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Military Sciences – The Backbone of Military Educational Institutions? – Book of abstracts ISMS 2017

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Editor Foreword

Dear Colleagues,

Welcome to Norway, Oslo and the Norwegian Defence University College. The ISMS was created to build a network for creation, development, exchange and diffusion of research and knowledge about war, conflict management and peace support efforts. As editor of the Norwegian «Military Studies» I am pleased to help with the creation of this special edition with all the abstracts presented to the Conference 2017. Never before has so many different academic ideas about war and conflict been gathered in this journal in the same copy.

Journals like the Norwegian «Military Studies» have a role in developing the Military academies. It is one of multiple arenas to present academic writing and a very good entry point for young scholars or academics that write within narrow disciplines and may find it hard to be published internationally. Journals like this bring topics to the front, and give writers valuable experience and feedback.

The topic «Military Sciences – The Backbone of Military Educational Institutions?» will inform the debate on how to give soldiers the education and necessary skills to cope with an uncertain future. This is always relevant, but maybe even more in these times. Many institutions redefine their demands for education in light of new threats, new technology and the fact that the perception of the world again seem to be back to the historical normal, an uncertain future.

For the work of editing this special edition I will thank my co-editor Silje Fordal Nålsund and her two assistants Maria Syverstad Andreassen and Kristiane Friis Popperud. To all, good luck and have fruitful conference!

Thomas Slensvik
Editor/Commander
Norwegian Defence Command and Staff College

Authors Foreword #ISMS17 Book of Abstracts

On November 15th – 17th 2017 the Norwegian Defence University College (NDUC) will host the #ISMS17 conference in Oslo on behalf of the International Society of Military Sciences (ISMS). This #ISMS17 *Book of Abstracts* is to serve as an introduction to all of the abstracts submitted and presented at the conference.

The publication is organized according to the ISMS thematic Working Group structure which provides an overview of sub-disciplinary efforts of addressing issues of relevance within the field of Military Sciences. All abstracts contain institutional affiliation and contact information to the presenter. Therefore we believe that the #ISMS17 *Book of Abstracts* will be useful also as a tool for potential collaboration between the ISMS institutions with its research fellowship and among the wider ISMS community.

The invited theme of the #ISMS17 conference was (although not restricted to) '*Military Sciences – The Backbone to Military Educational Institutions?*'. We were looking for abstracts and paper proposals that explored the value of science in the sense of how can it play a meaningful role in military education – or not. Representing an interdisciplinary society, we specifically encouraged submissions that dig into the sub-sciences of Military Sciences in an attempt to describe, understand and explain how science can contribute to prepare military units and their soldiers for the life and tasks of conducting military operations. As such, we urged our fellow scholars, who teach at military educational institutions within all disciplines, to look into, elaborate on and argue how science (on its own, in concert with the arts or even in contrast to arts) plays a role in their discipline and/or teaching.

We are happy to say that we received approximately 100 abstracts from more than 25 nations across three continents. Two thirds of the abstracts are presented by scholars residing in nations with an ISMS membership and a third of the presenters are made up of scholars without such an affiliation to the ISMS. All the abstracts have been reviewed by one of the nine WG Chairs and allocated into two plenary sessions, five oral sessions totalling 23 panels and one poster session with more than 15 posters indicating there will be four or five parallel panels running simultaneously throughout the two conference days.

Table 1 gives an overview of the number of panels and presentations that are accepted for the #ISMS17 conference.

Table 1. Panels, oral and poster presentations at #ISMS17 distributed among the ISMS Working Groups.

Working Group	Oral Panels	Oral Presentations	Poster Presentations
1. War Studies	4	13	2
2. Military History	2	6	1
3. Military Technology	1	4	0
4. Leadership, Command and Control and basic Competencies	2	6	2
5. Law and Ethics	1	4	0
6. Security and Defence policy and Strategy	5	16	1
7. Armed Forces and Society	2	10	0
8. Defence management and Economics	1	4	2
9. Military Education	5	23	9
	23	86	17

We plan to publish a revised electronic version of this Book of Abstracts after the conference. The electronic edition will contain a working group summary from the Working Group Chairs.

Finally, we would like to extend our gratitude to all presenters for sharing their thoughts with the rest of us – hence providing us with new ideas, concepts and perspectives. We would also like to thank the participants of the #ISMS17 for contributing in the Military Sciences discourse – challenging our taken for granted presumptions, and the Norwegian Defence University College for providing the funds for publishing this Book of Abstracts and thus ensuring the preservation of the conference presentations.

Anders McD Sookermany, ISMS President and Norwegian ISMS Council member
 Eystein L. Meyer, Head of the #ISMS17 Conference Committee
 David M. Last, Canadian Council member and WG9 Chairperson

Description of the ISMS Working Groups

1. War Studies

Military strategy, operational art and tactics, contemporary operations, conflict, future warfare, asymmetrical warfare, psychological operations, peace support ops, COIN, military support for civil authority, doctrine development, military theory and practice, lessons learned and identified, terrorism and counter-terrorism, organized crime, intelligence, military policing, international police operations, regional approaches, privatization of security, special forces.

Chair: Professor Dr. John David Young, Royal Military College of Canada
E-mail: Young_j@rmc.ca

2. Military History

Chronological, geographical, component (army, navy, air force), thematic, military biography.

Chair: Dr. Douglas Ford, Baltic Defence College
E-mail: douglas.ford@baltdefcol.org

3. Military Technology

Information systems, systems testing, impact of technology on operations, weaponry, interaction with human dimension, R&D agendas, industry connections, life cycles and defence acquisition, network centric warfare and network enabled capabilities.

Chair: Professor Dr. Hannu Kari, Finnish National Defence University
E-mail: hannu.kari@mil.fi

4. Leadership, Command and Control and Basic Competences

Sense-making, trust, stress, group cohesion and resilience, case studies, cultural awareness, gender, communication skills, mediation & negotiation, self-reflection, organizational culture, diversity management, temporary units, physical and psychological characteristics, human factors analysis, cognitive abilities, recruitment and selection, education and training, post-traumatic stress, military medicine.

Chair: Dr. Soili Paananen, Finnish National Defence University

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5. Law and Ethics

International law of armed conflict, international humanitarian law, rules of engagement, jus in Bello, jus ad bellum, jus pos bellum, status of forces agreements, pre-emptive action, moral dilemmas, values and transmission of values.

Chair: Professor Dr. Maja Eriksson, Swedish National Defence College

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6. Security and Defence Policy and Strategy

International organizations, actors, factors-threats, cooperation, security regimes, alliances and coalitions, interests, risk evaluation and management, international relations, scenario development, crisis management, security complexes, influence strategy, coercion, deterrence, modelling, game theory, defence diplomacy, etc.

Chair: BG Dr. Wolfgang Peischel, Austrian National Defence Academy

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7. Armed Forces and Society

Nation-building, institutional gaps, military sociology, armed forces as societies, armed forces in society, civil-military relations, conscription and professional armies, gender-ethnicity-identity and minorities, military families, unions and soldier associations, social experimentation and social activism with armed forces, media, public opinion, democratic control of armed forces, security sector reform, international cooperation, privatization.

Chair: Prof. Dr. Rene Moelker, Netherlands Defence Academy

E-mail: r.moelker.01@nlda.nl

8. Defence Management and Economics

Resource management, change management, transformation, cost-benefit analysis, logistics, defence acquisition, strategic personnel policy, accounting, defence administration, military industrial complex, measures of effectiveness, benchmarking, outsourcing, privatization, base closures, infrastructure issues.

Chair: Prof. Dr. Robert Beeres, Netherlands Defence Academy

E-mail: rjm.beeres@nlda.nl

9. Military Education

Curriculum development, pedagogy, standards and evaluation, professional development, academic freedom, case studies/simulations/exercises, professional collegiality in military education.

Chair: Associate Professor Dr. David M. Last, Royal Military College of Canada

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WG 1

War Studies

How innovation theory can contribute to the military operations planning process

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Keywords: Military planning processes, innovation theory, COA development, perceptions of knowledge, military education

The research study considers how the application of innovation theory might contribute to military staff work planning processes and bring new perspectives to operational models of analysis such as NATO's Comprehensive Operations Planning Directive (COPD) and the Danish Field Manual III.

The aim of this presentation is to present some theoretical considerations and empirical findings from a preliminary research study investigating the information metabolism of military planning groups – commanders and their staff – in the operative planning process. The study considers the military staff work's translation of information, capabilities, and desired strategic outcomes into operation plans and combines the empirical findings with innovation theory and theories on leadership. The background for this ambition is the need to increase agility and creativity of military planning in response to seemingly still more complex hybrid conflicts and operational environments in which the military is engaged (see Griffin 2016).

The research project explores the value of innovation theory for military planning processes and suggests areas where, according to our findings, it seems possible and valuable to integrate recent theoretical developments within the innovation domain into the military planning practice.

Approaches leaning on innovation theory have proliferated in social studies and organizational development projects in recent years. Innovation theory (according to some analytical distinctions; see for instance Mayland 2017; Roberts 2017; Darsø 2011 and 2012; Grigsby et al. 2011) comprises a number of central concepts and 'reflection points'. These include for instance the concept of *design thinking*; the distinction between *convergent and divergent thinking*; the focus on *embodied competences and taken-for-granted world views* embedded in the performance of routine practices (such as the military planning process as depicted by NATO's Comprehensive Operations Planning Directive, COPD¹); the interest in *meanings*, i.e. norms, world views, and values that guide and saturate these practices; and the systemic attention on *relations* as well as the implicit 'code of conduct' implied in these relations. It is a central observation of the study that these factors may be influenced and enhanced by a number of leadership techniques.

The project was rooted in a social constructivist perspective. The research approach was qualitative with the aim to investigate military planning and operations development processes and illuminate subjective experiences of these processes. Qualitative semi-structured interviews were conducted

¹ COPD is a NATO planning directive designed to facilitate a collaborative approach in military planning

and combined with an observational study in order to get knowledge about the research interests. The empirical data included interviews with central military staffs working with operational planning. Participants were selected on the basis of their experience as instructors and/or facilitators of military planning processes. All of them were well-experienced with taking part in the military planning process and COA development. The observational study followed the Danish officer training in the MA level course Joint Campaign Planning and parts of the course Advanced Land Operations conducted at the Royal Danish Defence College in 2016–2017. Furthermore the analysis included a literature study of Danish and NATO staff work guidelines and integrated this with innovation theory and theories on leadership.

Our findings pointed to at least four central themes where innovation theory may contribute to a further development of the military planning process:

- The challenge of getting planning staffs to switch to a *divergent mindset* when working within convergent thinking structures.
- Factors related to the importance of *embracing and enhancing diversity* as a condition for reflective, critical thinking. These factors included: the composition of staffs and the structuring of planning and analysis processes; the importance of staff working groups being capable of establishing an internal ‘cognitive disjunction’ in order to avoid groupthink (cf. Janis 1972); the importance of instituting an openness towards unruly perspectives and wild ideas (cf. Darsø 2011; Mayland et al. 2017); and the need for an organizational awareness of the dominant perception of knowledge. The perception of knowledge plays a key role in the effort to avoid internal antagonistic debate cultures where disagreement is perceived as ‘either-or’ rather than considered as an important contribution to create exploring dialogues that may improve the final outcome (e.g. the COA)
- The *balancing of constraints and restraints*. The COA development process may be regarded as the processual and conceptual center where the operational (or tactical) plan is forged. Our findings pointed however to the fact that sometimes the function of this center seems to be that of *assembly* rather than of innovation.
- The influence of the ‘*time factor*’ and what to do with it.

The main intention of the presentation is not to assert certain findings as facts. Rather we wish to present some preliminary observations and theoretical reflections in order to invite researchers and military professionals to engage

in a dialogue that expands and qualifies current perspectives on military staff work planning processes with the view to improve military education and organization. Questions such as the ones raised by Zweibelson (2015) concerning the (in)commensurability between military planning and design thinking, or the challenges in relation to instituting organizational changes as identified by Roberts² (2017) will be interesting to explore in light of this theme.

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Mayland et al. (2017). Thinkers at the Cutting Edge: Innovation in the Danish Special Operations Forces. In: Christensen (ed.). *Interdisciplinary Perspectives on Special Operations Forces*, København: Forsvarsakademiet, pp. 88 – 107.

² Roberts highlights nine challenges that she has encountered in relation to the design of SOF organizations; these include the need for high-level sponsorship, the problem of lack of time, and the challenge of problem identification (Roberts 2017: 130-132).

Roberts, N. (2017). SOF as designers. In: Christensen (ed.). *Interdisciplinary Perspectives on Special Operations Forces*, København: Forsvarsakademiet, pp. 120 – 139

The evolution of operational intelligence causative Russian special services on the territory of the Republic of Poland

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Due to its purpose, intelligence activities can be divided into two groups:

- informational intelligence – traditional, providing the requested information;
- causal intelligence – non-traditional, allowing influence on the opponent.

These types of activities are characteristic of offensive operations or information warfare.

The second type of intelligence will be the subject of my PhD dissertation.

The purpose of the proposed presentation is to present the results of the initial stage research and the problems with shaping the concept of the dissertation.

The history of the Soviet Union, and especially its security services since the late 1930s, has become impersonal. There were no individual people behind the events they have implemented. The tendency for anonymity in publicly available publications on the institution of the soviet state is particularly noticeable in the texts devoted to special services. Only in the 1990s began to appear information's about staff cast of the state security services.

In the period of *perestroika* and *glasnost* gradually began to depart from the principle of confidentiality, and in the literature began to appear information about the facts of service officers. However, the selectivity and persistence of the presented information was related to the deliberate introduction of disinformation, which is also one of the basic methods of operational work today.

The Russian state security organs, both in the past and at present, operate as a state in the state without limiting the ethical, legal or humanitarian framework. Their activity is inextricably linked to the currently set strategic objectives of the state and the operational objectives of the services, which are a common result.

Apart from the classical forms and methods Russian special services operations, over time, the education has been much more complicated, the success of which depends on the role of agents, their training, wits and intelligence as well as happiness. Many of the activities are also targeted at people with specific professional and intellectual skills, and psychological traits. It should be borne in mind that the intelligence activities of a foreign country carried out in the territory of a second country are always hostile and aimed at obtaining strategic information.

In accessible literature there is no available information on the risks arising from the identified operational activities of the Russian intelligence service for the Republic of Poland and the methods used to achieve a specific objective. There is also no information indicating *modus operandi* of Russian agendas. Accordingly, it is necessary to study collected data and to find answers to the questions that have been asked in the course of the study.

As a result of analyzes of available sources of information, a problem is identified which requires thorough research into the definition of *modus operandi* and the reasons for the application of specific operational techniques of the Russian special services depending on the emerging geopolitical, economic and internal situation against the Republic of Poland. Research will also seek to verify the thesis that the intelligence methods used so far have undergone a constant evolution in geometric progress, which is conditioned by the ongoing civilizational changes. On this basis, efforts will be made to identify methods to counteract intelligence activities, also taking into account the psychological conditioning of the individual. For these purpose, to make a diagnosis, will be used a comparative analysis.

The subject and scope of the study will be defined by the defined and disclosed public opinion of the activities of Russian special services in the territory of the Republic of Poland since the beginning of World War II.

The characteristics of identified and disclosed public opinion cases of active intelligence activities in a dissertation will refer to cases that have ended in the court. However, it should be borne in mind that most of the identified activities of the Russian agencies end in a different way from the judicial decision.

The author of the dissertation will seek to answer the question of what dangers arise from the operational activities of the Russian special forces and how their methods of action for the Republic of Poland have changed according to the geopolitical situation, the ideological influence and the strategic objectives of the Russian Federation. Taking into account the accepted object, scope of the research and research problem, it should be assumed that the purpose of the research will be identification and identification of threats resulting from the operational and operational documents described in available operational documents of the Russian special forces in the territory of the Republic of Poland since the Second World War. The research process will be based on a case study. Based on preliminary research conducted using comparative analysis, the evolution of the information war in cyberspace has been determined as one of the methods of conducting information intelligence.

In addition, as a result of the initial literature research, it was found that in the intelligence operations, the focus is on the pursuit of action that is derived from the following elements:

- great-power aspirations of individual states seeking international dominance
 - the more aspirational aspirations, the more a country strives to exert greater influence on its international environment, that is, to other states;
- the state of international relations is a political (and often military) conflict between states or political camps – the worse the relationship, the stronger the conflict, the individual states (political and military blocs) are more determined to weaken and destabilize the situation in the enemy camp. To less and less closely look at the state of mutual diplomatic relations and, consequently, take increasingly radical steps (including diversion, sabotage, and assassins);
- the situation in a given country or political camp, that is, strength or weakness, the worse the situation in a given country or political camp (weakness of power and military, international isolation, internal socio-political and ethnic conflicts, the more it is exposed and susceptible

to activities conducted in the field of intelligence conducted by other, especially hostile states and political blocs.

In conclusion, it is worth to mention that the federal intelligence guidelines for the intelligence services leave no illusions about the aims and scope of their actions. The basic tasks of intelligence include supporting international interests of the Russian Federation through post-secret and secret activities. The aim is to implement the Kremlin's political plans to ensure Russia the widest impact on the international scene.

