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Small State Agency in International Relations
Exploring Opportunities for the Netherlands in the Security Relationship
to the United States through Missile Defence

Master's thesis

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Abstract

Technology and innovation offer a unique opportunity for an allied small state to influence the United States. The changing security environment and increased great power competition leads the United States to rely more on its allies, which the latter may use to increase their value to defence cooperation with the U.S. and gain influence on security-oriented decision making. Since, a large part of modern defence strategy is aimed at arriving at innovative, technology-based solutions for complex problems, even system-ineffectual states in alliances may be valuable to the United States and can devise an influencing strategy through an established field of defence research and development paired with other unique selling points they might have. This thesis looks at the Netherlands, a small state with a traditionally strong relationship to the United States, with defence industry potential and proven willingness to contribute to acute defence challenges. The fast evolving, widely carried and technology based field of defence selected is that of Integrated Air and Missile defence (IAMD). Through careful analysis of two regional threats within the great power competition framework and the state of the global missile defence infrastructure that the United States is contributor to, this thesis identifies technical and geopolitical challenges that the Netherlands can help the U.S. overcome in the pursuit of its interests in these regions and in controlling the competition to its dominant position.

Keywords: Integrated air and missile defence; the Netherlands; small state agency; great power competition

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Introduction

Innovation is one of the key principles of any strategic plan as national defence has come to rely heavily on various technologies for efficiency, effectiveness and accuracy. It has always been at the core of power struggles and is a driving factor behind arms races and escalation. One of the most prominent examples in recent history that shaped international relations is the development of nuclear weapons, determining the direction of the Cold War arms race and giving rise to the logic of mutually assured destruction (MAD) (Subrahmanyam, 2010). The great powers of this world, the United States; Russia and China, are typically frontrunners in innovative defence systems as they strive to maintain or improve their position in the overall balance of power which is for now still dominated by the United States. Through institutions and bi- and multilateral treaties, smaller states benefit from American protection against adversaries, security cooperation within the North Atlantic Treaty Organisation (NATO) being the most prominent example. However, the time for the European NATO members has come to want to change this relationship to the United States and gain more influence on its leaders' policy decisions due to the effect that American domestic politics can have on the security of these states. For example, the hypothetical situation of the United States leaving NATO, a topic covered in a paper by the International Institute for Strategic Studies (IISS) published in April 2019.

The IISS reflected on the consequences for the protection of the global sea lanes of communication (SLOCs) and the defence of European NATO territory against Russian occupation. The paper argued that the majority of European armies have ageing, or obsolete materiel equipped at low readiness levels and remarks that “command and control (C2) arrangements prove challenging as well” (IISS, 2019, 4-14). Possibly all consequences of decreased or relatively low defence spending. Looking at numbers published by NATO, in the past 5 years, defence expenditure in European NATO countries and Canada has only increased slightly and defence budgets of the majority of European nations have remained below 2 percent of the gross domestic product (GDP) and below 5 percent of the total government expenditure (Mathis, 2018, 2). Major and Mölling use the term Bonsai Armies to refer to the state of European armed forces: “tiny, pretty and complete, but eventually incapable” (Biscop and Fiott (*eds*), 2013, 13).

This trend is problematic for two intertwined reasons: (1) without American support, declined European armies are not capable of managing some areas of national and European defence and (2) the insufficient defence expenditure causing the decline of European armed forces complicates burden sharing within NATO potentially resulting in the United States partially shifting its attention elsewhere endangering NATO's future.

However, this thesis sets out to explore the complicated relationship between the United States and the relatively smaller European NATO states from a different perspective. It argues that through opportunities associated with technological development and small statehood, size does not always matter, and these aspects can be leveraged to command continued support for the security structures and alliances that small states rely on.

In other words, this thesis investigates how an allied small state can use small statehood and domestic technological development in the field of military defence to fortify its position in joint decision making and gain influence on the United States. Connecting a specific area of technological development with maximizing influence on a great power is not a frequently occurring approach in relevant literature as its absence in the following literature review will demonstrate. Related approaches will be discussed to help narrow down the research objective and identify a case study consisting of a small European NATO member and a topic relying heavily on cooperation with the U.S. and rapid innovation. The literature review explores small state agency in international relations, collects possible influencing techniques previously discovered in academic literature and connects to the burden sharing debate. The remainder of the thesis will be dedicated to interpreting all the factors that need to be taken into account when devising a strategy aimed at influencing the United States through that area of defence.

Literature review

In their 2016 book, Neal and Dreyer discuss the role of middle or small states in the international system which is a relatively new area of scholarship in the study of international relations. During the Cold War, attention was mainly paid to the power struggle between the largest nations. In the book, they divide efforts to measure small statehood into absolute definitions and relative definitions (Neal and Dreyer, 2016, 6). In his work on defining 'the' small state, Maass refers to the same divide in terms of quantitative and qualitative measures. He argues that looking at

population, landmass or gross domestic product (GDP) may lead to rather arbitrary cut offs and generally says very little about strength of government or international position (Maass, 2009, 65-9). For similar reasons, Neal and Dreyer favour defining the concept in a relative manner vis-à-vis other states (Neal and Dreyer, 2016, 6). Keohane adopts a relative analysis in his article based on Rothstein's and Osgood's works on alliances and proposes a four-tiered systemic division: states that are (1) system-determining (super power); (2) system-influencing; (3) system-affecting; (4) system-ineffectual (small power) (Keohane, 1969, 295). Neal and Dreyer add regional and sub-regional levels to their typology of states which leads to a fifth category: the microstate. They assert that whilst small states are weak at global and regional levels, they are stronger than microstates at the sub-regional level but weaker than middle states (Wivel, 2016, 10). For the purposes of this thesis, the systemic understanding of the position of small states is most relevant: this research asserts that states which on their own cannot influence nor affect the system, are able to use their alliance to the United States to this end. Tom Long describes three categories of power that small states can develop to pursue their interests: (1) particular-intrinsic; (2) derivative and (3) collective. The first category is based on leveraging a specific resource, in the broadest sense, to pursue power. Long lists a variety of resources ranging from oil to a strategic geographical location to a combination of material and ideational resources. The second approach is based on the power of social relations through which small states are able participate in policy discussions. Lastly, small states might capitalize on their relationship with each other and bundle their power (Long, 2017, 194-8).

Since this research discusses the potential of technological development to amplify a small state's influence, the emphasis is on Long's first category of power. Further investigation leads to a chapter by Anders Wivel in which he asks how small states can maximize their influence through institutions (Wivel, 2010). He concludes that a successful formula consists of three fundamental aspects: (1) political substance of the national strategy must include at least a partial solution to a problem recognized by all or most relevant political actors; (2) within the strategy, resources should be focused to such a solution and the strategy must portray a willingness to compromise on issues that are not of vital importance to the small state; (3) the small state must be assumed to act independently from any large member's interests (Wivel, 2010, 24-5). In summary, these three aspects describe a strategy aimed at working towards shared interests demonstrating political and

material will without directly playing into the cards of the larger states involved. Therefore, when looking at how a small state can strengthen its position in the relationship to the United States through technological development, it is vital to understand the dynamics of alliances.

Following the first section of the introduction, a large challenge to the relationship within NATO or any pluralistic alliance is burden sharing. In his article, Keohane combines analyses by Robert Rothstein, Mancur Olson and Richard Zeckhauser about the role of small states in alliances and touches upon the burden sharing discussion. Rothstein asserts that small states will argue that due to their size, their actions will not be of any real consequence (Keohane, 1969, 28). Olson and Zeckhauser present a model based on the collective action dilemma: alliance-based defence is a pure public good¹, actors in such an alliance will have the tendency to either free ride² or attempt to produce less whilst still benefitting optimally. However, they are in a sense excluded from the burden sharing debate: large states will have an interest in providing the public good at stake regardless (Olson and Zeckhauser, 1966, 266-279). Most of the contemporary academic literature on burden sharing is based on the academic debates in the late 1980s and early 1990s on collective action, public goods and free riding in NATO. The issue gained prominence with academics and policy makers alike after the relevance of the organisation and its *raison d'être* was subject to questioning at the end of the Cold War (Cimbala and Forster, 2010, 4). John Oneal, writing in 1990, states that the original Olson and Zeckhauser model of burden sharing alliances is losing relevance. Despite his work being slightly dated, one aspect of his analysis of the apparent decline in relative defence burden after the 1960s is still relevant today: nations have become less independent in their defence expenditures. His findings show that in the decades after, European NATO members have moved towards bearing a common defence burden. Moreover, he predicted that this shift will have consequences for America's willingness to bear a disproportionate share of the defence expenditures (Oneal, 1990, 385-402).

The post-Cold War years seem to have confirmed Oneal's hypothesis and have rendered European nations increasingly dependent on the United States and its direction in defence strategy. On the

¹ A public good is defined as a commodity that is indivisible and non-excludable. Consumption neither excludes from consuming nor does it reduce its availability to others (Oneal, 1990, 379).

² Free riding is the act of obtaining a benefit without the usual cost or effort (Merriam-Webster)

other hand, Europe is a vital partner in American defence interests, a relationship that will be analysed in this thesis since its details determine how successful a small state can be in influencing the United States. As Long explains in his work on the great power that small states can wield: “interdependence creates avenues for influence”, a mechanic that works both ways, implying that Long’s second category through which small states can pursue power is inherent to the relationship of European nations to the United States.

Additionally, most European countries have bundled together to ameliorate domestic defences therefore becoming less dependent on external protection and perhaps even balance out the United States. Authors such as Posen and Oswald interpret the Common Security and Defence Policy (CSDP) as a form of soft balancing against the United States or more extremely, a form of hedging against the possibility of American abandonment (Posen, 2006; Oswald 2006). Under the header of the Overarching Strategic Research Agenda (OSRA) the EU coordinates funding and planning of European collaborative research activities which links back to Long’s third approach to small state power: collective pursuit of interests. The next paragraphs will apply Wivel’s conditions for the maximalisation of small state influence on the relevant structures.

To recapitulate, a successful small state invests in partially solving a contemporary shared security problem, shows willingness to invest and compromise and acts independently. Within the European Defence Union (EDU), a term often used to refer to the defence interests of EU member states, influential countries such as France and Germany cooperate towards shared security goals. Other European countries do participate with French and German initiatives but within the European Union there has been strong disagreement regarding the extent of common funding necessary for its CSDP exposing the alliance to similar challenges as NATO. A 2017 study by Beeres and Bollen measured contribution benefits and burdens within the European Defence Union based on ratios like the defence burden to GDP, deployment and deployability and variables like terrorism, imports and exports. They found that six countries are over-contributing to the Union, or in other words, that show willingness to invest in security cooperation. These countries, their net benefit between brackets, are Belgium (-0.11); France (-7.10); Germany (-1.67); Greece (-0.07); Italy (-0.78) and the Netherlands (-1.21) (Beeres and Bollen, 2017). Neal and Dreyer consider the following states in Western Europe to be small states: Austria, Belgium, Denmark, Finland, Greece, Ireland, Luxembourg, the Netherlands, Portugal and Sweden. Italy and Spain are considered middle states and Germany, France, UK as great states. The disparities reported for

Belgium and Greece are less notable, narrowing it down to the Netherlands as a small state showing willingness to contribute.

Further satisfying Wivel's conditions, defence spending amongst the ambitious EDU member states has increased, which also reflects on their contributions to NATO as the main vehicle of Transatlantic relations. However, Major and Mölling comment that only a small portion is allocated to modernization and R&D of "21st- century technology" (Major and Mölling, 2017). The Netherlands ranks fifth in Europe which translates to a defence spending of 1.2 percent of the GDP. This number does not directly suggest equitable burden sharing when held against NATO's 2 percent minimum. More of interest are the numbers reflecting on R&D spending in the respective EDU countries made available by the European parliament. This overview shows that 9 out of 27 member states of which data is available spend less than a million euro on R&D, 12 spend between 1 million and 50 million euro. The remaining six, consisting of the U.K., France, Germany, Spain, Sweden and the Netherlands spend more than a 100 million euro. Four of these are considered relatively large countries with large defence budget. Sweden is considered a small country, but its defence budget is two times smaller than that of the Netherlands (Global Firepower, 2020). The Netherlands is an outlier in both Beerer and Bollen's research and the European parliament's overview of European defence expenditure.

Finally, with the case study narrowed down to the Netherlands, another look at Long's second category of power highlights the traditionally strong Dutch military relationship to the United States that many observers describe as unique in the European context (Major and Mölling, 2017).³ The main reason being that the majority of imported materiel by the armed forces of the Netherlands, consisting of the Royal Netherlands Army, The Royal Netherlands Navy and Marine Corps, the Royal Netherlands Air Force and the Royal Military Constabulary, is of U.S. origin.⁴ It therefore has the advantage that its systems run the same programs ameliorating communications between U.S. and Dutch troops during missions. In a 1995 research about small state strategy within alliances, van Staden suggests that the Netherlands may use the NATO alliance to pursue

³ Confirmed in conversations with military representatives such as navy attaché Hugo Ammerlaan and army attaché Paul Elverding posted at the Dutch embassy in Washington D.C. in February and March of 2020

⁴ Drawn from conversations with military representatives such as navy attaché Hugo Ammerlaan and army attaché Paul Elverding posted at the Dutch embassy in Washington D.C. in February and March of 2020

their objectives on an extra-regional level of political action. However, in all work discussed up to this point the opportunities technology provides to this end has not been given the attention that the author of this thesis thinks it deserves.

The vessels to communicate ‘collective will’ through NATO contribution are twofold: apart from the 2 percent of the nations’ GDP goal as contribution towards common defence, NATO also strives to rebalance the materially based investments amongst its member countries. The Smart Defence program works towards a “equitable sharing of the defence burden” through “generating modern defence capabilities that the alliance needs, in a more cost-efficient, effective and coherent manner” (NATO, 2017). This tool is aimed at coordinating national defence capability investments to satisfy both the needs of the member nation and the alliance (NATO, 2017). Apart from the key role that the United States plays in NATO, it is also an important strategic security partner to European nations and contributor to joint military operations and annual exercises. Moreover, through the United States, a smaller European state can potentially increase its influence in defence-related decision making. Considering the role innovation plays currently, one could argue that investments made into national security are maximally efficient if they modernise the troops, contribute towards one or more joint security initiatives as the Smart Defence program and satisfy a material need in the bi- an multilateral defence cooperation with the United States.

To develop a better understanding of the role that a small state can fulfil in defence cooperation with the U.S., the final goal of the literature review is to select a specific area of defence cooperation that is relying substantially on new technology and provides opportunities for the Netherlands to establish itself as an important partner to the United States in Europe and at the same time improve its collective security cooperation within the EDU (satisfying Long’s “collective” category) and NATO. A vital part of European defence is underexposed in the OSRA and, despite receiving more attention from Germany, France and other European partners in recent years, is not yet successfully realised through European cooperation structures. Moreover, it has been highlighted by NATO’s Smart Defence programme and touches upon many technology-enabled fields: (ballistic) missile defence.

Before continuing, a note regarding the parentheses around the word ballistic: as this thesis will elaborately explain in the second chapter, ballistic refers to the flight curve of the missile. Since this thesis wants to consider missiles with other flight paths as well as other complex threats associated with missile defence it chooses not to use the limiting term “ballistic” for now unless referring to specific programmes.

Missile defence is suitable to investigate to what extent the Netherlands can use technology for an influencing strategy aimed at the United States for several reasons: firstly, European nations depend on the U.S. for their missile defence systems leaving them exposed to shifts in foreign policy or its position in international cooperation platforms as discussed earlier. Secondly, a review of the European Defence Agency’s so called CapTechs, which all represent a for Europe relevant field of research that is supported through the OSRA, turns up mentions of developing design technologies for ballistic platforms & weapons, the propulsion of missiles, strategic EU non-dependence and radar and sensor technologies reflecting an interest in these capabilities. However, despite sporting the ambition and including it in its planning, on the national level, few of missile defence goals have been realized (EDA, 2017; EDA, 2019a; EDA, 2019b).⁵ Both Germany and France have come up with their own initiatives linked to missile defence. The French are leading a project taskforce consisting of Finland, Italy, the Netherlands and Spain towards a timely warning and interception with space-based theatre surveillance system (TWISTER). Which “promotes the European self-standing ability to contribute to NATO Ballistic-Missile Defence” (Pesco, 2020). This project was approved mid-November of 2019 and sets out to deliver its first multipurpose interceptor after 2030 (Hughes, 2019). In the meantime, Europe will continue to look to the United States for its missile defence. The Initial Operational Capability of NATO BMD was realized in 2016 aimed at defending southern NATO Europe. The joint structure of the program provides an acute opportunity to introduce systems into the American missile defence chain. Finally, effective and efficient missile defence requires multiple technologies operating on different platforms- ground, sea, air and space. All of which are of great consequence to intelligence (collection), surveillance and reconnaissance (ISR) capabilities and have greatly increased the accuracy of terrestrial weapons. The full-scale missile defence chain is described in detail in the first chapter but due to its size, obstacles in developing and maintaining assets and

⁵ Drawn from conversations with former commander in the Navy Kees Boelema Robertus, current director of the Dutch Navy Museum.

geographic relevance leads to missile defence being likely to remain a shared capability and thus offers long term partnership potential.

Rephrasing the research question, this thesis looks at how the Netherlands can use its research in and other abilities pertaining to the field of missile defence to fortify its position in joint decision making and gain influence on the United States.

In review, across the American political spectrum, parties agree on the basics of the burden sharing debate within NATO: the European allies are not contributing their “fair share” and as a result the U.S. cost-benefit ratio is skewed. Questions about burden sharing within international bi- and multilateral security alliances provide an opportunity to small states and should be met proactively. Taking steps towards equalizing the relationship between allies as opposed to merely complying with monetary demands is a way to communicate willingness and strategically increase credibility and value in the partnership. Other resources, such a technology especially when matched with the provision of a certain geographic location could potentially be powerful leveraging tools within international relations, especially if they are focused at working towards solving a shared problem. Among the areas in which Europe largely if not completely depends on the United States and is potentially a burden, is missile defence. Developing European interception capabilities is a lengthy and costly process and it will be a matter of years before any surveillance and interception system is fully operational. However, the missile defence chain is filled with opportunities for technological advancement that European states can contribute to. Some European countries are already frontrunners in research and development. The Netherlands stands out and is an exemplary case for an exploration of how technological advancement can have a place in proactive burden sharing due to its military relationship to the United States.

For this reason, the theoretical framework in the next section will consider the mechanics of the U.S.-NL relationship on a higher level through the concepts of hegemonic power, polarity and balance of power flowing into a theory of what a successful influencing campaign relies on.

Following the formulation of this theory, the first chapter will focus on the political position of the United States in the world and most importantly analyse the threats currently posed to its power position. The second chapter provides an understanding of the mechanics of missile defence, explaining why these systems require strong cooperation and analysing the challenges to the

forward-deployed missile defence systems in Europe. The third chapter zooms in on recent developments pertaining to missile defence and the capabilities of potential adversaries completing the foundation for the fourth chapter which looks at Dutch capabilities and opportunities for the Netherlands to complete the picture of how this small country can improve its strategic position to the United States through technological advancement in missile defence.

This thesis will employ a deductive qualitative approach. In other words, it will develop a theoretical framework based on relevant concepts available in the literature to form a theory and tests the implications of this theory to the qualitative data. Next to the wealth of academic literature published on the topic, this research draws from governmental documents such as strategic plans and white papers. Additionally, several officers within the Dutch military, spokespersons of the Dutch defence community and professors of the Dutch Defence Academy have shared their insights via phone conversations and email exchange.

Theoretical Framework

The following paragraphs explore the main aspect of the presented research objective of this thesis: hegemonic power and couples it to international power relations and the role of alliances in power balancing. The first part examines what hegemony entails both to allied situations and in the struggle for power with other hegemonic powers at which point hegemony is connected to polarity and the world order. The second part theorises on the role of deterrence in the proposed system. In this thesis the terms “superpowers” or “great powers” are used interchangeably and refer to Russia, China and the United States. Whilst other countries are certainly finding their way onto the world stage, these three states are for now recognized as the only superpowers in common literature (Wright, 2017; Mankoff, 2009). When discussing global relations this thesis chooses to only speak of superpowers and others, thus small(er) states.

This first part will develop an eclectic approach to world order resting on critical theory and realism which in many aspects conjures up an imperfect union to accommodate an imperfect world. Academia of the critical theory school often criticise realism for its state-centric thinking, questions the norms and practices that have come into being and contemplates what forces would have the potential to transform the prevailing order (Ferreira, 2018). With its Gramscian roots,

critical theory advocates for recognizing the role of supranational communities in international relations. Noted author within the modern critical school Robert Cox, considers a global political system made up of economically motivated power, originating in the industry, hegemonies and hierarchies. These types of hegemonies cannot be reduced to merely economic and military dominance, they are based on mutually shared understandings and ideas (Cox and Jacobsen, 1977 & Cox 1981, 128 & Bieler and Morton, 2013, 87). Despite missile defence tapping into many leading and shaping concepts of the realist school, the larger system is affected by the transition of power or the great power efforts to emancipate which is based in critical theory. Additionally, as a closer look to hegemony proves, finding common ground between the two schools is more straightforward than previously stated.

The concept of hegemony is where the critical and realist school meet. In critical theory, hegemony is not necessarily linked to offensive dominance but is more a matter of consent or consensual recognition by other groups (Bieler & Morton, 2013, 87). In his book about realism, Joseph builds an understanding of hegemony drawing from Gramscian theory, illuminating the contradictions in Gramsci's work. In Joseph's critical realism, hegemony "deals with issues such as the elaboration of political projects, the articulation of interests, the construction of social alliances, the development of historical blocs, the deployment of state strategies and the initiating of passive revolutions" (Joseph, 2003, 1). Extrapolating the different components, hegemony can be based on surface characteristics such as initiatives to gain a stronger foothold or "deeper" aspects often derived from history and pre-existing economic or political structures. Transitioning away from the status quo, which is otherwise employed to maintain the hegemony, will occur on the surface first before affecting the deeper levels in the long run. The conceptualization of hegemony and the relationships between states this concept describes is closely related to the search after power (Berenskoetter, 2007, 3). What constitutes power is a contested subject within international relations theory and even within the realist school of thought. However, Berenskoetter remarks that the baseline of years of scrutinizing power has been the distribution of military capabilities, recognized by esteemed authors across the decades from Morenau (1960) to Waltz (1979) and Mearsheimer (2001) (Berenskoetter, 2007, 6). More importantly, there is a difference between influence and power in this discussion. Within the sphere of a hegemon, Lasswell and Kaplan speak of influence as "a potential contained in a superior position that lacks the coercive character

of power” (Berenskoetter, 2007, 5). In the more common strands of realism, hegemony is based on the ability to wield unequalled military and in extent political influence in the relationship between a dominant power and subordinates (Mowle & Sacko, 2007, 11). In summary, hegemony is obtained through consent and recognition of the status quo which rests on intellectual and moral leadership, economic power and on the ability to defend and attack (Strange, 1987, 551-7; Bieler & Morton, 2013, 97-8). For the purpose of clarity, countries operating within one system of consent are together considered as one bloc.

The next question is how to look at a relationship when the supremacy of one of the entities is not recognized by the others which moves towards Lasswell and Kaplan’s concept of coercive power. Shared ideological values appear to be a key aspect for consent of leadership just as similar ideas are a good base for relations. When this is not the case, relations turn 2-dimensional. Drawn from the literature presented in the previous paragraph, this means that they revolve around economic and military power to obtain a non-consensual leadership position. These relations emphasize differences rather than similarities. The role of economic power in maintaining geopolitical status within this understanding of relations in the international system is out of scope, the focus is on the military component.

The 2-dimensional system, surpassing relations based on proximity or ideology, is described through the concept of polarity. The post-Cold War era is often referred to as the United States’ unipolar moment or the unipolar world (Brands, 2016; Jervis, 2006, 11). Describing a nation’s position in the world as a ‘moment’ holds that eventually a different world order will emerge. Understanding how the world order might shift requires an understanding of unipolarity which the next paragraph aims to achieve. To be sure, hegemony and unipolarity are treated as two different concepts following the literature (Mowle and Sacko, 2007, 6-16).

Wohlforth finds that pre-eminence outside of a bloc is based on economic and military power and adds that technological development contributes to geopolitical status. He theorizes that if the margins on these components are large enough, one can speak of a unipolar world order (Wohlforth, 1999, 7). However, Huntington remarks that a single superpower world does not equal a unipolar world as a unipolar system would consist of one dominant power and many minor powers. In similar vein, a multipolar world consists of multiple centres of power that are relatively

equal to each other and flawlessly balance each other out in cooperation and competition. Taking this into consideration, Huntington suggests the possibility of a uni-multipolar system consisting of one superpower and several other competing major states (Huntington, 1999). Ikenberry, Mastanduno and Wohlforth further delve into the characteristics of unipolarity and find that unipolars are likely to be revisionist out of fear for losing their advantage in the future. Furthermore, the dominant state provides public goods for which it bears a disproportionate share of the costs as a means to further their values and interests to which Waltz adds that institutions like NATO are an example (Waltz, 2000, 21 & Ikenberry et al., 2009, 13) All together, Ikenberry et al. conclude that the traditional definition of polarity has never been fitting and that the current world order is as unambiguously unipolar as the Cold War system was bipolar (Ikenberry et al., 2009, 10-4). Writing in 1999 and in line with the structural realist thesis, Huntington predicted the start of a multipolar era in the 21st century, partially because unipolarity is the least durable type of world order (Huntington, 1999, 35-7 & Waltz, 2000, 27). Scholars offering a pragmatic view on the possibility of multipolarity include Turner who argues that a multipolar order cannot be achieved as long as hegemon simply denounce unipolarity rather than promoting multipolarity (Turner, 2009, 162-3). Mouffe adds that attempts to universalize the Western rhetoric are misguided just as attempts to spread liberal institutionalism to illiberal societies (Mouffe, 2008, 460-466). Finally, Huntington writes that in any system the most powerful states will have an interest in maintaining the system and other actors will seek to consolidate or increase their influence (Huntington, 1999, 37). These observations combined, it is conceivable that trends of state emancipation or power transition will have consequences for the stability of the world order and for the intensity of alliances within a bloc. Especially in democratically minded groups in which smaller states are automatically consulted in matters of shared security will this increased intensity be visible. This assumption follows from the democratic peace theory: the dominant nation will accommodate the interests of the group's members to avoid members teaming up and resist (Russett, 1985 & Fukuyama, 1992).

Continuing from the point that a purely unipolar world is impossible to maintain it follows that any attempt by superpowers to increase power will be met with a response that balances out the power surplus (Mowle & Sacko, 2007, 31). Balancing strategies may include hard balancing, soft balancing, bandwagoning and hedging. In short, a hard balancing strategy strives to achieve a

state's goals through increasing military capabilities against opponents whilst soft balancing do not directly challenge a state's military power but use non-military tools to achieve power balancing instead (Pape, 2005, 7-10). Bandwagoning is aligning with a potential source of threats and hedging is a combination of these three strategies (Walt, 1987; Schweller, 1994; Ciorciari and Haacke, 2019). What is important to understand is the role of alliances in power balancing as cooperation may strengthen military power and credible deterrence. Through alliances, smaller powers strengthen a great power's geopolitical position either bilaterally or within the framework of an institution. This thesis theorises that herein lies an opportunity for the smaller power to influence the great power's decision making by proving to be a reliable, involved and indispensable partner. Sharing a proportional amount of the burden of deterrence or defence is a way of bolstering one's position in a partnership. For this reason, the second part of this section implements the burden sharing literature and applies it to opportunities for smaller countries within alliances to aid deterrence and defence.

First a few words on how to achieve credible deterrence, a concept elaborately explored by many authors and interwoven with the challenges for international relations that nuclear weapons pose. For Robert Jervis, deterrence has everything to do with military policy, the reciprocity of fear of a strike back after a first strike on which the nuclear deterrence of the Cold War was based (Jervis, 1979, 290). John Mearsheimer applied this concept to more protracted situations like conventional warfare in which he exposes the cost-benefit analysis associated with the consideration of choosing defence over offense: the relevant parties consider the chances of short-term victory too limited to take offensive action (Mearsheimer, 1983, 25). Hence states will attempt to uphold the existing power equilibrium by continuously fortifying their defences. By this logic, the classical idea of deterrence by punishment is complemented by deterrence by denial. Successful deterrence by denial eliminates the other party's gains from the attack that is being deterred (Snyder, 1960, 163). It can be expected that a network of multiple states is more successful in deterring long-distance attacks as a result of geographical location and a larger amount of available materiel and manpower (Leeds, 2003, 427). Such partnerships are met with challenges, one of which is the potential to free ride. Collective action theory explains this behaviour as states being inherently self-interested, rational actors enjoying deterrence as pure public good. Oneal differentiates between deterrence and defence, the former an inclusive good, the latter exclusive. In other words, deterrence is a pure public good whilst defence requires joint effort and is thus impurely public. He concedes that the

line between the two concepts is blurred (Oneal, 1990, 384). Arguably, they meet at the point of deterrence by denial. Presently key to missile defence strategy, denying successful strike ability to natural targets has the potential of shifting the target on any node in the alliance's network (Gallagher, 2019, 33). This entails that a larger area requires defending, ergo a larger burden to carry by the defenders. The objective of sharing this burden is often highly politicised and much discussed in any contemporary security cooperation. Simon Duke explains that burden sharing is hard to quantify, any attempts at measuring costs or standardisation is subject to bias (Duke, 1993, 107-120).

Thus far this theoretical framework has conceptualised hegemony as a relationship of consent, indicating a certain type of relationship between the countries within that specific bloc. A relationship fortified through challenges potentially threatening the security of the collective, the effects of which manifest in the form of bi-and multilateral security cooperation and alliances. Employing the understanding of world politics that realist IR theory provides, it follows that a superpower's aim of power preservation, resisting against emancipation efforts of other great powers, will enhance its interest in cooperation with smaller, like-minded states (that have often consented to the superpower's status as hegemon). The introduction to this thesis showed how relations between the U.S. and European allies is potentially changing hence strengthening one's position relative to the U.S is beneficial for future security cooperation. The introduction also emphasised the attention for innovative defence solutions leading to the idea that technology will provide the opportunity for smaller countries, in the context of this thesis the Netherlands, to gain more influence on joint political and or military efforts with great power nations like the United States. The theory presented follows that the mechanic of gaining influence through technology will work most optimally if the hegemon is met with a substantial challenge to its power position prompting the need for intense cooperation with allies. In other words, a smaller state can practice influence in the relationship with a superpower based on the condition that, outside of the hegemon's bloc, the established world order is subjected to credible challenges that have the potential for emancipation and transformation. This prompts the superpower to balance out the threats, possibly with the help of allies. Internally, the allies must rise to this opportunity and develop a burden sharing strategy that will satisfy the expectations of the superpower.

Chapter 1: Revised Great Power Competition

Changes in the character of international relations have affected American security priorities and its strategic decisions. This chapter tests the theory of revised great power competition introduced at the end of the theoretical framework, the optimal condition under which a small state can influence the United States, and looks at some of the practical implications for the global security environment. It selects two cases that embody security concerns for the United States and provide an opportunity for the Netherlands to contribute to a solution. Understanding the American world view is vital for formulating possible applications of the Dutch missile defence technology and related expertise. Aspects of American policy and strategic thinking and respective positions of fellow superpowers Russia and China are therefore discussed in this chapter and incorporated throughout this thesis. In this chapter, the connection between the challenge that United States perceives to its power and the value it attributes to its allies is indirectly implied and will become more apparent in the second and the fourth chapter. Before continuing with the two short cases: the Russia-Ukraine war and the Crimea invasion and Chinese expansionism into the South China sea, the stage is set to understand the American world view, the foundation of the revised great power competition and ‘novel’ attention for missile defence.

After World War II, Western society rebuilt itself along liberal ideas as it headed into a bipolar power struggle that ended with the dissolution of the Soviet Union (Niblett, 2017,17 & Sempa, 2002, 87). American primacy triumphed and the country developed into the world’s only economic and military superpower for most of the 1990s and 2000s. In the same period, the rate of technological innovation increased rapidly lowering the barrier of participation for smaller states to pursue their ambitions covertly and overtly. Europe consolidated giving rise to American neo-isolationist thinking, arguing that rising economic powers like Germany should share in the defence burden reducing the U.S.’ involvement abroad (Sempa, 2002, 97). The burden sharing rhetoric continued to surface in the policies and speeches of American leaders fuelling the uncertainty surrounding the continued effectiveness of NATO which existence had been questioned after the Cold War (Zanotti, 2011, 2-3). Never were tensions as high as after doubts arose on the United States’ willingness to continue its support to European security. In a much-discussed speech at NATO headquarters, President Donald J. Trump was expected to endorse NATO article 5 on the principle of collective defence. The article states that “an attack against one

ally is considered as an attack against all allies” (NATO, 2019a). Instead, leaders of member countries were met with stern words: “NATO members must finally contribute their fair share and meet their financial obligations” (Domonoske, 2017). Critique on unequal burden sharing within NATO is a sentiment long shared across Republicans and Democrats. During a joint press conference in 2014, former President Obama urged NATO members to allocate their fair share relative to national capacity and to increase their defence spending (Atlantic Council, 2014). The goal of increasing defence spending to 2 percent of the national GDP is a product of the 2014 Wales Summit, just months after Obama’s speech to the NATO members and is frequently referred to by President Trump. The scenario in which the United States withdraws entirely from NATO in the foreseeable future is unlikely since Congress has expressed its support through the 2020 National Defense Authorization Act for the organization after President Trump raised doubts (Congress, 2019, Title XII Subtitle E). However, seriously considering the evidence presented, a complete national strategic plan by any European nation wishing to strengthen its own defences should consider that NATO, as a platform to bolster European defences and achieve credible deterrence, depends “on capability, but also on adversaries’ perception of allies’ collective political will” (Burns and Lute, 2019).

Robert Putnam argued that state leaders are the link between international and domestic politics as they are players in both games (Putnam, 1988, 449). In other words, without proper counterweight, the security position of states within the American hegemony is vulnerable to changes in national leadership. Undoubtedly, the Trump presidency and his government’s isolationist thinking has altered the world’s reaction to the United States and has had consequences for the control of missile proliferation which is discussed more in-depth in the third chapter (Colgan and Keohane, 2017, 36-7 & Segbers, 2018, 4-5). Following the argument posed in the theoretical framework, the unipolar moment that emerged after the ideological and military stand-off with the Soviet Union is highly unstable. As the next paragraphs will explore, contemporary powers contest the world leadership rhetoric that the United States has built since the 1990s.

Contested world views

In the Western hemisphere, the political, economic and social leadership of the United States embodies for the larger part the Gramscian idea of a hegemon. Through its status and the associated alliances, the U.S. hopes to protect its security related interests concerning adversaries. The character of the threat has changed in the last decade according to the 2018 U.S. National Defense Strategy (NDS): “Inter-state strategic competition, not terrorism, is now the primary concern in U.S. national security” (DoD NDS 2018). In the NDS the U.S. Department of Defence shares its analysis of and expectations for the next years of international relations. Together with the 2017 National Security Strategy (NSS) this document is the guideline for the U.S. strategic course under the first term of the Trump administration. The first half of this paragraph presents some of the key objectives and leading topics of both documents.

Unsurprisingly, China and Russia are identified as main power competitors, the NSS emphasises that the United States will respond to its rivals’ attempt to erode American influence, grow their militaries and make economies less fair (NSS, 2017, 2). The NDS adds that these state’s actively attempting to shape the world according to their view of governance: authoritarianism (NDS, 2018, 2). Overall, both documents are critical about the course of the administration’s predecessors and the NSS announces to reinforce American dominance and have a lasting effect on international relations, thus sending a clear message to adversaries (NSS, 2017 & NDS, 2018). Another example of the straightforward language in the documents is the third pillar of the NSS titled “Preserve Peace through Strength” referring to the need to build the military stockpile “to fight, to overpower, and to always, always, always win”(NSS, 2017, 25). Slightly nuancing, the NSS argues that a strong military can convince enemies that aggression against the U.S. will be defeated therefore avoiding violent conflict to break out (NSS, 2017, 26). In other words, the United States seems more than prepared to deter adversaries by denial: the papers pledges to dominance across domains for “today, every domain is contested—air, land, sea, space, and cyberspace” (NDS, 2018, 3). One of the tools of its deterrence by denial strategy, and one of the NSS “priority actions” to enhance, is missile defence (NSS, 2017, 8). The NDS picks up on this action point and emphasises the need for a more lethal and resilient force that maintains U.S. global influence through fast innovation. This entails preparedness for any type of attack including threats of weapons of mass destruction

(WMD). To this objective, the strategy commits to further investments into layered missile defences, disruptive capabilities and C4ISR⁶ (NDS, 2018, 5-6).

The NSS and NDS recognise that certain regional threats require a broad support base and consider allies to be vital to America's political and military ambitions is. The NSS states that "to prevail, our allies and partners must contribute the capabilities, and demonstrate the will to confront shared threats", it therefore urges American allies to "acquire necessary capabilities" and to modernise military equipment (NSS, 2017, 26-8). Trump's foreign policy is mostly based on bilateral relations to exercise more control over the outcomes of the cooperation (Laipson, 2017). That being said, in the pursuit of its regional interests, military security cooperation under NATO is indispensable regardless voiced critique. Among the regions the NSS pays attention to are primary military theatre of China and Russia: the Indo-Pacific and Europe respectively (NSS, 2017, 45-8).

Bound by shared principles, the American-European relationship is traditionally strong. Additionally, the majority of European countries are NATO members and the United States is committed to European defence. In similar vein, the NSS recognises that U.S. homeland security is linked to the security situation in Europe and Russia continues to threaten the Eastern neighbourhood. In response, the U.S. Budget for financial year (FY) 2019 has allocated a 6.3 billion investment toward the European Deterrence Initiative (EDI) in support of the collective defence and security of NATO and its allied enhanced Forward Presence (eFP) program (Office of Management and Budget, 2018, 34). The conflict in Crimea, further illustrating American interests in this region, is featured later in this chapter. The Indo-Pacific in its entirety is a broad region stretching from India over the Pacific to the west coast of the United States. Chinese and American interests in the region meet in the South China Sea, the stage of an increasingly militarised conflict and the second case this chapter discusses.

A third strategic document relevant to this thesis is the U.S. 2019 Missile Defense Review, the contents of which are further explored in the second and third chapter. Pertinent to this chapter is noting that the rhetoric of the U.S. missile defence ambitions has changed extensively between the

⁶ C4ISR stands for Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (NDS, 2018, 6)

2010 review, suggesting a “limited” ballistic missile defence strategy and the latest version aiming at a “robust multi-layered system able to detect and destroy targets beyond ballistic missiles” (Kubiak, 2019). Since NATO BMD development is predominantly driven by U.S. capabilities, Washington sets the direction and the *tone* for the alliance.

As reported earlier, Russia and China resist a United States-dominated world. The following paragraphs give a brief overview of some of the arguments these states are formulating with the aim of grasping their resolve and preparing for the two short case studies featured in this chapter.

The latest Russian military doctrine, dated December 2014, contemplates on the current capacity of NATO, its efforts to expand and the growing arms build-up in European countries as well as the deployment of strategic missile defence systems both conventional and nuclear as main strategic challenges to Russian geopolitical ambitions. Furthermore, it mentions the proliferation of missile technology, global extremism and information and communication technology as risk factors (Putin, 2014, 2-3; Oliker et al., 2015; Trenin, 2014). Writing for Carnegie Russia, David Trenin infers that the U.S. strategic ballistic missile defence aspirations and its prompt global strike (PGS) effort (delivering a conventional precision-guided airstrike) has generated the resolution to not allow the United States to gain superiority through BMD or strategic non-nuclear systems (Trenin, 2014). Oliker et al. with the RAND corporation consider the 2014 doctrine largely similar to its 2010 predecessor. However, the Kremlin notes a more imminent threat to its national security originating from the Western weapon systems and rapidly developing technology. Furthermore, they describe growing security interests in the Arctic as strategic point to cut off access to the North Atlantic referred to as the GIUK gap. Finally, the document mentions the usage conventional weapons for deterrence (Oliker et al., 2015).

The Russian leaders acting on the perceived level of threat have, in part, led, to the American withdrawal from the Intermediate-Range Nuclear Forces (INF) treaty, discussed in the third chapter. The surmise that Russia was in breach of the 1987 treaty banning nuclear and conventional ground-launched ballistic and cruise missiles with ranges of 500 to 5500 kilometres led to it being officially declared void on August 2, 2019 (Kimball, 2019a & Congressional Research Service, 2020, 1). Generally, the U.S.’ withdrawal constitutes a blow to arms control and has consequences for the shape of power balancing and form of deterrence. On the other hand, President Trump

argued that adhering to the treaty would disadvantage the United States with respect to China (Murray, 2019).

Both the United States and Russia are expected to tackle Chinese proliferation head-on (Ellehuus, 2018 & Congressional Research Service, 2020). After observing China's revisionist aims, Sears writes that the state "is increasingly at odds with its official foreign policy of a peaceful rise" (Sears, 2016). A policy that Bijian once characterized as 'driven by capital, technology and resources acquired through peaceful means' (2005). What has changed in the decade between these two articles? Sears points at the escalation of the conflict over the Senkaku/Diaoyu islands and military modernization (Sears, 2016). More elaborately, Sempa explores how China might challenge the U.S. on three levels: diplomatically, militarily and strategically. Looking at the first level, China is investing in regional alliances such as ASEAN after a long period of policies aimed at isolation and non-interference (Sempa, 2002, 116). Non-interference is still an inherent part of the Chinese approach to international relations, however, as Zhao states, economic and security interests move the nation toward cooperation with the aim to enhance its position in relation to Japan and the United States. It is not Chinese security considerations alone that have pushed Beijing to put more emphasis on East Asian cooperation. China's regionalism is a strategic calculation aimed at diminishing U.S. influence in the region through providing not only an alternative source of security to the smaller East Asian countries but also independent import and export markets (Zhao, 2011, 59-60).

The South China Sea conflict is an example of military pressure on the United States via its relationship to other countries in the region. Additionally, China is rapidly fortifying and developing its military arsenal as part of a strategy to match or overtake the United States' superiority in sea, air and space power. Zhao argues in his 2011 article that China could not focus on hard balancing as an arms race against the U.S. would delay economic modernization, one of China's primary goals (Zhao, 2011, 60). However, nearly a decade later shows a China that is moving towards arms build-up and advancing quickly as a result of military modernisation and innovation (Kania, 2019). Featured in China's 2019 defence white paper is a reaction to the United States' security and defence strategies that, as argued in the paper, called for increased military expenditure in nuclear, outer space, cyber and missile defence (Chinese MoD, 2019).

Just as is the case with Russia, the Chinese MOD shares concerns regarding NATO enlargement and deployment in Central and Eastern Europe. This, according to China's logic, has prompted Russia to strengthen its nuclear and non-nuclear capabilities. The white paper further condemns the U.S.-Iran hostilities that have left the Iranian nuclear situation highly unpredictable. Finally, it argues that the deployment of the Terminal High Altitude Area Defence (THAAD) system in the Republic of Korea by the U.S. has "undermined the regional strategic balance and the strategic security interests of regional countries" (Chinese MoD, 2019).

All things considered whether or not these findings imply the successful making of a multipolar world, in reality American military action is checked and reacted to by Russia and China and vice versa. Despite considering each other's development of nuclear and conventional capabilities as a threat, Russia and China have been cooperating against the United States. Turner describes the countries' joint efforts to take a leading position and build a multipolar world order in the 21st century. The 1997 "Joint Russian-Chinese Declaration about a Multipolar World and the Formation of a New World Order" reiterated Primakov's doctrine positing to form a concert of powers to counterbalance American unipolarity, was first among a string of statements emphasizing multipolarity and denouncing U.S. hegemony as part of their "strategic partnership" (Turner, 2009 162-3). In 2001, China and Russia formalized their relationship by co-signing the Sino-Russian Treaty on Good-Neighbourliness, Friendship, and Cooperation, a twenty-year renewable treaty outlining their joint resolve to promote "a just and fair new world order" (Ministry of Foreign Affairs of the People's Republic of China, 2001)

All things together, the United States is continuously confronted with the emancipatory efforts of its fellow superpowers in the pursuit of global and regional ambitions. The following paragraphs zoom in on the selected cases: the Crimean Peninsula and the South China Sea.

Transforming the balance of power

The selected regional conflicts affect the United States on different levels, and each provide unique opportunities for the Netherlands to leverage their missile defence technology. These paragraphs provide a broad understanding of the conflicts and the stakes involved from the point of view of the United States. The second and third chapter will specify the implications for missile defence. The fourth chapter combines these insights with an analysis of the possibilities that Dutch missile defence technology offers to mitigate some of the discovered challenges and increase its influence in security cooperation with the United States.

Crimean Peninsula and the Post-Soviet Space

America's role and interests in the Crimea crisis have varied. In conversation with European counterparts, the now former U.S. secretary of state Rex Tillerson reports that the 2014 Ukraine crisis will continue to prevent the United States and Russia from striking an accord for several reasons. American diplomat and president of the council of Foreign Relations Richard Haass puts three main arguments forward, which will guide this section (Haass, 2017).

Firstly, the invasion of Crimea violates the basis of liberal ideology namely the principle of sovereignty and that borders between countries should not be challenged through military force (Haass, 2017). Academia offer several interpretations to why President Putin ordered the annexation of the Crimean Peninsula. Amongst plausible explanations are the three following arguments: (1) the seizure is an act of defence in response to NATO expansion along the Russian border, (2) it is a project to recapture former territories with an ethnic Russian majority and (3) it is a rash decision after the fall of pro-Russian Ukrainian President Yanukovich (Treisman, 2016, 47). Whilst the undoubtedly rich variety of considerations behind the course of action will stay locked in the minds of Putin and his advisors, the premise for an American reaction is similar in all three scenarios. A nation striving to conserve its dominance will quickly link the offense into the Crimean Peninsula and the manifestation of two new de facto states (the Donetsk Peoples' Republic and the Luhansk Peoples' Republic) to other related conflict areas such as the Republic of Abkhazia, the Pridnestrovian Moldavian Republic (also known as Transnistria), the Republic of South Ossetia and the Nagorny Karabakh Republic. Each of these cases is unique in some respect but a flare up of the pro-Russian or pro-independence movement in these regions will

gravely affect the stability of NATO partner states Armenia, Georgia and Moldova. In her analysis of Russian political and cultural history, Leichtova concludes that a historical characteristic of Russian foreign policy is territorial expansion with the aim to encompass all ethnic Russians (Leichtova, 2014, 12). Moreover, O' Loughlin et al. point at the role of geopolitical context in the survival of these de facto states: increased disagreement between Russia and the United States over the 2008 ABMD plans have aided Russian recognition for Abkhazia and South Ossetia. Similarly, the first and second interpretation of the Russian invasion into Crimea, a response to NATO expansion and recapturing former territories, apply to these Russian outposts as well (O' Loughlin et al., 2016, 429). Lastly, the Black Sea area in which these de facto states are located is of strategic importance to both Russia and the NATO members and is therefore a potential stage for future tensions.

The second and third reason Haass presents in his argument is that Putin's Russia dominates through the use of force utilizing physical, digital and economic means to achieve its objectives (Haass, 2017). He argues that the United States must discourage this type of tactical and strategic thinking to prevent escalation. Moreover, allowing Russia to increase its physical control over the Black Sea area not only negatively affects the deterrent position of the United States in Eastern Europe but also drives allies away and delegitimises the basis of many defence-related treaties which is U.S. protection in case of hostilities. Leichtova stresses the challenges to fully grasping the true intentions of Putin and his government across cultural and ideological circles since Haass writes from an American point of view (Leichtova, 2014, 4). That being said, this thesis analyses the relations between nations from a realist perspective consistent with both the Russian and American approach to international relations. Leichtova explains that Russian advisors to the President pursue foreign policy with realist foundations: they follow zero-sum game logic and view power division in the system through the concepts of balance of power and spheres of influence. Materiel capacities are of great significance in Russian political discourse and foreign policy decisions and finally, the Russian approach views the post-Soviet space as a natural sphere of influence resulting in sovereign interest superseding the boundaries of borders (Leichtova, 2014, 6-21). Despite this understanding of Russian foreign policy thinking, predicting the Putin's actions and reactions remains challenging and subject to many different opinions. Author Serhy Yekelchuk is certain that Putin's Russia is working to revive the empire of the Soviet Union and

its former sphere of influence amongst Eastern European countries (Yekelchuk, 2014, 9). Former president of Georgia Mikheil Saakashvili takes it a step further and warns for possible Russian hostilities towards a non-NATO European nation outside of the ex-Soviet sphere of influence. He argues that Putin is “calling the West’s bluff” by continuously proving that the authorities in Washington D.C. and Brussels are unable or unwilling to act upon lines they draw or warnings they give out (Saakashvili, 2019). These things considered, Eastern European nations with a Soviet past view the invasion into the Crimean Peninsula as a clear warning sign. The fact that Ukraine was invaded after dismantling its nuclear warheads in 1994 as a vote of confidence might discourage other nations to halt their nuclear programs (especially since Iraq and Libya were also invaded after giving these up) (Haass, 2017). These events may seriously harm the confidence in NATO’s support to its partners currently intimidated by Putin’s ambition to rebuild Russia’s regional influence.

Keeping in mind the observations made earlier about American interest in limiting Russia’s influence in Europe to protect its hegemony, Crimea is a strong indication of growing Russian propensity to the use of force and is therefore an obstacle in American relations to ex-Soviet states, nations currently containing de facto states recognized by Russia or supported by its military forces in particular. As early as at the 2007 Munich Security Conference President Putin mentioned the possibility of a renewed Cold War should NATO not involve Russia in its membership decisions or if its allies, especially the United States, continue their attempts to alter Russian internal affairs and domestic politics (Rumer, 2018, 8). The military action into Georgia in the subsequent year demonstrated Putin’s willingness to fortify his words with deeds. The next chapter will demonstrate that indications of a Cold War-like arms race of missile systems are evident from the rate of development of new and improved systems. The remainder of this chapter concludes the section on great power efforts to accumulate territory with Chinese interest in the South China Sea and a short section on relevant threats from rogue states.

The South China Sea dispute

On the surface, the South China Sea conflict perhaps misses a direct link to the strategic interests of the Netherlands. However, China’s off-shore waters defence doctrine, focused at its deterrence capabilities in the maritime domain near its territory, provides an interesting opportunity for the

Netherlands, a maritime power, to add value to American missions. Equally important, the United States holds alliances to some of the countries surrounding the sea. Amongst others Japan, an important ally to the United States missile defence strategy, as will become apparent in the second chapter, who also lays claim to one of the disputed island clusters. Finally, an American response to the dispute is a vital part of the U.S.' pivot to Asia. The next paragraphs attempt to concisely discuss the American interest in the dispute in order to unearth the relevance to the larger argument.

The South China Sea conflict was originally a post-Second World War dispute over territory between China, Indonesia, Malaysia, the Philippines and Vietnam. However, the issue has come to encompass a variety of motivations such as access to trading routes and the presence of various (energy) resources since (Buszynski, 2012, 139). Moreover, the strategic advantage that control over the sea provides is a strong motivation for some of the claimants which is what this section will focus on.

As part of fortifying its great power status, China has developed extensive naval capabilities and strategy for which it requires several naval platforms. The NSS comments that "China seeks to displace the United States in the Indo-Pacific region" (NSS, 2017, 25). Indeed, the Chinese fleet and the growing amount and position of its naval bases is threatening American naval dominance of the Western Pacific (Buszynski, 2012, 145-6). Currently, Hainan Island is the sanctuary for what has been dubbed China's most important strategic naval base not only because it is hosting several surface vessels, anti-aircraft and anti-ship missile platforms and conventional attack and nuclear deterrent submarines but also considering its access to the open sea (Cook, 2017). Furthermore, China has built more than 20 island outposts extending the reach of its missile and radar systems (Power, 2020). Potentially blocking China's access to the waterways surrounding the South China Sea is the dispute with Brunei, Malaysia, the Philippines, Taiwan and Vietnam that each lay a claim on the Spratly archipelago. Control over (some of these) islands can interfere with any vessel on its way to the economically and strategically important Strait of Malacca (Potter, 2012; Buszynski, 2012, 146).

Overall, the Council of Foreign Relations' Global Conflict Tracker categorizes the dispute as worsening and critical to the U.S. (Blackwill, 2020). The first time the United States got actively involved in the matter was after the Chinese Embassy to Washington D.C. requested that the

Obama administration would not interfere. Intervening at that critical point was key in the strategy of denying China to pursue its regional sphere of influence. Altogether, the United States has a multitude of interests in the South China Sea including its concern for the freedom of navigation and sea lanes of communication, the risk of an arms build-up and overpowering naval fleet in the hands of a great power.

The United States' stance on ownership of the Spratlys specifically, is based on other strategic claims by its allies around the sea to avoid serious harm to the credibility of those alliances. It sides with the 2016 decision of the Arbitral Tribunal to corroborate the Philippines claim to the islands (Pompeo, 2020). This official decision is another argument for the United States to condemn Chinese adventurism in the area.

Additionally, Campbell and Andrews from the Chatham House Asia Group argue that recent engagement in the region described as the pivot to Asia is not a rebalance towards- but a rebalance of its power within Asia (Campbell and Andrews, 2013). The Post-Cold War emphasis of American military presence in the Asia-Pacific region based on security alliances, China's growing regional influence and tensions with the Democratic People's Republic of Korea is shifting (Maizland and Xu, 2019; Campbell and Andrews, 2013). In the past three decades, South-Asian nations have experienced major economic growth, built political and strategic institutions for cooperation and some have become regional players relevant to American goals. Thus, accepting China's claim would also undermine U.S. relations to ASEAN members. In this light, Wu Shicun, argues that the United States is using the dispute to create a strong divide in Asia and work towards a military alliance against China. Further evidence is the increased frequency of broad-spectrum operations in the South China Sea region (Shicun, 2019).

The significance China's neighbours attach to the territory dispute will continue to generate low-level crises. So far, these provocations have not led to escalation in the area has been however, the U.S. strategy documents demonstrate that the Trump administration is interested pursuing an active defensive strategy in the sea to (re)establish its deterrent position.

Conclusion

This chapter has reviewed two regional-specific cases with the potential of inciting global consequences. In its strategic documents, the United States is recognizing the renewed great power competition that is forcing its hand in protecting its interests in two theatres. The highlighted conflicts have illustrated the implications of the argument that the United States is facing considerable challenge to its global power position, in this case through the ideological function of hegemony based on maintaining the relationship to and defending its allies. The next chapter will focus more on exploring the material challenges to the American hegemony. The geographically diverse nature of the situation incites American policy makers and strategic planners to enlist the support of its allies in countering potential threats and to increase the flexibility of materiel. For instance, a sea theatre requires key tactical ships and equipment to be deployed in that area when necessary without weakening the defence of other regions depending on the United States. The next two chapters investigate some of the challenges to missile defence that the beforementioned regions are presently confronted with. The final chapter will connect the geopolitical and technical aspects of the current state of missile defence with an analysis of the Dutch capabilities and how these can help mitigate the threats in the European and Asia-Pacific theatres.

Chapter 2: United States-led Integrated Air & Missile Defence

In the 2019 Missile Defense Review (MDR), former acting U.S. secretary of defence expressed the American ambition to create “a more lethal and agile Joint Force, coupled with a more robust system of allied and partner capabilities that are designed to be interoperable with ours, will preserve an international order that is most conducive to peace and prosperity” (MDR, 2019, II). The MDR reflects on the deteriorating global security environment and asserts the need for a layered missile defence system that can “prevent and defeat adversary missile attacks” to the U.S. homeland and the regional theatres of the South China Sea and Eastern Europe (MDR, 2019, II).

The theoretical framework discussed the concept of deterrence by denial. A solid defence against adversary missiles can undermine confidence in their ability to penetrate the shield and achieve their intended political or military objectives. This logic not only applies to the attack itself but also to the threat of a missile attack. In intense competition over capabilities, a lack of transparency might lead to miscalculations and failed deterrence. In that scenario, missile defence limits the chances of a successful strike (MDR, 2019, VII). Missile defence can be divided into three subject areas: (1) the interception of adversary missiles in all phases of flight, referred to as active missile defence; (2) mitigation of consequences of an offensive attack or passive defence and (3) the left of launch strategy aimed to deny the launch of offensive missiles (2019 MDR, X). This thesis focuses on the aspects of active missile defence. A discussion of using the development of missile defence technology to aid the Dutch position in cooperation with the U.S. would not be complete without providing a basic understanding of how missile defence works, adversary capabilities and developments related to missile defence, identifying American and Dutch capabilities and areas that are currently presented with challenges.

This chapter provides the necessary background information that further determines the course of this research. It discusses the general missile defence chain, the different types of missile defence systems and analyses the weaknesses of the global network. The third chapter discusses the trends and developments, including the state of relevant arms control treaties, provides an insight into the missile systems of Russia and China. The fourth chapter will further match the challenges posted by these great power competitors to opportunities for the Netherlands.

Firstly, the conscious decision to avoid the well-known term “ballistic missile defence” was made to allow for the consideration of both air- and ground-based systems with the goal of being as versatile as possible, in line with trends to create hybrid systems effective to a range of situations. Integrated air & missile defence (IAMD) includes systems with a ballistic trajectory (BMD), cruise missiles and defence against unmanned aerial vehicles and other aircraft by means of missiles. Recently, many voices in the American defence circles have urged for moving towards a jointly operated and integrated air and missile defence to counter the emerging complex threat environment. IAMD is frequently viewed upon as the solution to hybrid threats to which attention is paid in the next chapter. It is also the term of choice for American strategic documents such as the Vision 2020, underscoring integrating all U.S. counterair and missile defence assets for nationally coordinated operations and unifying allied capabilities for international missions, which is introduced at the end of this chapter and will serve a role throughout this thesis (Joint Chiefs of Staff, 2013).

The United States developed the first BMD systems (BMDS) in the tension-rich environment of the Cold War which called for rapid development of weapon systems capable of reaching an overseas enemy and fending off long distance attacks. The curved trajectory of ballistic missiles maximizes the distance a missile can cover. The speed the missile obtains from the initial boost phase allows it to gain the altitude necessary to travel above the Earth’s atmosphere. Depending on the type of missile, after three and five minutes its rocket engines stop firing and it transitions from ascend toward its apogee and finally its descend. Ballistic missiles depend on gravity rather than a guidance system to reach their target (Reif, 2019a).

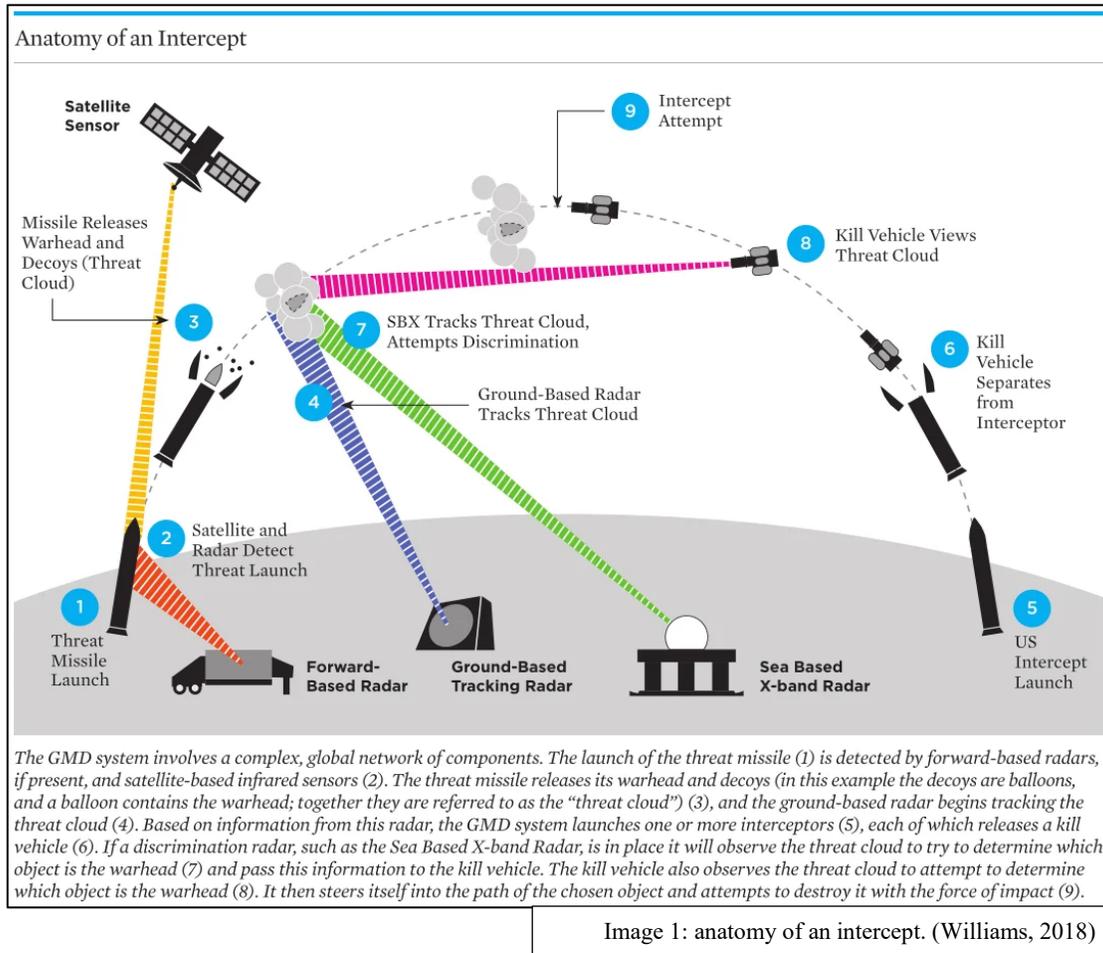
The BMDS are commonly categorized into four classes determined by their range. The first class are the short-range ballistic missiles (SRBM) which can travel up to 1000 kilometres. These missiles are also referred to as tactical or in-theatre although typically a tactical ballistic missile (TBM) has a range up to 300 kilometres and are developed specifically for use on the battlefield. The in-theatre ballistic missile sub-class has a range of less than 3500 kilometres and therefore overlaps with the next categories: the medium-range ballistic missile (MRBM) with a distance between 1000 and 3000 kilometres and the intermediate-range ballistic missile (IRBM) of 3000 up to 5500 kilometres. The last class are the intercontinental ballistic missiles (ICBM) that can

travel distances over 5500 kilometres and are also referred to as strategic ballistic missiles. Finally, some sources consider submarine-launched ballistic missiles (SLBM) to be a separate class, not defined by range but by launch platform (MDAA 2018a). The majority of ballistic missiles are surface-to-surface launched. Cruise missiles can be launched from both ground or sea and air platforms, they remain within the Earth's atmosphere and depend on a targeting or guidance system to reach their targets. Finally, the payload of a missile may consist of a biological, chemical, conventional or nuclear warhead and an opponent will rarely know what a missile is equipped with (MDAA, 2018a).

Focussing more on the defensive side, traditionally most systems are aimed at defending against ballistic missiles, the intercontinental ballistic missiles in particular, since these enable a potential enemy to reach the United States and its allies from afar. However, regional conflicts such as the cases from the first chapter, are forcing the United States to deploy more diverse capabilities to different theatres. This chapter features the most relevant systems aimed at apprehending missile attacks originating from the Eastern European and South China Sea theatres, it discusses their components and the current positions of these components.

Missile defence chain and positioning on allied territory

A complete missile defence system consists of a variety of sensors and interceptors all supported through an international command and control chain. The systems are based on a hit-to-kill philosophy: an interceptor is launched against an inbound enemy missile and releases one or multiple “kill vehicles” or war heads that together make up the payload (MDAA 2018a).



As the “anatomy of an intercept” image shows, the kill chain depends highly on several radars and sensors operating together to track the target, fix and engage. The first phase of detection currently relies on geosynchronous (GEO) satellites and forward-based radars for detection. Geosynchronous refers to the layer of orbit in which these satellites are positioned. The United States Missile Defence Agency (MDA) currently operates two Space Tracking and Surveillance Systems (STSS) which is complemented by a program started in 2014 to develop a network of sensors placed on commercial satellites and two elliptically orbiting satellites (MDA, 2017). The satellite image is supported by forward-based radars: ground-based or sea-based radars that are

placed in-theatre to monitor missile activity in the area. Radars differ in frequency and range: X-band (frequency) radars are popular for smaller vessels since these utilize small antennas. Next-gen stationary and mobile radars are frequently equipped with phased-array technology that can beam out in multiple directions creating a much wider view with higher reliability (MDAA 2018).

Under the Upgraded Early Warning Radar (UEWR) programme the ground-based tracking radars at Thule Air Base in Greenland (Denmark), RAF Fylingdales (United Kingdom) and Beale Air Force Base in California, remnants of the Cold War era, have been equipped with phased-array sensors. The radars at Clear Air Force Station in Alaska, and Cape Cod Air Force Station in Massachusetts are currently pending this upgrade. Together these radars cover the North Pacific Ocean, the North Atlantic Ocean and West-Europe (Williams, 2018). The image below shows the locations of these installations as well as the stationary ground-based interceptors that are located on the U.S west coast, at the Vandenberg Air Force Base in California and Fort Greely in Alaska. To support the (Upgraded) Early Warning radars, several systems have been forward deployed to strategic locations in Europe as part of NATO Active Layered Theatre Ballistic Missile Defence (ALTBMD). The ALTBMD serves to protect strategic points and troops deployed in the area. After the initial roll out, the United States proposed the European Phased Adaptive Approach (EPAA) (NATO, 2019b). The goal of the EPAA is to enhance the protection of all NATO allies in the face of the Iranian missile threat whilst still maintaining the balance of power and not provoking Russia. For this reason, the final phase, deploying BMD systems aimed specifically at intermediate-range and intercontinental missiles, was cancelled in 2013. The first of the remaining three phases was completed in 2011 with the deployment of a ballistic missile defence-capable ship to the Mediterranean Sea, Standard Missile 3 (SM-3) Block 1A and 1B interceptors (the latter has improved optics) designed for short- and medium-range mid-course defence and 4 Aegis-equipped BMD ships. The AN/TPY-2 radar was deployed to the Kürecik air force base in Turkey supporting these interceptor capabilities. The second phase deployed Aegis-Ashore to the air base at Deveselu in Romania equipped with the Aegis SPY-1 and SM-3 interceptors. The third phase is the construction of a Aegis-Ashore site to Redzikowo military base in Poland which has been delayed to 2022 pending both geopolitical and construction challenges (Reif, 2019b; Judson, 2020; NATO, 2016).

The standard version of the SPY radars supports a range up to 310 km, its passive scanning system uses four antennas for a 360-degree coverage. The TPY-2 has a range up to 1000 km and is a transportable X-band radar used in combination with Terminal High Altitude Area Defence (THAAD) units which intercept missiles in the final phase, thus as the target descends (MDAA, 2018b & MDAA, 2018c). Both the AN/TPY-1 and seven AN/SPY-1 equipped Aegis destroyers have been deployed to Japan and were to receive support of two Aegis Ashore ballistic missile defence systems before FY2025. However, in June 2020 Japan decided to suspend the deployment (Hornung, 2020).

Finally, the Patriot Advanced Capability-3 (PAC-3) serves an important role in point defence. This mobile system is equipped to counter tactical ballistic missiles and cruise missiles. It uses a 22km SM-3 interceptor together with the AN/MPQ-65 C-band (passive) phased array radar that can collect signals from aircraft within a 100km range. C-Band is a different frequency than the X-band the TPY-2 operates on (USAASC, 2020). It typically requires a smaller dish but is less detailed than X-band. Through Foreign Military Sales, the PAC-3 has been acquired by, among others, Germany, Japan, South Korea, Netherlands, Poland, Romania, and Taiwan (MDAA, 2018d; Army Technology, 2020).

Image 2 below provides an overview of the assets discussed up until this point. Additionally, it shows the TPY-2 type radar deployed to Israel and to CENTCOM in Qatar to protect U.S. interests in the Middle East.

Not shown in the image are the (relatively) new Aegis Ashore sites in Romania and Poland and the German Air Base Ramstein which is home to the Aegis command centre in Europe and two THAAD launchers were installed in South Korea in 2017 (ISDP et al., 2017).

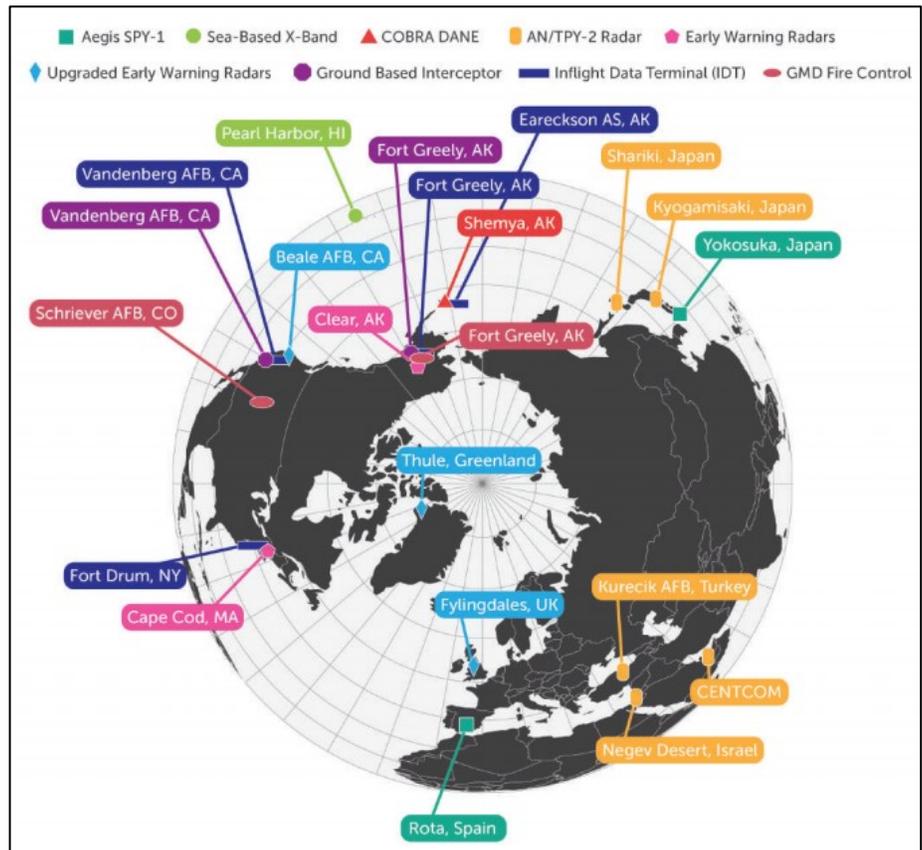


Image 2: U.S Homeland and forward deployed missile defence (Williams, 2018)

As point 8 of image 1 shows, the kill vehicle’s sensors perform the final step in the homing process observing the threat cloud. However, its sensors will observe the 2 metres long warhead as a single pixel at a range of approximately 30 kilometres. Due to the speed of the kill vehicle, this image will only be visible a second before impact. At longer ranges, the temperature of the target provides a potential tool for identifying the warhead in the threat cloud.

In the past decades, the United States has spearheaded missile defence cooperation with its international partners and domestic missile defence technology has greatly improved. Nevertheless, the current state of IAMD is facing challenges to fully protect the American homeland and its interests abroad.

Challenges to United States Integrated Air and Missile Defence

A formidable challenge to a successful intercept is target discrimination, meaning the ability to differentiate between decoys and the actual warhead. The larger phased-array early warning radars including the UEWRs have a range resolution of approximately 5 metres. In other words, these systems cannot discriminate between targets moving within that distance from each other and are thus only capable of providing some rudimentary information about the cross-section of the target. As mentioned before, the range resolution of a kill vehicle is approximately 2 metres at 1 second before impact. Integrating decoys in a tight threat cloud around a missile is relatively simple due to exo-atmospheric conditions such as the lack of wind resistance, intensity of the sunlight and the vacuum of outer space. Light material will survive under the low pressure and high surface temperatures and can easily be manipulated using different surface coatings. Therefore, effective target discrimination requires more detailed imagery and depends on higher resolution radars to observe objects. The sea-based X-band radar and smaller TPY-2 radars have a range resolution of approximately 25 centimetres which, depending on the situation, could be useful in target discrimination. However, rapidly developing sophisticated counter (missile defence) measures demand the integration of high-resolution radars in the near future.

Future versions of the SPY-1 radars also have a discrimination challenge to overcome: whilst these systems can track up to a 100 targets simultaneously, the radar is designed for littoral operations and therefore marks an excessive amount of false targets resulting from clutter on land (MDAA, 2018b).

For now, the layered U.S. BMD network is reliant on the existing higher resolution radars and the need for continuous coverage limits the deployment flexibility of these systems (Missile Defense Project, 2018). As a result, Karako, Rumbaugh and Williams of the CSIS Missile Defense Project observe a target discrimination gap over the Pacific, the Atlantic and strain on the few X-band radars that are not yet deployed (Karako, Rumbaugh, Williams, 2017, XXV). An increase of radar capabilities, sensor types and variety of radar locations would thus be a step in the direction of full and reliable coverage by improving midcourse target discrimination (Karako, Rumbaugh, Williams, 2017, XXVI). Other suggestions towards achieving full trajectory coverage look to satellite capabilities for detection during the boost- and midcourse-phase. Some authors suggest that a 24-satellite network, strategically placed to cover the entire surface of the Earth would be

able to successfully detect and track any missile in the boost- and midcourse phase and could thus form a tool in sensing, tracking and discrimination (Roberts, 2018). However, Thomas Roberts argues that despite such a network will suffice as a basis for boost-phase or space-based missile defence, the satellites would travel in predictable paths, allowing adversaries to identify and take advantage of gaps in coverage. Finally, launching and maintaining a 24-satellite constellation is a costly undertaking and puts a continuous strain on the U.S. defence budget (Roberts, 2018).

The need for enhanced radar and early-detection technology is not the only hurdle to current U.S. IAMD capability. Karako and Rumbaugh identify two additional shortcomings that need to be overcome to appropriately respond to upcoming threats. One of the most important challenges to strong integration is that communication between different batteries runs through a single centralised command and control centre. This stovepiping is causing delays to cooperation between radars of different systems. A related point of attention is the risk of single point failure: a battery often relies on one radar for its information and is not connected to similar radars operating in the target area. A focused attack on a TPY-2 radar would render the entire battery blind (Karako and Rumbaugh, 2018, 10-12). Turning to the actual intercept, the United States finds itself increasingly threatened by long- and medium-range missiles, however it has little experience with testing its exo-atmospheric defences and does not have sufficient information about potential vulnerabilities caused by countermeasures or effective tools to mitigate challenges inherent to operating in outer space (Lewis, 2017, 3-4). One possible solution is to continue developing endo-atmospheric defences, such as the Patriot, and support the larger SM-3 missile with a strong point-defence network. However, the current Patriot and THAAD systems cannot observe the full sky: they provide a 120-degree coverage and face challenges in today's more "cluttered air environment" (Karako and Rumbaugh, 2018, 14).

In most cases, tackling technical restrictions through innovation and expansion produces a whole new set of complications to consider. In a 2015 RAND corporation publication Jaganath Sankaran analyses the performance of the EPAA against its original goal: countering Iranian threats. He concludes that the existing combination of radars and interceptors deployed is indeed capable of countering any current and future Iranian missile aimed at the American airbases in Incirlik and Izmir in Turkey, U.S. base Camp Darby in Italy, Ramstein Air Base in Germany and the naval

base in Rota, Spain but struggles to respond to other imminent threats (Sankaran, 2015, 15-37). He argues that, after the cancelation of Phase 4 in 2013, the implementation of advanced SM-3 IIB interceptors in Poland, there is no capacity to control threats from Russia. This adjustment was made after the Russian administration expressed its concerns regarding its ability to launch its ICBMs at the United States without being intercepted. Sankaran finds that neither the Aegis ships in the North Sea and the Barents Sea nor the interceptors in Deveselu, Romania and Redzikowo, Poland have the capacity to intercept these missiles under realistic time-delay (Sankaran, 2015, 37). Ian Williams, fellow at the Center for Strategic and International Studies, adds that while the current systems are capable of reacting to an Iranian missile attack, the architecture is vulnerable. Heavy reliance on the forward-deployed radars in Turkey may render the entire system exposed to technical malfunction or enemy action (Williams, 2019).

Finally, developments in missiles with a less predictable curve (as opposed to the predictable ballistic missile) demand another look at the effectiveness of geosynchronous detection and the existing radar and interception arsenal. Future missile threats will also include more countermeasures that could be difficult for existing defences to defeat (Lewis, 2017). Extravagant solutions such as a network of more than a hundred low-orbit satellites covering the globe are simply not viable in the foreseeable future (Thompson, 2020).

Conclusion

In 2013, the U.S. Joint Chiefs of Staff formulated a vision 2020 to realise a robust joint IAMD programme that incorporates both defensive and offensive capabilities. The document hints at an evolution of the global security environment which calls for a more elaborate IAMD system capable of handling increases in the quantity and quality of the missile threat (Joint Chiefs of Staff, 2013, 1). The fact that the document takes failure of deterrence into account in itself signifies a transformation within international relations and the position of the United States in the world (Joint Chiefs of Staff, 2013, 3).

The vision 2020 urges that the high cost of developing the necessary parts can only be carried through allied participation and therefore suggests promoting investments into these systems.

In addition to the more technical challenges identified in this chapter, academic literature has pointed out geopolitical challenges to the effectiveness of missile defence. Concessions to the originally planned EPAA were made to appease Russia and preserve the pre-existing balance of power. However, one could argue that since the cancellation of phase 4 in 2013, the balance of power has been affected by several regional developments. The EPAA's goal of not provoking Russia seems to have been not as successful as previously hoped. The American goal of integrating defensive and offensive capabilities will have further consequences for the relationship to the other two superpowers. However, an integrated battle command system to achieve overarching communication provides opportunities for the Dutch armed forces and missile defence industry to integrate its own capabilities with the American system. This chapter was focused on exploring the current setup of the IAMD in the United States and its allies, highlighting some of the internal challenges. It also shows for the level of U.S. dependence on strategically located states. The Netherlands might be able to leverage its geographic location with access to the sea. The next chapter explores developments in missile defence-related treaties directly affecting the global security environment and discusses some of the Chinese and Russian capabilities that pose external challenges to the U.S.-led missile defence shield.

Chapter 3: Failed arms control and growing arsenals

The previous two chapters have worked towards establishing an overview of recent challenges to the position of the United States in the world and the architecture of its current integrated air and missile defence strategy including its weaknesses to overcome. This chapter combines these insights and discusses some of the practical consequences for U.S. homeland security and American interests in the two regional theatres.

One of the ways in which changing relations between the superpowers influence the level of missile threat is through arms control treaties. Within academia the effectiveness of arms control as well as the consequences of failed efforts is often debated. The first paragraph will review these positions and forms its own view on recent developments in the governance of the skies and the missile capabilities of the great powers. The innovative technologies that Chinese and Russian industries are developing are changing the deterrence landscape and effectiveness of American missile defence. Another point of consideration is (potential) adversaries currently acquiring advanced offensive missile capabilities. The second paragraph highlights some of the emerging threats deemed urgent in the American “2019 Missile Defense review” and relates these back to geopolitical tensions, soft spots in the missile defence architecture and the denounced treaties. In conclusion, this chapter paves the way for the fourth and final chapter discussing current and potential future capabilities in the Netherlands and how these can aid American interests in (European) missile defence, how their potential has contributed to strengthen the position of the Netherlands in its partnership with the United States and which challenges there are yet to overcome

Dawn of a new arms control era

Considering most ballistic missiles are capable of carrying conventional and nuclear payloads and it is often impossible for the receiving end to distinguish between the two payloads, the missile threat is controlled through both nuclear and conventional non-proliferation treaties. According to NATO’s definitions, *arms control* is the mutual agreement of “restraints [...] on the development, production, stockpiling, proliferation, deployment and use of troops, small arms, conventional weapons and weapons of mass destruction”. *Non-proliferation* is related but mostly refers to “all efforts to prevent proliferation from occurring, or should it occur, to reverse it by any other means than the use of military force” (NATO, 2020). The two concepts are often used interchangeably,

however, this paragraph focuses on arms control and considers the consequences of the recently denounced INF treaty and the future of the New-START treaty to missile defence cooperation between the United States and its allies.

Arms control efforts are immensely vulnerable to international politics as Colin S. Gray explains. He describes the paradoxes at the core of any arms control effort. He suggests that arms control is essentially based on the common interest of enemies to survive and their fear that their survival is threatened by their enmity. On the other hand, pre-existing (political) hostilities make lasting arms control unachievable since state survival is deeply linked to being stronger than adversaries. Additionally, he states that the idea that an arms race (proliferation) will result in fighting is historically incorrect. The contradiction inextricably linked to arms control efforts is best expressed with the following quote “arms control works when politics are not strongly motivated to break out of its confining embrace” (Gray, 1993, 333-5). These difficulties to long-lasting arms control are for some authors balanced out by the importance for maintaining the peace: Larsen argues that arms control treaties have the potential to make up for the lack of transparency in great power competition. Arms control reduces the risk of war and, as was the case during the Cold War, it may deepen rapprochement between the great powers (Larsen, 2002, 2-11). In other words, changes in international politics translate to tensions in arms control treaties. Periodic reviews or even a complete overhaul of a treaty to include new signatories is necessary and will promote compliance. However, it is vital that negotiations for amending or replacing a treaty between all relevant players commence promptly to preserve the strategic stability (Wilkening, 2002).

The United States is involved in a number of conventional and nuclear arms control efforts applicable to missile defence. More generally speaking, the Nuclear Non-proliferation Treaty attempts to avoid non-nuclear countries acquiring nuclear capabilities which would translate into them acquiring missiles with nuclear payload. More specifically directed at ballistic missiles was the 1972 Anti-Ballistic Missile (ABM) Treaty between the United States and the Soviet Union from which the United States withdrew in 2002. One of the main arguments for withdrawing from the treaty maintained that it was the product of bipolarity and failed to represent 21st century relations. The constraints hurt American (and Russian) ability to respond to newer threats arising from rogue states (Kubbig, 2005, 418). Boese and Kerr, writing a year after the fact, conclude that

despite critique voiced against withdrawing Russia and China did not announce new armament plans (Boese and Kerr, 2003, 24). Igor Ivanov, the Russian minister of foreign affairs between 1998 and 2004, took a more critical stance on the consequences of ABM treaty withdrawal in the years leading up to the fact. He argued that the treaty protected the strategic stability created between the United States and Russia after the Cold War (Ivanov, 2000, 1-2). In this context, Trenin describes strategic stability as “the absence of incentives for any country to launch a first nuclear strike” (Trenin, 2019, 1). Like many authors, he connects the return of great power competition that this thesis observed in chapter 1 to a decline of arms control starting with the withdrawal from the ABM treaty. Kubbjig describes it as a new era of mutual assured destruction cemented by the Strategic Offensive Reduction Treaty (SORT) which reduced the American and Russian strategic nuclear arsenal for the 10 years after the withdrawal from the ABM treaty but did not specify destroying the warheads (Kubbjig, 2005, 423).

The suspension of the Intermediate-Range Nuclear Forces (INF) treaty in February of 2019 is, according to Trenin, the next step in the unfolding imbalance in international relations and circumstances are likely to lead up to the 2010 New Strategic Arms Reduction Treaty (New START) to not be extended at its expiration in 2021 (Trenin, 2019, 3). Talks regarding the renewal of the treaty in 2021 commenced in June of 2020. China was invited to this process but declined, leaving the United States in a precarious position: signing a treaty with Russia limits American flexibility in expanding and deploying its missile capabilities, a flexibility that China possesses as a result of not engaging in this particular treaty.

From a technological point of view, the withdrawal from INF treaty is different from that of the ABM treaty. As Boese and Kerr observed: in 2002 missile defence was not yet proven effective nor were any systems fully developed and deployed. At the time of withdrawing, any offensive missile system could penetrate the opponent’s missile defence (Boese and Kerr, 2003, 24 & Trenin, 2019, 4). Psychologically, the possibility of a missile defence system capable of denying a retaliatory strike sparked insecurity and encouraged investments into enhancing offensive weapons (Trenin, 2019, 4). Contemplating on why Russia chose to violate the conditions of the INF treaty, Jacek Durkalec of the Centre for Global Security Research, suggests that Russia deploying the SSC-8/9M729 intermediate-range ground-launched missile is a product of this need for insurance (Durkalec, 2019). Russia’s role in more than a decade of regional instability and accusations of

non-compliance have deteriorated the global security environment to American and European observers.

The demise of the INF treaty also means intermediate-range and shorter-range missiles may now be armed with a nuclear payload, further heightening suspicion and feelings of insecurity. Audenaert argues this drives division within NATO on the appropriate strategy of engaging or deterring Russia but warns that EU member states are primary targets in a post INF treaty world. He suggests taking advantage of the European industrial base and knowhow to take up a greater share of the missile defence burden referring to what the second chapter showed as well: missile defence in Europe is currently unable to protect European territory from a Russian attack (Audenaert, 2019, 6-7). Speculations on what the end of the INF treaty will mean for the Russian arsenal range from a broader A2/AD strategy aimed at the Baltic region to Russia deploying more theatre-range missiles on land (Simón and Lanoszka, 2020)

Other significant agreements that have collapsed or are close to collapsing are the Joint Comprehensive Plan of Action (JCPOA), otherwise known as the Iran nuclear deal and the Treaty on Open Skies. Under the JCPOA Iran was to dismantle parts of its nuclear programme and make remaining facilities more transparent. Relations with Iran have taken a turn for the worse after the Trump election due to reinstated sanctions, the agreement falling apart in 2018, and the American bombardment killing Qasem Soleimani in January of 2020 (Laub and Robinson, 2020). The Treaty on Open Skies improved transparency by permitting short notice unarmed aerial reconnaissance over the territories of participating states. Explaining the administration's decision, the DoD refers to Russia limiting flights over Kaliningrad and denying a flight over the strategic military exercise Tsentr-2019 of its command and control structure, UAVs and capacity of the Arctic troops (Department of Defense, 2020 & Sukhankin, 2019). The withdrawal seriously impedes the American ability to observe changes in the Eastern European security situation and was taken unilaterally (Sukhankin, 2019).

Largely absent in this text is China's participation in major arms control treaties. China has ratified the Nuclear Non-proliferation treaty and two of the three protocols of the Nuclear Weapon Free Zones: the state has failed to ratify the Southeast Asia Nuclear Weapons free zone treaty. Cimbala

warns for the Thucydides Trap: he predicts that China's growing military and (nuclear) ballistic missile arsenal will at one point actively challenge the hegemonic position of the United States and calls to avoid conflict by bringing China into the U.S.-Russian negotiations for arms control (Cimbala, 2016). However, it is questionable whether the PRC would be willing to give up its flexibility in R&D of missiles and pursuing its ambitions in the Asia-Pacific theatre.

As the international arms control infrastructure is crumbling under the weight of increased great power competition, potential adversaries are responding to the U.S. and NATO missile programmes with suspicion and building their arsenals with innovative countermeasures.

Missile Capabilities and Latest Developments

Potential adversaries are improving their existing missile systems integrating offensive capabilities into their strategic planning and developing unprecedented functionalities (MDR, 2019, 6). In this light, one topic is left to resolve: the technical and psychological aspects of a threat, not yet controlled with the forward-deployed missile capabilities, that is emanating from Russia and the Asia-Pacific comprising China and North-Korea. Audenaert's research pointed out that the Russian threat is acute for European security but as the fourth chapter shall explain, the Netherlands has the means to (indirectly) support American efforts to rebalance the power scale in the Asia Pacific region. The next two sections shed some light on the capabilities of Russia and China with a focus on the most recent additions to their respective arsenals.

Russian Federation

In line with the New START treaty, Russia operates 1550 strategic nuclear warheads and 800 launchers. The remainder of the 6490 nuclear warheads it possesses are, at least until February 5th 2021, not operational or awaiting dismantlement (Davenport, 2019; NTI, 2018). All seven types of Intercontinental Ballistic Missiles can be equipped with a nuclear warhead just like most of the cruise missiles in the Russian arsenal. Since its intervention into Syria in 2015, Russia has executed several long-range precision strikes demonstrating its Kalibr sea-launched cruise missile capability hitting targets from small ships in the Caspian Sea (MDR, 2019, VI; Dalsjö, Berglund and Jonsson, 2019, 39). In 2017, Russia possessed at least 300 ICBMs, and while this number will have increased since, it is for now limited by the New START allowance of 700 (Karako, 2017 & MDR,

2019, IV). Relevant to the situation in Europe are Russia's short- and medium-range capabilities which it can field in the contested areas in Eastern Europe or use to put pressure on NATO allies. An example is the SSC-8 dual-use missile which, Jens Stoltenberg warns, is capable of reaching most major European cities and "lowers the threshold for the use of nuclear weapons" (Garamone, 2020). Another example is the S-350 anti-aircraft unit with a 360 degrees phased array radar and Iskander short-range ballistic missiles fielded in the Leningrad Region, close to the border with Lithuania and Estonia (Marran, 2020). The Russian military is also building up its potential in the Arctic and has the potential of becoming a base for Moscow to threaten targets in the North Atlantic and adjacent seas from a strategic distance (Breitenbauch and Søby Kristensen, 2019). One of NATO's main concerns is the proximity of some systems to strategic points in its ALTBMD programme such as the Iskander missiles that have been deployed to Kaliningrad in close proximity of the base in Redzikowo (Dunai, 2019).

Apart from its offensive strike capability Russia has successfully tested its S-300 and S-400 type air defence systems against conventional missile strikes in February of 2020 and has invested other anti-access and area denial (A2/AD) capabilities (Dalhgren, 2020). The Kaliningrad enclave is likely hosting the S-300 and S-400 systems paired with Pantsir-S surface-to-air missile systems with a maximum range of 40km to intercept tactical aircraft (Dalsjö, Berglund and Jonsson, 2019, 25-7). This system is believed to have been deployed to Donetsk and Luhansk in 2015 (Missile Defense Project, 2020). Several mobile units can be rapidly deployed to an active battlefield and with the recent deployment of the Bastion-P anti-ship system, Russia can hit targets in Germany, Poland and The Baltic states as well as block access to the Baltic Sea (Dalsjö, Berglund and Jonsson, 2019, 25-36).

Russia is developing ASAT capabilities such as the direct-ascent Nudol anti-satellite ground-launched missile, which was allegedly tested in April of 2020, capable of targeting satellites in low Earth orbit. Other means of working towards a well-rounded counterspace capability are the directed-energy weapons. However, most of these systems are still in the early stages of testing. A recent addition to the Russian operational force is the hypersonic boost-glide system which is envisioned as the boost vehicle for the Russian Avangard, an ICBM in service since 2019 (Barrie, 2019). Hypersonic weapons travel at five times the speed of sound, can evade defences and conceal

their targets until seconds before impact (Speier et al., 2017, 8-14). In other words, these weapons combine the maximum speed that ballistic missiles can obtain with the manoeuvrability of cruise missiles. Among other sources, the IIS alerts to an intense offense-defence competition based on the hypersonic's potential to penetrate integrated air and missile defences (IISS, 2020; Barrie, 2019).

Shifting perspectives, the United States has added hypersonic technology to its inventories as well, raising concerns with its competitors. President Trump's emphasis on expanding the U.S. missile defence architecture is severely hampering arms control talks with Russia (Kimball, 2019b). As Barrie writes: "current development paths may invite worst-case scenario assumptions on the part of an opponent" (Kimball, 2019b). From the Russian point of view, NATO is the most eminent threat to its strategic and geopolitical ambitions (MDR, 2019, IV). At the same time, Russia has threatened a nuclear first-strike against the United States and its allies (MDR, 2019, 6). Its military arsenal and dual-capable offensive missile systems are causing high levels of anxiety and insecurity in the Baltic region (MDR, 2019, 6). For this reason, the arguments that Russia presents to increase and advance its offensive capability will continue to hold, at the risk of escalation. In other words, with its geopolitical strategy, of which aspects were discussed in the first chapter, and its efforts to modernise and expand its missile infrastructure, Russia is again a credible challenger to the Western-led world order. The second great power competitor discussed in this chapter is China whose capabilities weigh heavily to the strategic choices made in the American pivot within Asia.

People's Republic of China

Currently not limited by any arms control treaty pertaining specifically to its stockpile, China owns about 290 nuclear warheads (Davenport, 2019). The People's Liberation Army (PLA) is not forthcoming with information regarding its missile arsenal. It has been testing its manoeuvrable DF-ZF hypersonic glide vehicle since 2014 which is compatible with most of its missiles. For instance, with the three types of dual-capable SRBMs that can reach up to 850 kilometres, two types of dual-capable MRBMs (up to 1750km), two IRBMS (up to 4000 km) and finally four nuclear ICBMs. The Dong Feng 31 with a range of 7.000 km covers the entire European territory and the Dong Feng 5 and Dong Feng 41 with a range of 13.000 km and 15.000 km respectively

can reach the United States in 30 minutes (MDAA, 2019). Hainan island is the first strategic point in China's long-range and theatre defence, it hosts a Ship Submersible Ballistic Nuclear base to which the JL-2 SLBMs with a range of 8.400 km have been deployed, capable of reaching Europe. Observers expect the base to be equipped with the next-gen JL-3 SLBM with a range of over 11.000 km which was allegedly tested in June of 2019 (Vavasseur, 2020). Medium- and intermediate-range missiles fielded to Hainan can reach the island of Guam and control vital positions in the South China Sea (Buszynski, 2012, 145-146 and Balasubramaniam & Murugesan, 2020, 99-101).

In the past five years, China has constructed military bases on disputed territory in the South China sea, such as Subi Reef, Fiery Cross Reef and Mischief Reef on the Spratly's and Woody Island on the Paracel Islands, and has deployed a wide arrange of radar, mobile surface-to-air and anti-ship cruise missile systems such as the Russian SS-N-22 and domestic copies (Balasubramaniam & Murugesan, 2020, 100). As explained in the first chapter, the difficult situation in the South China Sea is relevant to the United States in two ways: firstly, its policy is to uphold the freedom of the seas which deems China's claims to the Islands unlawful. Secondly, the economic and military consequences of China establishing control over the sea and its corridors to American commercial vessels and the security of its allies in the region. The focus point of the Chinese arsenal tilts towards MRBMs and SRBMs, together composing the foundation for a A2/AD strategy in the South China Sea. Similar to the offensive capabilities, not much is known about Chinese defensive capabilities. Apart from the Chinese HQ-9s, China has bought S-300 systems from Russia and has likely applied upgrades (Czajkowski, 2017, 233-248). Its layered missile defence can reach up to 1000 nautical miles which would cover Japan and the Philippines entirely, the complete South China Sea and the Malacca strait. The PLA Navy (PLAN) claims that the DF-ZF, paired with a MRBMs is capable of performing precision-strikes on ships in the sea when operated from Hainan Island (Balasubramaniam & Murugesan, 2020, 101).

The main risk in the South China Sea is for deterrence to fail. As indicated before, the Netherlands can translate the maritime aspect of the South China Sea crisis into interesting opportunities to achieve its main goal of influencing the United States. Especially since the PLAN announced to

increase its maritime power with 500 warships by 2030 (Balasubramaniam & Murugesan, 2020, 103).

Conclusion

The National Defense Strategy claims that “the surest way to prevent war is to be prepared to win one” (NDS, 2018, 5). A sentiment shared across the NSS and MDR in terms of their position opposed to Russian and Chinese proliferation. This chapter has examined several arms control treaties that the United States has withdrawn unilaterally from and the consequences these decisions may have for transparency in assessing a potential adversary’s capacity. This thesis has mentioned several risks associated with lack of transparency including failed deterrence, when a party miscalculates its opponent ability and potential to strike. The broken arms control treaties are likely to usher in a new era of instability, proliferation and challenges to the existing IAMD infrastructure. On the other hand, renewed arms control efforts provide smaller European states with an opportunity get involved in a process that affects them proportionally. The next chapter discusses how the Netherlands can influence this process and perhaps protect against the prospect of another unilateral withdrawal in the future.

Zooming in on this idea of a new era of instability, this chapter has highlighted that, apart from the ICBM capabilities that the strategic stability between Russia, the United States and increasingly China is based on, all super powers are developing an extensive infrastructure of new and advanced materiel. As the first chapter has explained from the point of view from the Crimean crisis: the United States is vigilant of Russia’s tendency to violence to achieve its ambitions. Due to Russian deployments to the Kaliningrad enclave the NATO members and partners have a case for responding to Russian hostilities and establish a baseline of deterrence against A2/AD and short- and medium range strike abilities. The next chapter examines what role the Netherlands can play in this effort whilst keeping the limits of a deteriorated European relationship to Russia after the Crimea crisis in mind.

Additionally, the Chinese BMD infrastructure deployed to the unlawfully claimed islands in the South China Sea can form a strong A2/AD network threatening the commercial interests of the United States, European allies and the Netherlands in particular. The next chapter explores what options the Netherlands has to make a valuable contribution to the American pivot in Asia and the protection of the SLOCs.

Chapter 4: Opportunities for the Netherlands

Concerns about a deteriorating security environment can bring allies closer together. The theoretical framework in which this thesis is placed suggests that sharp competition to the American hegemony and ambition to protect its dominant position in the world will have two implications for its relationship to its allies. Firstly, the United States will have to be an active and reliable partner to preserve this relationship under the strain of a changing threat environment. The second implication is that the United States will feel it needs to rely more heavily on its allies and their capabilities. Both sentiments have been echoed throughout the American strategic documents analysed thus far. The first chapter also discussed the incredible impact that domestic U.S. politics has on the world order and on the character of the relationship that the United States maintains with its allies and adversaries. For this reason, devising an influencing strategy based on Long's particular-intrinsic approach, the Netherlands can combine its defence-related materiel with its geographic location to pursue its interests. Regardless of the political colour of the American administration, this strategy is sustainable due to the U.S. dependence on its allies for achieving its (homeland) defence interests abroad.

Key to a successful particular-intrinsic strategy is understanding the security considerations of the United States which have been elaborately discussed in the first and third chapter. Wivel proposes contributing to a partial solution of a collectively recognised problem to demonstrate a country's value to its allies. He recommends doing so within the framework of an institution, in this case the NATO Active Layered Theatre Ballistic Missile Defence programme, currently completely led by the United States. The second suggestion he makes is compromising on themes that are relevant to the superpower since this will indirectly serve the interest of the small power. This chapter connects the findings thus far to analyse the potential of Dutch missile defence technology and looks at the largely interlinked possibilities to contribute to the United States' missile defence strategy focused on protecting the SLOC's in the South China Sea and the Arctic, deterring Chinese and Russian adventurism contribute to the United States missile defence strategy.

The first and second chapter have built towards an understanding of American security interests through its strategy documents, the missile defence capabilities that the U.S. and its allies have in place to achieve the envisioned goals and the challenges to their effectiveness these systems are

facing serving their current purpose. The first chapter pointed out that the Crimea crisis continues to be a sensitive topic in international affairs and will affect security in Eastern Europe and the subsequent chapters expanded on the related threat radiating to the Baltics and the Arctic. The significance of the situation to NATO members and partners is a driver in the presently intensifying great power competition between the United States and Russia that manifests itself in missile defence. The deteriorated relations lead to less transparency about intentions and capabilities and a higher threat perception. Both parties actively attempt to out strengthen the other. On the other hand, the developments in missile defence also drive the great power competition. As the example of the atomic bomb from the introduction demonstrated: parties will attempt to match each other's strategic innovations. In the case of the South China Sea, China's unlawful claim on the strategically located Spratly and Paracel Islands complicate the U.S. pivot within Asia and the installations of advance missile technology pose a threat to U.S. allies in multiple ways. First of all, the anti-access/area denial type systems could obstruct (commercial) movement in the area. Secondly, China has the strike power to damage U.S. forward deployed systems in Japan on which it depends for its homeland security. Finally, Chinese control of the South China Sea impedes the deterrence credibility and ability of the United States limited movement space of its Aegis Afloat deployed to the Asia-Pacific.

Furthermore, the second chapter identified technical challenges to the current IAMD infrastructure that future threats are likely to enlarge. For this reason, Thomas Karako of the CSIS is critical of the 2019 Missile Defense Review. He notes that the original *ballistic* missile defence network is not sufficiently equipped to shield against or even deter the complex integrated attacks that the MDR anticipates. He argues that the ambitious plans, reflected in the change of rhetoric between the 2010 and 2019 Missile Defense Reviews, will require more than "a few modest supplements" to tackle issues of survivability, integration, mobility and flexibility (Karako, 2019, 8-12).

In terms of survivability, the second chapter alerted to the problem of single point failure. This research focuses on threats generated by great power competition but briefly looking at the complete missile threat landscape, other actors can impair U.S. and allied ability to deter Russia and China or defend against strikes. Karako refers to Iranian Unarmed Aerial Vehicles (UAVs) currently operated in observation that could be used to transport explosives and several cases of

non-state actors acquiring missiles, such as demonstrated in the 2015 attacks on Israel (Karako, 2019, 7-9 & AlJazeera, 2019). A connected issue is that of *integrating* air and missile defence, a goal progressively promoted in defence strategy. 'Air defense' is only mentioned twice in the MDR, Thomas Karako observes that the air defence segment of the IAMD in Europe is severely underdeveloped and largely depends on the TPY-2 in Turkey (Karako, 2019, 11). The 1000 km range of the TPY-2 is certainly more capable as early warning system to detect objects launched from Iran than the Aegis Ashore SPY-1 with a range of up to 310 km. Another challenge is the integration of different capabilities into a singular command and control structure. IAMD continues to utilize older systems on legacy platforms that are in some cases incompatible with the newer systems. Improving the interoperability of these systems, and incorporating allied systems is required to achieve optimal integration (Tong, 2020; MDR, 2019, XVIII). Similarly, the second chapter discussed the segregated, stovepiped structure in which the pac-3 batteries are deployed. Lt. Gen. James Dickinson urges that moving away from the set in stone structure, tailormade combinations are the most efficient way to deal with future threats (Cutshaw, 2019 & Lee, 2019). The third issue of limited mobility is closely related to that of limited flexibility. The Aegis Ashore, UEWRs and ground-based interceptors and the THAAD batteries are all stationary and the larger sea-based assets, such as the X-Band radars take a long time to transport (Karako, 2019, 12). Time is especially of the essence in hostile situations containing missile threats and as discussed in the second chapter, the larger early warning systems depend on X-band radars, such as the TPY-2 for target discrimination.

These issues of survivability, integration and mobility or flexibility leave the American IAMD vulnerable to the Russian and Chinese capabilities explored in the third chapter. Keeping in mind the high risk of single point failure to the current configuration of the EPAA and the fact that the discussed regional theatres are not isolated, the U.S. regional interests in the South China Sea and Eastern Europe are vulnerable to adversaries other than Russia and China. North Korea is steadily developing its ability to obstruct the forward-deployed systems in South-Korea and Japan supporting America's objectives in the region which it has proven a UAV to observe the South-Korean THAAD, Similarly, after the MH17 plane crash, attributed to Russian separatists in the Eastern European region, it is thinkable that these non-state actors have access to the means

required to disrupt the Aegis Ashore sites or attack troops deployed to for instance the enhance Forward Presence (NOS, 2019).

Another recent challenge to mobility and flexibility of system is Japan's decision to cancel the installation of the Aegis Ashore sites. Currently, Japan depends on the seven Aegis ships deployed for its missile defence. Hornung writes that the missile systems would have "helped free up U.S. Aegis-equipped destroyers [...] so they could be sent to other parts of the region" (Hornung, 2020).

All things considered, in the two decades since the withdrawal from the ABM treaty, the United States has worked towards a globally employed intercontinental ballistic missile defence leading to concerns with the other two superpowers and renewing the strategic stability debate. However, the current IAMD is limited and progressively met with regional threats. Two theatres subject to militarisation, affecting the balance of power and driving the risk of escalation, have been highlighted throughout the previous chapters. The withdrawal of the INF treaty and open skies treaty signal further deterioration of the U.S.-Russia relationship and renewed hostilities with Iran poses a threat that the EPAA infrastructure might not be able to respond to. Karako suggests dispersing and distributing capabilities to reduce vulnerability to (regional) strikes (Karako, 2019, 7-9). The next section discovers what the role of the Netherlands could be herein.

Dutch capabilities and how to leverage them

The gap in the level of development between U.S. and European missile defence capabilities provides a unique opportunity for the Netherlands to increase its burden sharing within cooperation structures with the United States. Through joint military exercises, the Netherlands has showcased its strategic technology and caught the attention of U.S. military commanders. The first part of this section looks at these exercises, the current missile and air defence capacity of the Dutch military and the Dutch missile defence technology industry. The second part suggests opportunities the Netherlands can exploit to invest in its influencing strategy.

Exercises and capacity

A Dutch attempt to (further) close the missile defence technology gap would not be a new venture. With its Army Ground Based Air Defence System (AGBADS) and the through FMS acquired PAC-3, the Netherlands is one of the few countries in NATO that has a limited air and missile

defence (Geutjes, 2020). The AGBADS combines the Norwegian National Advanced Surface-to-Air Missile System (NASAMS) with a variety of American Advanced Medium Range Air-to-Air Missiles (AMRAAM) and operates together with the MPQ-64 Sentinel X-band radar, not to be confused with the Patriot's MPQ-65 C-band, and the TRML-3D/32 C-band radar (Army Recognition, 2020). The TRML can observe targets at a 200km distance, the more detailed MPQ-64 Sentinel has a 75 km range (Mullekom, 2011, 74-5). In other words, these systems complement each other for short to medium range in-theatre missions. The PAC-3 was featured in the second chapter. Currently, the Patriot systems are being upgraded in several phases in the United States, it is estimated that the final phase will be completed in 2022 (Ministerie van Defensie, 2019). Other than these ground-based capabilities, the Netherlands owns several frigates with short- and medium-range air defence systems but its most notable system is the relatively recently deployed SMART-L radar which will be discussed later.

Moving on to some of the joint military exercises, the Netherlands has been organising the world's largest international air and missile defence exercise: the Joint Project Optic Windmill (JPOW) (Geutjes, 2020). JPOW is a collaboration between NATO entities and multiple nations aimed at improving interoperability of the IAMD strategy and to align on doctrine, tactics and procedures (JAPCC, 2017). The Nimble Titan exercises are organised by the U.S. Strategic Command (USSTRATCOM) and bring together 22 nations to practice addressing present missile defence challenges (JFCC IMD, 2016). The Netherlands helped host the 2018 version of the event and demonstrated the new SMART-L radar system that had delivered a ground-breaking performance during the 2017 Formidable Shield exercise. During this international naval exercise, the SMART-L radar was able to track a medium-range ballistic missile launched from Scottish territory for more than 300 seconds, an unparalleled achievement. Via satellite communication, the radar relayed all tracking data to a nearby American destroyer that was able to launch a SM-3 and intercept the simulated attack. With this accomplishment, Thales-the Netherlands demonstrated its progress in the development of the radar, which in 2015 managed to track a short-range ballistic missile (Karreman, 2017).

The SMART-L MM (Multi Mission) radar is fit for sea and land-based operations, both renditions of the radar use active electronic scanning array and have a range performance of 2000km. In 2006

the system pioneered the ability to trace a missile outside of the Earth's atmosphere without requiring foreknowledge (Karremann, 2016). Starting 2018, the SMART-L MM radar is installed on four *De Zeven Provinciën* class frigates, that are also equipped with a X-band active phased array radar with a range of 75 km to complement the strong early warning capability of the SMART-L (Thales, 2016; Thales, 2019).

The Netherlands is traditionally a strong maritime power. Combining this strength with the knowledge of the in this thesis discussed disparities between the IAMD ambition of the United States and the current performance of the missile defence systems leads to a set of opportunities for the Netherlands to exploit.

Opportunities

In order to move beyond the technical and geopolitical challenges to the envisioned quality of deterrence by denial, the vision 2020 emphasises the need for information, cross-utilizing all sources available and respond to the enemy threat with “highly complex” weapons (Joint Chiefs of Staff, 2013, 4). This observation prompts six suggestions, three of which mentions cooperation with partners in one way or another. Increasing dependency on allied capabilities to deal with threats is evidently not the most favoured course of action. However, the door for an increased allied role has been put ajar through documents like these. The vision 2020 specifically suggests encouraging partners to invest in interoperable air and missile defence capabilities therefore offering a valuable asset to allies: information about American missile systems which is required for the interoperability (Joint Chiefs of Staff, 2013, 5).

First look at ameliorating existing defences, vulnerabilities associated with the reliance on the single TPY-2 X-band radar have been discussed multiple times. The European shield depends on this system for its in Europe unequalled range of 1000 km. Installing the SMART-L radar with its 2000km range at a new location will mitigate the consequences of the TPY-2 (temporarily) fail. Similarly, the installation will increase the flexibility of the Aegis Afloat vessels deployed to the Mediterranean.

The SMART-L radar also has the potential of relieving the pressure on the Aegis Afloat deployed to Japan in light of the cancelled Aegis Ashore plans and can simultaneously support the THAAD

deployed to South Korea. The Formidable Shield 2017 exercise has illustrated the radar's outstanding tracking ability at large distances and its 360 degree electronically scanned array allows for flexible positioning. Another aspect to the survivability of the current infrastructure is the integration of missile defence with air defence.

The joint military exercises listed in the previous section are greatly improving interoperability. However, to integrate systems with one another the attention on testing missile defence will need to shift to responding to the more complex threats based on insight of the capabilities of other states. A topic to explore is devising an exercise that includes countermeasures such as UAVs carrying explosives or balloons that impede the successfulness of missile defence. The Netherlands can contribute through expanding the exercises during JPOW.

More directed towards missile defence in the discussed regions, the mobility of the Aegis afloat that the SMART-L radar offers has been discussed earlier. The U.S. national security community tends to view the ability to defeat China or Russia as an essential goal, therefore, attention should be paid to concerns about the A2/AD capability of Russia and China in the Arctic and South China Sea respectively. Dubbelboer of the Clingendael institute argues that, European maritime powers have a unique position in the mitigation of the dispute since they are not immediate geopolitical rivals (Dubbelboer, 2018). The Netherlands can contribute to deterring Chinese 'adventurism' through its maritime capability and help refuse China the benefits of military aggression and limit Chinese pressure on the other states involved in the dispute (Heginbotham and Heim, 2015, 191). In doing so, the Netherlands will help to secure the SLOCs that it depends on for its considerable trade with Asian countries such as Vietnam to which it is the largest European trading partner (RVO, 2019).

Political relations between Russia and the Netherlands are particularly tense after the MH17 plane crash. The international community accuses separatists, allegedly supported by Russian government officials during the trials that are currently taking place near Schiphol airport (Reuters, 2020). In the meantime, Russia is growing its offensive and defensive missile arsenal, adding the currently unparalleled hypersonic cruise missiles and increasing militarisation of the Arctic from which its capabilities can target the Barents Sea, Norwegian Sea and the Baltics (Breitenbauch and Søbby Kristensen, 2019). The current IAMD network is aimed against hostilities originating from

Iran and cannot balance out Russian area denial capabilities. Karako urges that European IAMD capabilities should be aimed at enhancing the strategic stability through deterrence of short- and medium range threats despite concerns about provoking Russia (Karako, 2016). Again, looking at geopolitical relations, both NATO and U.S. initiatives aimed at deterring or defeating hostilities originating from disputed areas in Eastern Europe might further deteriorate stability. Therefore, a European-initiated IAMD aimed at protecting Baltic states against attacks from any direction might have different associations than a NATO initiative. On the other hand, after the MH17 trials have been completed the Netherlands will find itself in the position to engage with Russia to move past any hostilities between the two states and perhaps launch a new arms control initiative to bridge the gap left by the INF treaty. A second objective of engaging with Russia should be the installation of a European short- and medium ranged IAMD infrastructure based on the argument that the MH17 plane crash showed that strategic stability is distorted.

Finally, the main objective of this thesis is making the Netherlands a partner worth listening to through working with the U.S. Undoubtedly, strong cooperation is necessary to facilitate a missile defence chain capable of deterring present day threats. However, independence from the U.S. can be just as valuable a tool to wield power or gain influence. The first chapter has discussed some of the insecurities about NATO's future related to member state participation. Additionally, the chapter discussed how the structure of the international system is affected by changes in domestic politics. The third chapter highlighted how a unilateral decision to withdraw from an arms control treaty, such as the INF treaty, has consequences for the security of smaller states. Therefore, hedging against the risk of escalation between the great powers would be a vital part of the Dutch strategy: engaging with U.S. Missile Defence whilst simultaneously balancing through supporting European initiatives. Capitalising on the power of the collective, as Tom Long has put it, the Netherlands is participating in the prominent European missile defence initiative 'Timely Warning and Interception with Space-Based Theatre Surveillance' (TWISTER). This Permanent Structured Cooperation (PESCO) project aims to combine space-based early warning with ground, maritime and air surveillance and interceptors to be operational after 2030 (PESCO, 2020). However, challenges to cooperation between Germany and France to integrate capabilities with TWISTER and high costs associated with the project could see the project delayed (Major and Mölling, 2018).

Until the various European capabilities are fully developed and integrated, the Netherlands and other European NATO members will look to the United States for their IAMD.

Conclusion

After the Cold War bipolar power struggle and the demise of the Soviet Union, the United States emerged as dominant military power, an increasingly contested position. The emancipatory efforts by Russia and China have a transformative effect on the international system and are threatening the American hegemony and influence across regions. The United States attempts to maintain its dominant military posture mainly through deterrence by denial with some aspects of deterrence by punishment and increasing the lethality of its forces. Especially for its deterrent position, the American administration relies on the strong partnership with its allies, their collective capabilities and collective will. Indeed, there are many ways, the United States relies on small states and this interdependence can provide a system-ineffectual power or small power the opportunity to practice influence on the system through gaining influence on the United States.

The first part of such a strategy is the willingness to contribute to shared problems which ties into the burden sharing debate often featured in security cooperation with the United States within NATO. Whilst the modern debate focusses on the monetary side of burden sharing, programmes such as NATO's smart defence depend on material contributions. In fact, the literature review has shown that non-monetary means ranging from equipment to geographic location is an excellent approach for a small state to gain influence on the United States. To illustrate how a small state can use a specific area of defence cooperation to increase its value to the U.S. within this framework, this thesis looked at how the Netherlands can use its research in and abilities pertaining to missile defence to fortify its position in joint decision making and gain influence on the United States.

The first chapter explored U.S. security ambitions as well as highlights from what is publicly available of Russian and Chinese strategic documents. It discussed two cases, the contexts of the Crimean invasion and the South China Sea dispute, that are on the radar of the American security community. The most prominent ambition is to "always win" in all the contested domains and efficiently counter regional aggression that could harm U.S. allies. The Crimean crisis and other

examples of Russian support to separatist movements violate the principle of sovereignty, severely threaten NATO partner states and illustrate that Putin's Russia does not hesitate to use force in achieving its objectives. The chapter argued that deterring Russian attempts at restoring the Soviet Union empire is a key part of the American strategy. However, as later chapters observed, Western relations to Russia are delicate and a direct approach would severely affect strategic stability. The second part of this chapter looked at the South China Sea dispute in light of the American pivot within Asia, fuelled by exponential economic growth and development in South-Asian countries. China has unlawfully claimed strategically located island in the South China Sea that threaten the alliances to these South Asian nations as well as access to them through the strait of Malacca. Deterring China in this dispute is a vital part of the American strategy to build the confidence in American protection of its partners and maintain its dominant position in Asia. This analysis of the great power competition and regional tensions lays the foundation for the following three chapters and presents opportunities for the Netherlands.

First, the examination of the current missile defence infrastructure in the second chapter discussed the U.S. homeland Intercontinental Ballistic Missile Defence and the European Phased Adaptive Approach aimed at medium and long-range threats originating from Iran. In the analysis the chapter discussed that the EPAA is limited in responding to countermeasures that could render the defences ineffective and is not capable of deterring threats emanating from different regions. In its current limited form, the missile defence infrastructure is not sufficiently capable of discriminating between targets partially due to its reliance on a single line of radars that all perform their own isolated task in the early warning and tracking chain. In its current form, the EPAA does not have a secondary system for its long-range detection capability. Another risk associated with this structure is that of single point failure: should operations of the long-range TPY-2 radar be obstructed the entire system is vulnerable. A similar issue may occur in the missile defence infrastructure located in the Asia-Pacific. Protection of U.S. allies and deterrence of North Korea relies on the THAAD system in South Korea and the Aegis capabilities in Japan. North Korea possess UAVs that may interfere with the South Korean missile defence infrastructure and Japan has recently cancelled the installation of an Aegis Ashore site to support the Aegis ships deployed for its protection, negatively affecting the survivability and mobility of the assets in the region.

The third chapter assessed potential future challenges rising from the deteriorated state of arms control and developments in and deployments of Russian and Chinese capabilities. The collapse of the INF treaty has consequences for the security in the (Eastern) European neighbourhood as it leads to the possibility of intermediate-, medium- and shorter-range nuclear missiles that can impact this region specifically in case of escalation in any of the disputed territories. China will have to adjust to the situation of Russia and the United States developing intermediate-range nuclear capabilities as well and will consider the effect this might have on the Asia-Pacific region. The chapter also discussed the consequences of U.S. withdrawal from treaties aimed at establishing transparency and limiting nuclear force. With the challenges to the current IAMD infrastructure built through the EPAA in mind, the withdrawal of the JCPOA and deteriorating relations might result in a more serious threat emanating from Iran.

Finally, the chapter took notice of the capabilities of the primary contesters of the American hegemony and global position: Russia and China. It discussed the forward deployed Russian Iskander missiles to Kaliningrad within range of the Aegis Ashore base in Redzikowo and the anti-access/area denial stationed in the enclave that affect the Baltics as well as the potential of militarisation in the Arctic region threatens adjacent seas. In similar vein, China is militarising the South China Sea, and deploying several short- and medium-range systems to strategic points in and adjacent to the sea. Examples include the military base on Hainan island that has the potential to reach Guam and execute control over traffic in the South China Sea and military bases on disputed territory that control access to the strait of Malacca.

The fourth chapter has shown how the Netherlands as a small state can mitigate challenges to survivability, integration and mobility and flexibility. This chapter combined all aspects of the American position in the revised great power competition, the nation's ambitions and the state of the IAMD infrastructure. These insights were translated into focus points for a strategy to increase the value of the Netherlands to the United States and, by means of accommodating partial solutions to larger challenges, gain influence in defence-related decision making. It discussed the practical implementations of the Smart-L radar and the importance of investing in joint military exercises and leveraging aspects unique to the Netherlands such as its maritime readiness. The chapter also discussed the added value of small statehood to arms control talks or securitisation of an area.

All things considered, the strategic stability with Russia and China relies on each country's ability to penetrate the other state's defences and enhancing IAMD to mitigate some of the weaknesses presented could negatively affect this relationship between the superpowers. Therefore, the regional approach featured throughout this thesis provides an opportunity for the U.S. and its allies to increase the readiness of capabilities and lay the foundation for a response to newer threats and escalations. Small states specifically can take up a vital role in a more regionally focussed structure as they are less commonly seen as threats. Important to note, a well-rounded strategy comprises more than offering good technical solutions. Despite the strong relationship that the European NATO members have with the United States, diplomatic ventures and rhetoric should always indicate the value of country specific traits, capabilities and research and emphasise how these may aid the ambitions laid out in the National Security Strategy and National Defense Strategy. A proper strategic plan aimed at influencing the United States from multiple directions will decrease the risk of domestic U.S. politics affecting the threat environment and secure the future of small states.

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