]

Voordat een interview wordt afgenomen dient dit toestemmingsformulier ingevuld te worden, om te documenteren dat u vrijwillig deelneemt aan het onderzoek, toestemming geeft voor een audio-opname van het interview, en dat u akkoord geeft voor anoniem gebruik van uw ervaringen en uw verhaal voor onze (wetenschappelijke) rapportage(s).

Hierbij verklaar ik
[naam participant],
dat ik:

- A) De Informatiebrief “binationale samenwerking DGLC” ontvangen, gelezen en begrepen heb;
- B) De mogelijkheid heb gehad om vragen te stellen en deze beantwoord zijn;
- C) Weet dat deelname op basis van vrijwilligheid is en ik tijdens het interview tot max. twee weken na het interview me mag terugtrekken uit het onderzoek;
- D) Weet dat ik niet verplicht ben om vragen die me gesteld worden te beantwoorden;
- E) Weet dat deelname op basis van anonimiteit is;
- F) Weet dat alleen het onderzoeksteam beschikking heeft over mijn persoonlijke informatie (naam, contactgegevens);
- G) Weet dat het interview wordt opgenomen en hier toestemming voor geef;
- H) Weet dat de audio-opname van het onderzoek beveiligd/versleuteld bewaard wordt, apart van de persoonlijke informatie, en binnen twee weken na uitschrijven van het verslag vernietigd wordt;
- I) Toestemming geef dat de onderzoekers mijn interviewverslag 10 jaar versleuteld bewaren en geanonimiseerd mogen gebruiken voor het onderzoek “Binationale samenwerking DGLC” en (wetenschappelijke) rapportages hierover.

Datum

Handtekening participant:

Naam en handtekening interviewer:

