

RESEARCH ARTICLE

Danish Defense Transformation and the Technopolitics of Relevant Military Contributions

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This article shows how the transformation of the Danish Defence, initiated with the defense agreement of 2004, was impacted by socio-technological change. The article takes as its theoretical starting point the concepts of security and military imaginaries and the study of (military) technopolitics. It argues that the Danish military transformation was a product of the Danish foreign policy ambition of being viewed as a trustworthy and relevant ally – especially by the United States. This ambition meant that Denmark had to make relevant military contributions to the period's U.S.- and NATO-led international operations. Therefore, the perception of what constituted relevant military contributions came to shape the Danish military transformation. In this process the period's large-scale socio-technological changes, fueled by unprecedented information and communication technological development, played a central role in (re-)shaping both U.S. and Danish security and military imaginaries. This through technopolitical narratives of the information age, (the dark sides of) globalization, and the Revolution in Military Affairs which (in)directly impacted the broader Danish understanding and concrete practice (i.e. policy) in regard to military transformation in connection with the 2004 defense agreement. Finally, for Denmark, the technopolitical conflicts emerging around the schism of having to transform in order to be viewed as a trustworthy ally capable of making relevant military contributions and the large-scale economic and organizational investments required by the transformation led Denmark to formulate its own technopolitical strategy or narrative. This in the shape of Network-Based Operations framed as a specific Danish pragmatic and down-to-earth approach to transformation.

Keywords: Danish Defence; defense transformation; military imaginaries; Revolution in Military Affairs; Network Centric Warfare; Net Based Operations

Introduction

The changed security environment emerging in the post-Cold War period meant that the small Scandinavian state of Denmark had to recalibrate its foreign, security, and defense policies (Jakobsen & Rynning 2019). The biggest concern of the Danish political establishment was that Denmark – no longer being a frontline state – would become increasingly marginalized in foreign affairs (Heurlin 2004; Jakobsen & Rynning 2019). One way to avoid such a fate was to create an image of Denmark as a trustworthy and relevant partner in military and security matters – especially in the eyes of the United States, and it was relatively clear how this image was to be created. What the United States needed (or demanded) from its allies was relevant military contributions to the U.S.-led (or NATO-led) international operations which by the United States, especially after 9/11, were viewed as essential to upholding global security and stability (Wivel & Crandall 2019: 400). Thus, the course of action was clear: Denmark or the Danish Defence had to be able to make relevant military contributions when asked to do so by its allies, especially the United States. Therefore, in 2004, to support the new Danish foreign policy course, the Danish Defence embarked on its largest reorganization since World War II. The purpose was to organize the Danish Defence around the ability to provide such relevant military contributions (Heurlin 2004; Heurlin 2006; Ringsmose & Rynning 2008; Jakobsen & Rynning 2019; Wivel 2013). As several scholars have argued, the understanding within the West and especially the United States

of what constituted a relevant military (and thus military contributions) was in this period being (re-)shaped by the unprecedented technological development and the (visions of) socio-technological change that followed in its wake (Bousquet 2009; Demchack 2003; Farrell, Rynning & Terriff 2013: 2; Lawson 2011; Lawson 2014). What this meant in this specific Danish context of military transformation, however, is missing from the otherwise rich literature on the subject (Heurlin 2004; Heurlin 2006; Norby 2018; Petersson 2011; Rasmussen 2005; Jakobsen & Rynning 2019; Saxi 2010; Wivel 2013). This article sets out to correct this omission.

The Emergence of the Information Age and the Revolution in Military Affairs

The post-Cold War period was characterized by unprecedented technological developments, especially within the field of information and communication technologies (ICT), such as the radical increase in computer processing power and the diffusion of the Internet and cellphones. With these new technologies followed a set of related narratives of how the new technologies would change/were changing everything from business and social life to military matters and security (Bousquet 2009; Lawson 2014; Castells 2010; Felt 2015). The most overreaching of these narratives was that the new technological developments allowed for extremely fast and extensive generation and dissemination of information and a hitherto unseen degree of (global) connectivity, which in turn allowed for new ways of organizing and conducting every aspect of human affairs. This became known as the 'information age' or the 'network society', and with such epithets followed the idea of an ongoing 'globalization' that would increase the wealth and living standards of those who embraced it (Castells 2010; Van Dijk 2006). In Denmark this was no different (Dybkjær & Christensen 1994; Hebsgaard 2016).

Alongside this optimistic information age/globalization narrative emerged a more dystopian vision of the 'dark sides of globalization'. The fear was that poorer countries would not have the necessary economic and intellectual resources to become part of the new information age. Their disconnection from the globalization process would lead to increased poverty, instability, desperation, and antagonism toward the West and especially the United States (Barnett 2004; Kaldor 2012). This in turn led to the fear that extremist terrorist and insurgency groups and transnational crime networks in malign 'rogue states' would utilize these dark sides of globalization (Barnett 2004; Kaldor 2012; Quadrennial Defense Review 1997; Quadrennial Defense Review 2001). Furthermore, these actors could use the new ICTs to further their goals, for instance by acquiring the means to produce weapons of mass destruction (WMD) and to threaten or even carry out an attack on the United States or its allies (Freedman 2017). Thus, fundamentally, these narratives entailed an understanding of the information age that brought with it a much more complex and ambiguous international threat environment (Lawson 2014).

Simultaneously, observers began to discuss how the new technological developments together with specific developments within military technology such as e.g. Precision Guided Munitions (PGM), C4ISR/TA systems,¹ and UAVs (Unmanned Aerial Vehicles) would allow for a radical transformation of the conduct of warfare mirroring the socio-technological transformation going on in the civilian world (Eliason & Goldman 2003; Krepinevich Jr. 2002; Marshall 1993). The unexpectedly quick and casualty-free victory in the Gulf War was by many of these observers heralded as the first materialization of this new way of war(fare) (Shimko 2010). Futurists Alvin and Heidi Toffler, for instance, prophesized in their book on information age war that "[s]omething occurred in the night skies and desert sands of the Middle East in 1991 that the world had not seen for three hundred years – the arrival of a new form of warfare that closely mirrors a new form of wealth creation" (Toffler & Toffler 1993: 73). This 'something' became known as the Revolution in Military Affairs (RMA). The RMA vision was that new technologies enabling unprecedented information gathering, analysis, and dissemination and the networking of actors and platforms combined with new doctrinal, conceptual, and operational developments would allow for revolutionary speed, knowledge, and precision in the battlespace. This in turn would render the 20th-century industrial age ways of warfare useless against an opponent that could see and hit everything (Bousquet 2009; Futter 2015).

Imagineries and Technopolitics of Security and the Military

This article takes its point of departure in the large body of existing literature on how these narratives and the technologies that fueled them impacted security and defense in the West (see e.g. Bousquet 2009; Farrell, Rynning & Terriff 2013; Gruha 2011; Lawson 2011; Lawson 2014). This literature tells us that the information age narratives were descriptions or observations of concrete developments as well as socio-technologi-

¹ Command, Control, Communications, Computers, Intelligence, Surveillance, Reconnaissance, and Target Acquisition.

cal imaginaries, i.e., visions of how this (socio-)technological development would/should impact the future (Felt 2015; Jasanoff & Kim 2013). It further tells us that narratives such as the emergence of the information age and globalization and specific security and military versions of these developments, including the notion of insecurity emerging in the dark sides of globalization and the RMA, changed the very understanding of security, the security environment, and military organization. Joellen Pretorius, for instance, has argued that the RMA led to a change in the so-called 'security imaginary' that can be understood as the collective understandings and practices of the security world, i.e. the common (collective) understanding of what constitutes (in)security and how to act accordingly (Pretorius 2008: 100–105). Sean Lawson has made a similar argument specifically in relation to what he calls (Western) military imaginaries, which can be understood as the imaginaries that describe the part of the security imaginary concerned with the specific collective (self-)understanding of the military organization and how it is linked to the security world and, in turn, how this shapes collective praxis (Lawson 2011: 41–45; Lawson 2014). The information age narratives were used both directly and indirectly by political and military decision-makers to (re-)shape these security and military imaginaries, that is both specific practices and policy on security and the broader understanding of security and defense, for example what counted as threats and risks and how to deal with them and, in continuation hereof, what military organizations should look like (Demchack 2003; Rasmussen 2006). These narratives were therefore inherently technopolitical, which means that they were used in direct and indirect ways to link technologies and ideas about them with specific visions about the future, which in turn led to concrete change in policy and practice more broadly (Edwards & Hecht 2010: 620).

The analysis in this article takes as its theoretical and methodological starting point the notion of security and military imaginaries and the study of technopolitics or, more specifically, the research agenda first formulated by techno-anthropologist Katrine Nørgaard under the heading of military technopolitics (2017) and refined by Nørgaard and other authors in an recently published anthology (Nørgaard & Sjøgren [ed.] 2019). Military technopolitics covers the military and security dimension of technopolitics, and relates to the way in which technology and science and techno-scientific visions, i.e. technopolitical narratives, are used to shape perceptions of the broader security/military environment and, in continuation hereof, define and/or advocate for specific forms of practice as the 'proper' course of action within this environment (Nørgaard & Damkjær 2019; see also Nielsen & Bollmann 2019). For instance, linking ideas of good governance with ideas of effective or just warfare through ideas of technologies (Nørgaard 2017). From this starting point the article investigates how the different 'technopolitical narratives' of the information age both indirectly (re-)shaped and were directly used to (re-)shape Danish security and military imaginaries. Focus will be on how this impacted the understanding of what constitutes relevant military contributions and thus the transformation of the Danish Defence. The next two sections of the article outline how these technopolitical narratives impacted both thinking and practice in the United States and NATO. The remaining sections of the article focus on the specific Danish context during the period of the 2004 defense agreement.

The New American Way of War – Transformation and Network-Centric Warfare

As the largest and most resourceful military in the world, the United States was the unquestionable front-runner in the RMA. The fear was however that malign state and non-state actors could increasingly utilize the RMA technologies and concepts and thus over time erode the United States' RMA-induced military dominance. Therefore, the U.S. Department of Defense (DOD) embarked on a mission to modernize and reform its military organization (Quadrennial Defense Review 1997; Quadrennial Defense Review; DOD 2003). This process became known as 'defense transformation' or just 'Transformation' (from here on with a capital 'T'). The point was to secure the U.S. military lead by ensuring that the U.S. Armed Forces were at the forefront of the RMA and capable of meeting the wide range of complex new threats stemming from globalization. The process started under the Clinton administration, but it was the following Bush administration and Secretary of Defense Donald Rumsfeld who made the Transformation agenda a top priority. Central to the vision of Transformation was the idea of capabilities-based defense planning, where focus was not on whom the United States would be fighting, but which capabilities it might face, i.e. what a potential enemy could do (Rasmussen 2006).

The intellectual foundation of the Transformation was the theory of Network-Centric Warfare (NCW) (Bousquet 2009; Lawson 2011; Lawson 2014). NCW was developed in the mid-1990s as a naval doctrinal concept, but in 1998 Vice Admiral Arthur K. Cebrowski and John C. Garstka wrote an article titled 'Network Centric Warfare: Its Origin and Future' that would resonate with a much larger audience and make NCW the cornerstone of Transformation (Bousquet 2009; Lawson 2011; Lawson 2014; see

also DOD 2001). Cebrowski and Garstka (1998) used a wide array of metaphors from business theory and the *information age sciences* of complexity and chaos theory to describe how the information age was changing the U.S. business world and how the military would have to follow. This should happen through what they described as a move from 'platform-centric warfare' to 'network-centric warfare', which entailed the utilization of both information age technologies and organizational concepts (Cebrowski & Garstka 1998). Another influential semi-official publication described NCW as "an information superiority-enabled concept of operations that generates increased combat power by networking sensors, decision makers, and shooters to achieve shared awareness, increased speed of command, higher tempo of operations, greater lethality, increased survivability, and a degree of self-synchronization" (Alberts, Garstka & Stein 2000: 2). The essence of NCW was the translation of so-called 'information superiority' into combat power by linking 'knowledgeable entities' in the battlespace (Alberts, Garstka & Stein 2000: 2). In 2001 a DOD report on NCW to the U.S. Congress outlined a series of NCW tenets that described the DOD's basic understanding of NCW. These were:

- A robustly networked force improves information sharing
- Information sharing enhances the quality of information and shared situational awareness
- Shared situational awareness enables collaboration and self-synchronization, and enhances sustainability and speed of command
- These, in turn, dramatically increase mission effectiveness (DOD 2001: 4–1).

The report linked NCW to Transformation, describing it as "no less than the embodiment of DoD transformation," which provided transformation effort with its intellectual, operational, and technological foundation (DOD 2001: 12–1, see also especially sections 2, 3 and 12). Thus, in the beginning, NCW was a theory of military organization and warfighting linked to certain technologies such as data communication networks, including for instance the tactical data network LINK16, so-called blue force trackers, and PGMs. The main purpose of the theory was to get the U.S. Armed Forces to embrace these information age technologies. NCW was thus more an answer to the emerging RMA than to the complex threats emerging from the shadows of globalization.

However, this began to change with 9/11. In October 2001, Rumsfeld established a so-called Office of Force Transformation (OFT) that was tasked with overseeing the Transformation effort, and already before it opened the office's portfolio of tasks was increased and now also included legitimizing the ongoing (NCW-based) Transformation in the light of the newly declared War on Terror. Cebrowski was chosen as director and he tasked Thomas P. Barnett with establishing this link (Lawson 2014: 120–130). Barnett formulated the so-called Global Transaction Strategy (GTS) that would become a new U.S. "operating theory of the world" (Lawson 2014: 121). Barnett argued that the way to fight the threats emerging from globalization was to make sure – preferably with carrots, but if necessary with sticks – that the "non-integrated gap" (the countries that were not part of the globalization) was networked with the functioning core (the countries that were) (Barnett 2004). Barnett and Cebrowski formulated a narrative which described the United States as facing an international environment "where rogue individuals, be they leaders of 'evil states' or 'evil networks,' pose the toughest challenges" (Cebrowski & Barnett 2003: 43). NCW was the stick that would "morph" individual servicemen and women into "a military of superempowered individuals fighting wars against superempowered individuals," thereby becoming the foundation of a new "American Way of War" that would move "the military toward a more sharply focused global cop role: increasingly specialize[d] in neutralizing bad people" (Cebrowski & Barnett 2003: 43).

Thus, NCW developed from a war-fighting theory into an 'operating theory of the world' that was to link the Transformation agenda with the War on Terror within the broader self-understanding of the DOD and the U.S. Armed Forces (Lawson 2014). The main aspect of the Rumsfeldian Transformation effort was the utilization of new technologies and relating operational concepts. Therefore, NCW ended up being hailed as the 'new American way of war'. Even though the War on Terror placed it in a new context and combined it with a specific strategic outlook, the theory of warfare embedded within the RMA vision and later NCW came to shape the United States' perception of what a (modern) military should be able to do, at least from the early 1990s and until the end of the first decade of the new millennium. This perception of what comprised a modern military would, as noted by for instance Chris Demchack, be both exported by the United States as well as emulated by most countries in the world in some form or another (Demchack 2003). These ideas would become fundamental in defining what was viewed as a relevant military contribution. The next section will shed light on this process focusing in particular on NATO and its European member states.

Mind the Gap – Europe and the NATO Transformation Agenda

In the 1990s European militaries generally held on to Cold War territorial defense while simultaneously facing large budget reductions (Adams et al. 2004: 3; Osinga 2010: 29f).² Therefore, they were reluctant to introduce and/or could not afford large-scale investments in RMA technologies such as C4ISR/TA systems and PGMs. Furthermore, these Cold War structures and operational concepts meant that European militaries were not geared for expeditionary warfare (Adams et al. 2004: 3; Osinga 2010: 29f; Farrell & Rynning 2010). This led to an increasing gap in military capabilities and technology between Europeans and the United States referred to as the ‘capabilities gap’ or ‘technology gap’ and later also as the “Transformation or network-centric gap” (Bialos & Koehl 2005: 10). Therefore, it was becoming increasingly difficult for European NATO states and the United States to conduct multinational operations due to a decrease in technological and operational interoperability (Galbreath 2015). Furthermore, the lack of military capabilities meant that European states without the United States de facto were unable to project force outside the borders of Europe, thus making European states increasingly dependent on the United States as a guarantee of their security (Gompert, Kugler & Libicki 1999; Nørby 2018; Osinga 2010: 29ff). This development increasingly worried decision-makers on both sides of the pond. Thus, the United States began pushing its European Allies towards prioritizing becoming increasingly able to make relevant military contributions in order to maintain international security and a common defense (Wivel & Crandall 2019: 400).

The strategic consensus emerging after 9/11 was used to launch this effort to streamline European transformation agendas and the US Transformation agenda. This process was initiated by Rumsfeld at the 2002 NATO summit in Prague (Farrell & Rynning 2010: 680f; Farrell, Rynning, & Terriff 2013: 6f). At the summit, a NATO Transformation strategy was outlined (from here on also with capital ‘T’). This included the adoption of the Prague Capabilities Commitments (PCC), which constituted a set of Transformation goals for both the individual NATO countries and NATO as a whole. These goals were rather similar to the U.S. Transformation strategies, though less ambitious in scope and pace (Buckmann 2005; Kugler 2007). The goal was networked as well as more flexible, better equipped, modular, light, mobile, and professional NATO forces (Farrell & Rynning 2010: 680f). Second, the Allied Transformation Command (ACT) was established to oversee the Transformation process and work toward more interoperable and network-centric NATO forces (Barry 2003: 139). Third, on U.S. initiative, the NATO Response Force (NRF) was established. It was described as “a technologically advanced, flexible, deployable, interoperable and sustainable force including land, sea, and air elements ready to move quickly to wherever needed, as decided by the Council” (NATO 2002: 2). The NRF was to be fully operational by 2006 and would consist of approx. 20,000–25,000 troops, two thirds of which should be European. The purpose of the NRF was twofold. First, it would improve the European part of NATO’s ability to project force and conduct the full spectrum of operations. Second, the NRF should catalyze the Transformation process. The units that were to be part of the NRF had to be NRF-ready, which meant living up to specific equipment and operational capability standards, for instance in regard to C4ISR. This was meant to force the European countries to “transform” (Binnendijk & Kugler 2008; Kugler 2007).

Finally, the Transformation process included the formulation of a specific NATO approach to NCW called NATO Network Enabled Capabilities (NNEC) and defined as “the Alliance [sic] cognitive and technical ability to federate the various components of the operational environment from the strategic level down to the tactical level through a networking and information infrastructure” (NNEC Vision and Concept cited in Tolk, Bair & Diallo 2012: 145). NNEC was a step by step approach focusing on “net-centricity” as an enabler rather than a whole new way of warfare, as was the basic tenet of the U.S. Transformation process (Buckmann 2005; Binnendijk, Gompert, & Kugler 2005: 21). NNEC was thus a technopolitical compromise between the techno-optimistic RMA vision of the United States and a more reluctant European approach shaped by a more and more critical approach to technology as well as a fear of increased costs and increased dependence on the United States and U.S. systems (Bialos & Koehl 2005: 11). The NATO process was an adaptation of the U.S. Transformation, which to a large extent was a compromise between European member states with limited budgetary and domestic political room of maneuver and a United States and Rumsfeldian Pentagon insisting on reducing the gap and getting Europe to give higher priority to force modernization and defense.

The United States wanted allies who could provide network-centric, high-technological forces, and NRF and ACT were the two main ways of achieving this. Even though the strategic-political consensus took a serious hit with the Iraq War and the Transformation agenda was negatively affected when the wars turned into

² This headline has been borrowed from Gompert, Kugler, and Libicki (1999). I hope the authors can forgive me for this blatant act of plagiarism.

bloody, protracted insurgencies, the technopolitical narrative(s) of the RMA vision, NCW, and Transformation had permeated the thinking of European states and their general perception of what comprised a modern military and, in continuation hereof, relevant military contributions (Demchack 2003: 307). This can, for instance, be seen in the processes of Transformation in Britain and France as well as in other European states (Farrell, Rynning & Terriff 2013; Osinga 2010).

Transformation Comes to Denmark

During the 1990s, Denmark and the Danish Defence slowly began to realize the impact the new technologies and RMA were having on both the understanding and practice of security and defense. Both at a theoretical level, but also by experience. One example is Operation Allied Force (1999), where the lack of specific RMA technologies (specifically targeting pods for J-DAM PGMs and LINK16) devalued the Danish Air Force's contribution to the mission (Jakobsen 2005; Nørby 2018). Furthermore, the security political environment had changed radically with the 9/11 attack, the declaration of the War on Terror, and the wars in Afghanistan and Iraq. Finally, the NATO summit in Prague also forced Denmark to launch a transformation process of its own (Jørgensen 2003).

The closer alignment with the United States also meant that the U.S. military imaginary had gradually begun to permeate the Danish ditto. In continuation hereof, the embedded technopolitical narratives of the RMA and the 'downsides of globalization' had become a central part of the Danish foreign policy outlook. This is evident, for example, from a 2003 article published in the *Brown Journal of World Affairs* where Danish Minister of Foreign Affairs Per Stig Møller argued that it was imperative to meet the 'dark sides of globalization' fueled by the information revolution as well as to provide a meaningful answer to the RMA by adopting a common strategic outlook on development, i.e. transformation (Møller 2003: 103f). The same year Prime Minister Anders Fogh Rasmussen gave a speech at the Royal Danish Defence College (RDDC) where he linked what he perceived as Denmark's moral obligation to participate in international U.S.-led military operations with the necessary technology that would enable Denmark to fulfill this moral obligation (Rasmussen 2003). Thus, as the process revolving around the new defense agreement begun, the underlying understanding within the political-military establishment was that the security environment had radically changed and that the Danish Defence had to change with it (Nørby 2018; Petersen 2012).

Two interrelated documents would become the intellectual foundation of the transformation and the 2004 defense agreement. The first was a report by the so-called Bruun Group, a task force headed by former ambassador Hans Henrik Bruun, the purpose of which was within a relatively short time span to conduct a survey of the security political conditions of the Danish Defence (Heurlin 2006; Saxi 2010). The second was the so-called K Memorandum, which constituted the Danish Defence's own recommendations for transformation (Saxi 2010).³ The K Memorandum was the result of a process conducted simultaneously with the Bruun Group's work. Here a small group of 'younger' upcoming officers within the Danish Defence centered around Major General and Head of the Planning Staff Per Ludvigsen as well as Planning Staff Officer Captain Torben Ørting Jørgensen had launched a process of drafting a proposal for a potential transformation of the Danish Defence in accordance with the new foreign/security policy priority of sending meaningful military contributions with limited resources (Ludvigsen 2020; Brøndum 2004). The officers viewed the continued Cold War territorial defense structure and the dire economic situation of the Danish Defence as unsustainable, as it was increasingly hollowing out Danish defense capabilities. Therefore, the Danish Defence was in urgent need of radical transformation (Ludvigsen 2020; Rasmussen 2020; Wæver 2020). These officers furthermore worried that the technological gap between Denmark and the United States was becoming a serious obstacle to the achievement of Danish foreign policy goals (Jakobsen 2005; Ludvigsen 2005; Ludvigsen 2020; Nørby 2018: 113–124; Rasmussen 2020; Wæver 2020). Chief of Defense Jesper Helsoe supported their draft and the K Memorandum, and the Bruun report was published at approximately the same time in the summer of 2003 (Brøndum 2004).

The Bruun report focused primarily on the broader security environment in which the Danish Defence had to operate, whereas the K Memorandum focused on the specifics of transformation of the Danish Defence. Even though the two documents were different in scope, they reached almost identical conclusions. First, both recommended that the territorial defense structure was to be dismantled and instead the Danish Defence was to be structured around two dimensions: the so-called total defense that was to be a pendant to the U.S. Homeland Security, focusing on preventing and reacting to both natural and manmade disasters,

³ Danish: Kapacitetsnotatet (K-notatet). English: the Capacity Memorandum (K Memorandum).

and a Danish expeditionary or deployable force that was to be used both inside, but especially outside Danish territory (Bruun et al. 2003: 39; DDC 2003: 1ff). Thus, as mentioned in both documents, the transformation was a product of the foreign policy priority of being able to make relevant military contributions (DDC 2003: 1ff). Both the K Memorandum and the Bruun report did to a great extent link the needed transformation and its specific character with (socio-)technological change, and both documents reveal that the technopolitical narratives of the RMA and the information age had indeed permeated the Danish military/security imaginaries. Especially the Bruun report framed the security environment around the 'downsides of globalization' narrative where technology was a central factor (Bruun et al. 2003: 5), and the RMA narrative played a significant role in legitimizing and framing the necessity of a military transformation (Petersson 2011). For instance, it was noted that "from the technological development it follows that if ... a conventional threat against Denmark should reemerge territorial defense should probably be conducted in a totally different manner than under the Cold War," and therefore, the territorial defense structure had become obsolete (Bruun et al. 2003: 21; DDC 2003: 1).⁴ The RMA and related concepts were also used as a foundation for how the Danish Defence should plan and organize. For instance, in continuation of the security policy trend development both documents foresaw that capabilities-based defense planning would become the future approach (Bruun et al. 2003: 22; DDC 2003: 2). Both documents also argued for a restructuring of conscription that would integrate conscripts in the total defense instead of 'real' operational branches. One of the reasons was that the new RMA-induced reality would demand better educated professional soldiers and not conscripts without the necessary skills to function in a high-technological environment (Bruun et al. 2003; DDC 2003; Heurlin 2004; Heurlin 2006). Furthermore, the concrete shape of the transformation was defined through the RMA. For instance, the Bruun report concluded: "Success in military operations increasingly depends on the capacity for fast-paced collection and analysis of the information that ensures the precision and effectiveness of weapons systems. Thus, armed forces will increasingly become organized in joint information networks ('network-centric warfare')" (Bruun et al. 2003: 6).⁵ Thus, a successful and relevant military organization was one that was able to conduct NCW. The Bruun report specifically pointed to the fact that the United States increasingly measured the relevance of its partners on how much they had/intended to transform their military capabilities (Bruun et al. 2003: 6). Moreover, the K Memorandum more specifically argued that the procurement of new capabilities within the communication and weapons areas was a prerequisite for delivering the relevant contributions and being able to work together with high-technological partners (DDC 2003: 2).

The Bruun report and K Memorandum shared the view that Denmark as a small state would not be able to fully transform like the United States or other larger allies. Therefore, Denmark should adopt the Transformation through a course of specialization. This should consist neither of task/role specialization nor of pooling with other NATO members, though, since both options would seriously inhibit the Danish Defence's own capacity to conduct both joint and network-based operations (DDC 2003: 35). Instead, Danish specialization should be within operational capabilities that would enable the Danish Defence to provide high-quality, deployable, modular, integrated, and entire force contributions. This would allow the Danish Defence to conduct military operations within a given mission in cooperation with partners, and it was this ability that would make Danish contributions relevant within international operations (DDC 2003: 2, 35). Thus, Danish Defence should transform to make it able to conduct high-intensity operations with partners for short periods of time. The specific recommendations for each of the three services mirrored this ambition (Bruun et al. 2003; DDC 2003).

Both documents specifically referred to the NATO Transformation agenda adopted in Prague as the most meaningful framework for the coming military transformation. The NATO Transformation agenda was described as "a transformation of the Alliance's military capabilities from being large and mainly fixed to a specific geographical location to a high-technological, flexible, deployable, and ready military structure" (Bruun et al. 2003: 30; DDC 2003: 2).⁶ Denmark and the Danish Defence should make sure that it was at the forefront of this development, first with regard to NRF which was described as a force conducting 'first in, first out' operations within the full operational spectrum, thus matching the above-mentioned transformation of the Danish military forces, and second with regard to living up to the PCC. The latter was described as being concerned with "the interoperability and effectiveness of deployable forces, including the procurement of precision weapons and increased ability to fast deployment, logistics support in areas

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of operations and defense against WMDs and the securing of information and communication superiority” (DDC 2003: 32).⁷ Danish ambitions to enter the RMA and thus continue to be able to make relevant military contributions was also reflected in the service-specific proposals for transformation. They all emphasized high-technological, deployable capabilities as facilitating the needed transformation that would allow the service in question to make relevant contributions to international operations (DDC 2003).

Thus, on the basis of the technopolitical narratives of the ‘downsides of globalization’, the RMA, NCW, and Transformation, both the Bruun report and the K Memorandum formulated two interrelated ‘technopolitical propositions’ for the purpose of framing the understanding of what constituted a relevant military contribution. First, the RMA/globalization was directly shaping the threat environment and the geopolitical situation, for instance through the notion that territorial defense was no longer relevant due to the technological development. Second, and most important for Denmark, the technological development framed concrete alliance politics, the argument being that if the Danish Defence did not transform, the ‘technology gap’ would make it irrelevant, since the United States would favor high-technological allies with high degrees of interoperability. These propositions were then linked to the specific proposition or policy course that the Danish Defence had to transform in order to maintain an image as a ‘modern military’. More specifically, this proposition was linked to the NATO Transformation agenda. This effort was believed to provide the international organizational framework and, to some extent, the intellectual foundation, especially through the NRF and the PCC. This meant networked, flexible, deployable, integrated, highly professional units able to conduct ‘first in, first out’ operations and fitted with high-technological equipment, especially within the field of ICT or C4ISR and PGMs. Only through such transformation could the Danish Defence make relevant military contributions and thus fulfill its obligation to its partners (i.e. the United States).

The fundamental technopolitical objective of both the Bruun report and the K Memorandum was to link the foreign policy ambition of providing relevant military contributions with the above-mentioned technopolitical propositions and specific proposals for action (i.e. regarding the nature of transformation). This undertaking was successful (Petersen 2012). The new defense agreement was adopted on 10 June 2004 and was a materialization of the Danish thoughts on transformation. First of all, the defense budget stabilized at around DKK 19 billion (Petersen 2012; Danish Ministry of Defense 2004). The territorial defense structure was abandoned, and a two-branch structure consisting of a total defense and an expeditionary force was introduced. The Danish Defence was to be reorganized to develop operational capacities and to release resources that would enable it to mobilize and deploy forces “promptly and flexibly” in international operations and to maintain deployed capacities corresponding to some 2,000 personnel (1,500 of which came from the Army and 500 from the Navy and Air Force) (Danish Ministry of Defense 2004: 4). Since the process of the Bruun Group and production of the K Memorandum, the initial victories in the Afghan and Iraqi Wars had turned into insurgencies, and the RMA-infused vision of Transformation was showing its limits as an effective approach to countering them. Thus, the ‘first in, first out’ focus was somewhat balanced with increased emphasis on civilian-military capabilities and low-intensity operations (Ministry of Danish Defence 2004). However, the high priority given to equipment, i.e. technology, was still a central part of the agreement. This is evident from the final (sub)section of the agreement:

Investment in equipment is to be increased and targeted in relation to relevant, future operational capabilities to an extent that diminishes the “technology gap” between Denmark and certain other allies. It should also be ensured that Denmark can live up to the commitment to participate in NATO’s capability initiatives ... stated by the Government during the NATO Summit in autumn 2002. (Ministry of Defence 2004: 19)

This passage shows that the technological dimension of Transformation had become central to Danish defense policy. The ‘technology gap’ was believed to be of such importance that it had to be addressed in the defense agreement. The result was that approximately DKK 2.4 billion were to be earmarked for equipment investments in the period of the new agreement – a relatively substantial increase. Thus, the transformation of the Danish Defence was a reality. All in all, the final agreement closely resembled the K Memorandum and the Bruun report reflecting the globalization/RMA-induced vision of what a modern military and, in continuation hereof, relevant military contributions should look like. The only difference being the addendums that had to be made in relation to the developments in the wars in Afghanistan and Iraq.

⁷ My translation.

From Operational Theory of the World to Down-to-Earth Operational Concept – Solving the Technopolicy Conflicts of NCW and Transformation

With the Bruun report, the K Memorandum, and the 2004 defense agreement it became clear that if Denmark was to be able to provide relevant military contributions, it would have to transform in line with the Transformation championed by the Rumsfeldian Pentagon, where NCW played a central role as both the intellectual framework and practical foundation. As noted above, however, the Bruun report suggested that Transformation and NCW provided Denmark with what can be called a ‘conflict of technopolicy’ – i.e. a conflict between different ways of managing technologies and ideas about them in regard to the shaping of understandings of what is accepted as possibilities and risks and linking these understandings to a specific praxis (i.e. policy) with its own specific economic, military, strategic, and political dimensions (Norgaard 2019: 17–21).

The first official Danish report on NCW released by the Danish Defence Research Establishment (DDRE) in 2003 (around the time of the release of the Bruun report and the K Memorandum) also outlined these controversies. First of all, the report stated that it was not so much a question of ‘if’, but of ‘when and how’ the Danish Defence should adapt to NCW. In other words: NCW was inevitable (Lemche et.al. 2003: 1, 21). The report further outlined the following possibilities and risks: If Denmark was successful in adopting NCW, it would allow for improved interoperability and thus make Danish contributions more useful to international operations. However, NCW could also, if the Danish Defence was unable to adapt, widen the ‘technology/interoperability gap’ between Denmark and the United States (Lemche et.al. 2003: 11, 20f). And there was also an economic and organizational issue. The report described NCW as capable of providing the Danish Defence with new technologies, practices, and ways of organizing that in turn would enable it to do things faster, cheaper, and better and thus in the long run actually be a good investment. At the same time, though, the report pointed to the overhanging possibility that NCW, if not implemented in the right way, could have dire economic consequences and, at least in the short term, strain an already strained defense budget (Lemche et.al. 2003: 3, 19). In other words, different conflicting technopolitical narratives existed regarding the implementation of NCW in the Danish Defence. If Denmark was to be able in the eyes of its partners (especially the United States) to make relevant military contributions, these conflicts regarding NCW and Transformation had to be resolved.

Before the NATO summit and the process of drawing up the new defense agreement, NCW had not been a main priority within the Danish Defence; primarily the Danish Defence Research Establishment (DDRE) had been engaged with it (Bergstein 2003; Drewsen 2001; Lemche et.al. 2003; Lemche 2019). According to the head of the 2003 NCW report, DDRE senior researcher Viggo Lemche, this even though it was becoming increasingly prioritized and articulated as important by Denmark’s closest allies (Lemche 2019). However, considering the fact that the report was commissioned by the Danish Defence Command (DDC), some attention to the topic was beginning to materialize within the management of the Danish Defence, (Lemche et.al. 2003: 1). As noted, the Bruun report also specifically mentioned NCW as the path to success in future military operations. Around the time of the release of the defense agreement, a steering committee and coordination group were tasked with overseeing, developing, and implementing the Danish approach to NCW, renamed Network-Based Operations (NBO).⁸ This process was anchored within the DDC and the RDDC, and thus the DDRE was sidetracked, except regarding the specific dimension of developing and implementing NBO software and hardware (Lemche 2019). The establishment of this bureaucratic apparatus was a way to approach the technopolicy conflict created by Transformation and NCW.

Two reports about NBO were published by the coordination group (CG/NBO) in 2004 and 2005, respectively. On one of the first pages of the preliminary report it was stated that NCW was an “integral part of the military development of the partners of the Danish Defence, [and thus] [c]ontinued Danish participation in alliance and coalition frameworks require[d] that Denmark possess[ed] the ability to participate in NBO” (CG/NBO 2004: 6).⁹ Thus, the NBO effort was framed as supporting the goal of making relevant military contributions by providing the necessary technological dimension. This was also stated in the official vision of NBO presented in the report: “The Danish Defence must be able to participate in coordinated and combined operations in network-based environments, internationally as well as nationally, in cooperation with both military and civilian actors” (CG/NBO 2004: 19).¹⁰ Similar visions were formulated

⁸ In Danish: netværksbaserede operationer.

⁹ My translation.

¹⁰ My translation.

for the services, all of them emphasizing that the purpose of NBO was to create more joint, combined, flexible, and deployable units (CG/NBO 2004: 24, 28, 31, 34, 37). The idea of so-called 'joint through combined' efforts, where the ability to function in joint environments was obtained through the ability to link into broader multinational frameworks (technological, organizational, and doctrinal), known as 'plug and play', was a central theme in both reports (CG/NBO 2004; CG/NBO 2005; Fusager 2019). Both reports, especially the follow-up report, also described how the implementation of NBO would change the organization, management, culture, doctrine, practice, and even ethics of the Danish Defence, creating a more networked reality where both more freedom and self-synchronization as well as more political-strategic control and management would be a possibility. And in continuation hereof, mission command and better/reformed training would become fundamental to success (CG/NBO 2005: 53–89). The picture in both reports, however, was clear: The overreaching *raison d'être* of NBO was increased interoperability, both inside the Danish Defence, but especially with international partners, which was a way to ensure that Denmark could contribute with military capabilities that were relevant for partners and especially the United States. Thus, the Danish vision of NBO was very different from the GTS-NCW 'operational theory of the world' that had developed under Cebrowski and Barnett within the OFT. The ideas borrowed from the non-linear sciences of chaos and complexity theory were downplayed in these reports, and even though the complex future security environment was mentioned, it was interoperability that was the primary concern. Even though NBO was first of all about technological interoperability, it was only a means to an end, namely increased organizational and operational interoperability both internally in the Danish Defence and with Denmark's allies. Thus, the ideas of the broader global security narratives that had become embedded within the U.S. NCW were, not unlike the NATO NNEC approach, downplayed a great deal. Furthermore, like the NATO Transformation and NNEC approach to research and development (R&D), the Danish R&D approach was framed as evolutionary rather than revolutionary. It was thus argued that since the Danish expertise was limited, the NBO R&D process would be iterative, as that would allow for "[a minimization of] the technological and organizational risks and render possible experimentation with new technology and organizational forms" (CG/NBO 2004: 26).¹¹ This meant that the Danish Defence would take a 'wait and see' approach, where investments and implementations would be based on the close following of R&D made by NATO and especially Great Britain and the United States (CG/NBO 2004: 39). Unlike the NATO process, however, this was not the product of technopolitical compromise; it was a clear technopolitical strategy on the part of the DDC. NBO was shaped as an answer to the technopolitical controversies of NCW and Transformation outlined in the beginning of this section.

Torben Ørting Jørgensen was the first chairman of the NBO steering group, and in an article published in the Danish Military Journal in 2005 he argued that the U.S. visions of NCW¹² and the RMA as changing everything about the military organization were to a large extent "theories based on academic visions," and that "the Danish approach or policy ... of NBO was far more pragmatic, even though inspired by [this] vision, with the primary purpose of over time being able to participate in coalitions, where the network-based common information picture would act as the framework, the Danish approach to the area is highly focused on the down-to-earth and the practically applicable" (Jørgensen 2005: 227).¹³ According to Jørgensen, the Danish R&D and implementation of NBO was to be controlled through what was necessary to function in international coalition frameworks and not through joint Danish solutions, since "Denmark had nothing to gain from being in a network with itself" (Jørgensen 2005: 227). He further argued that the governing aspect of the Danish NBO development was that the Danish Defence was a "defense of adaption" with the only caveat that this approach was not to become a shelving mechanism (Jørgensen 2005: 230ff). The technopolitical narrative of the pragmatic and down-to-earth approach did not just concern R&D and implementation; it also concerned the concrete utilization of NBO, as Jørgensen explained:

In all the technological glory and rapid development, it is of crucial importance that we do not lose sight of the goal or wear out the NBO concept by attempting to justify everything under this epithet. NBO IS ABOUT OPERATIONS. NBO must begin and end there ... It is about delivering the support (technologically and otherwise) that is needed, so that the military sharp end of the future, regardless of service, can function optimally in the operations to come. (Jørgensen 2005: 28)¹⁴

¹¹ My translation.

¹² Jørgensen referred to this as NBO, but he did not distinguish between NCW and NBO, as I do in this article.

¹³ My translation.

¹⁴ My translation.

Thus, down to brass tacks, NBO was about operational interoperability. This technopolitical narrative of NBO as a pragmatic and down-to-earth operational concept was reiterated by Major General Per Ludvigsen in an article the same year that described the transformation of the Danish Defence in light of the new defense agreement. Ludvigsen (2005) explicitly linked NBO to the success of the implementation of the new defense agreement and thus to Denmark's ability to make relevant military contributions. NBO was thus a specific technopolitical strategy or narrative formulated and framed by the DDC. There was in this process of establishing the NBO narrative a struggle in regard to rooting out or discarding the narrative of NCW that had been governing the understanding within the DDRE. This had first become clear when the DDC had overtaken and somewhat sidetracked the DDRE in the NBO process. In an interview conducted with, Viggo Lemche in 2019, he argued that this showed that NCW or NBO became a higher priority in this period. It had now become a military matter, as he noted: “[NBO] could no longer be left in the hands of the spacy civilians [in DDRE]” (Lemche 2019),¹⁵ which for him marked a clear change in the Danish approach to NCW. A similar view was shared by Lieutenant Colonel Jørgen Fusager, who was chairman of the coordination group (2004–2008) that conducted the analyses and wrote the reports (Fusager 2019). According to Fusager, the DDC placed a representative in the group who provided ‘inputs’ that had to be addressed in the reports to make sure they were aligned with the vision of the DDC (Fusager 2019). At the time, Fusager was head of the Center for Operational Support and Logistics at the RDDC and had cooperated with the DDRE. Hence, his basic vision of the NBO was closer to that of the DDRE, being more concerned with technological and organizational aspects than the broader political-strategic aspects that were deemed central by the DDC. Thus, to some extent, he viewed their involvement as an act of micromanagement (Fusager 2019). Like the rest of the coordination group, though, he was essentially in agreement with the DDC, that NBO had to be pragmatic and down to earth (Fusager 2019). Hence, the group of actors concerned with NBO development generally agreed on the basic structure of the technopolitical narrative that had to be formulated.

In 2008, a new defense commission was established; its task was to assess and recommend possible courses of development for the Danish Defence focusing mainly on the period between 2009 and 2025 (Danish Defence Commission 2009). The process leading up to the reports revealed that NBO had become an integral part of the Danish security and military imaginaries and of concrete policy. As part of the process, memorandums were drawn up in different parts of the organization to support the work of the commission. For example, the risk evaluation made by the Danish Defence Intelligence Service (2009) stated that commercial IT systems would become an essential part of C2 systems within defense organizations in the future, and that this would impact the systems that should support the conduct of NBO. Furthermore, it was stated that NBO would increasingly affect and improve the processes of choosing weapons and ammunitions as well as the targeting process and, in continuation hereof, the composition of forces (Danish Defence Intelligence Service 2009: 15). Another report released on the equipment acquisition of the Danish Defence contained a whole section dedicated to discussing the development within NBO. First of all it was assessed “that NBO ... would have a great influence on the operational use of the services and thus on equipment planning over the next 20 years” (Committee Concerning the Equipment of the Danish Defence 2009: 8).¹⁶ The pragmatic approach characterizing NBO thinking was also reiterated – interoperability was still the primary purpose. In regard to acquisition it was stated that the Danish Defence would only participate in the development of “stable tendencies” which meant that it would only acquire and implement systems and approaches that had proved themselves effective within other (military) organizations (Committee Concerning the Equipment of the Danish Defence 2009: 20). The most far-reaching initiative proposed in the report, however, was that all future equipment acquisitions should be compatible with NBO (Committee Concerning the Equipment of the Danish Defence 2009). The commission's final report was released in March 2009. Here NBO was linked specifically to the Danish Defence's ability to participate in military operations involving armed conflict, since this would always take place in a joint and combined framework which required the ability to connect to alliance and partner communication systems (DDC 08 2009: 85, 159). The report reiterated the notion of NBO as pragmatic and down to earth, its development in Denmark being dependent on the development within NATO and other partners (DDC 08 2009: 159). But it also introduced a new dimension which linked NBO to force protection through its ability to provide near real-time situational awareness (DDC 08 2009: 161). The report also described NBO as a criterion in future acquisition projects, even though the language was modified a bit, compared to the report of the equipment committee (DDC 08 2009: 169). Thus, NBO was framed as a specific requirement that guided the Danish Defence's acquisition policies and thus the transformation process.

¹⁵ My translation.

¹⁶ My translation.

Epilogue: The Demise and Heritage of NBO

After the commission's NBO-focused report, the NBO nomenclature was gradually phased out. Some projects continued, though, and in 2010 the Danish Defence Acquisition and Logistics Organization (DALO) published a rather technical report on the ICT architecture of NBO, and NBO-related courses were held at the RDDC until 2012 (Stavnstrup et al. 2010; Michaelsen 2019). According to several of the actors interviewed for this project, in Denmark as well as in NATO and the United States the focus as well as terminology began to become increasingly informed by the COIN thinking, and thus slowly the RMA paradigm went out of grace (Fusager 2019; Lemche 2019; Ludvigsen 2020). This mirrors the existing literature's argument concerning the general demise of Transformation and NCW (Lawson 2014). However, it would be too hasty a conclusion to state that NBO disappeared entirely. As in the United States, many of the processes and ideas did not disappear, they just changed names and framing. For instance, in 2018 the Danish Army integrated the new Army Tactical Communication Network (ATCN) which was to become the backbone of the Danish Army Network Enabled (DANE) project. According to former Head of the ATCN project Office Lieutenant Colonel Michael Engholm, the ATCN was heavily inspired by NBO thinking and the basic idea of a 'battle management system' (BMS) or so-called 'blue force tracker' was conceived in the NBO coordination group (Engholm 2018, see also CG/NBO 2004; CG NBO 2005). This is also evident from the political level. The logic behind the ATCN was quite similar, not to say identical, to that of NBO. In 2018, the Danish Ministry of Defense applied for DKK 344.5 million in funding for the second phase of the ATCN project. In the project description the following argument was given:

[The ATCN] is a digital network that allows for fast data communication between the Army's operational units. The ATCN makes it possible for these units to coordinate before, during, and after operations through the use of modern digital tools, thus making it possible to sustain a near real-time situational picture. Furthermore, the ATCN is a necessary prerequisite for the Army's continued participation in international operations, since the Army must be able to connect its own fully developed communication networks to the local communication networks that NATO and other partners use in the mission area. (Danish Ministry of Defense 2018: 2)¹⁷

Thus, the Danish foreign policy ambitions of being able to participate in international operations through relevant military contributions was linked to the acquisition of the ATCN. In other words, the idea of what constitutes a relevant military contribution continues to be framed by a concrete technopolitical logic.

Conclusion

The technopolitical narratives of the information age such as the RMA affected the perception and practice of Western military organizations in the post-Cold War period. By analyzing the transformation introduced in connection with the defense agreement of 2004, this article has shown that this was also the case for Denmark and the Danish Defence. In this period, relevant military contributions constituted the *raison d'être* of the Danish Defence, and therefore the Danish Defence transformed accordingly. Notions of what constitutes a relevant military contribution, which should thus guide the transformation of the Danish Defence, were shaped and framed by the technologically induced changes in security and military imaginaries. This had both an indirect and passive dimension, where Danish political and military decision-makers were increasingly influenced by the broader, primarily U.S. technopolitical narratives of (the downsides of) globalization, the RMA, NCW, and Transformation, and a direct and (pro-)active dimension. Here the Danish Defence tried to shape a specific technopolitical narrative of a distinct Danish pragmatic and down-to-earth approach to NCW and Transformation in the form of NBO. Finally, the case of DANE/the ATCN shows us that even though some of these ideas have now disappeared, the underlying logic has not.

Competing Interests

Anders Theis Bollmann has received funding for this project from the Royal Danish Defence College otherwise there is no competing interests.

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¹⁷ My translation.

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