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With Car and Kitchen Knife – How To Respond When Homegrown Violent Extremism Goes Low-Tech?

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Keywords: Homegrown Violent Extremism, Domestic Terrorism, Low-Tech Terrorism, DIY Terrorism

The proposed presentation is devoted to the alarming and increasing phenomenon of the homegrown violent extremism that recently manifests itself on the European continent in a form of terrorism employing non-combat low-tech, daily tools or «Do-It-Yourself» (DIY) technology. The author analyses approaches and looks for practices that prevent, counter or minimise the threat.

The discussed threat has been recently tragically exemplified by attacks in major European cities as Paris, Berlin, London or Stockholm, but also has been observed on a daily basis in Israel for the last couple of years. The trend is rising, what attracts attention of the Academia, and European security services overwhelmed by lack of pre-emptive response measures. It encourages to investigate the nature of the phenomenon and the ways to prevent and counter it.

The aforementioned terrorist incidents were conducted by Islamist extremists, yet the latter are not the only to constitute homegrown violent extremism (or domestic terrorism – the terms tend to be used interchangeably, contextually, though, might have different connotations – especially in the context of countering the phenomena) as examples of white-supremacists' (or similar groups) attacks against Muslim or refugee communities are on the rise too. In recent years, though, Islamist extremism, due to its brutality and ultimate end-goals, remains one of the biggest threat to stability of European societies.

Therefore, European homegrown Islamist extremism is most often associated with militant Salafism (similarly to extremism, which may be violent or not, Salafism too, most frequently, is not violent, yet some its offshoots are violent, thus they are called militant Salafists). This radical form of Islam is being spread in the West by the Arab Gulf-funded clerics and thrives thanks to freedom of communication and travel. These two elements are crucial in exacerbating the threat, as there is no ‘structure’ of militant Salafism and ties between various and numerous groups, associations and networks are loose, if not only ideological (Frazer Egerton, *Jihad in the West: The Rise of Militant Salafism*, Cambridge 2011). The exchange of ideology, ‘know-how’, finances, people remains fluent and almost invisible, what was well illustrated by the steady financial flows between extremist organisations and radical mosques in the USA under the guise of charities (Steven Emerson, *American Jihad: The Terrorists Living Among Us*, New York 2002) and even after tough post-9/11 countermeasures were put in place, some pseudo-charities and radical mosque still spread extremist ideology and channel terrorist funding (Steven Emerson, *Jihad Incorporated: A Guide to Militant Islam in the US*, New York 2006). In Western Europe, Islamist extremism is, similarly as in the United States, deeply enrooted in Muslim communities and profiting from Western freedoms. Yet, as the extremist elements are only marginal part of the communities, collaboration with Muslim societies is one of the most important element of successful counter-terrorism policy (Robert Lambert, *Countering al-Qaeda in London: Police and Muslims in Partnership*, 2011).

There are twelve radicalisation mechanisms (individual, group, and mass) – that pull and push people onto extremist path (Clark McCauley, Sophia Moskalkenko, *Friction. How Radicalization Happens to Them and Us*, New York 2011). To some, one might be enough, yet often it is a result of several factors that contribute to one’s radicalisation. An exemplary study of the Paris «Bataclan» attack of November 2015, shows that most of ten terrorists were European-born or lived many years on the continent, and thus obtained a citizenship or permanent resident’s permit, what qualifies them as «domestic» and «homegrown». Majority of them also travelled abroad (to Syria) for jihad training and remained in close contact between Paris and Brussels, what validates Egerton’s thesis that synergy of free communication and movement highly increases terrorists’ capabilities. Similar conclusions can be drawn from study of any other recent Islamist attack on the continent (Charlie Hebdo 2015, Brussels 2014, Woolwich 2013, Toulouse and Montauban 2012, etc.)

– homegrown extremists, most of whom travelled for the training abroad (Yemen, Syria, Afghanistan, etc.), committed terrorist acts against their own countrymen. Such profile of homegrown man, most of whom travel abroad for training, will be most common among Islamist terrorist in the West (Jason Burke, *The New Threat From Islamic Militancy*, London 2015). Due to the fact, that acquiring automatic weapons, explosive devices or bomb ingredients becomes harder, the terrorists tend to use common and daily tools such as a kitchen knife and a car in their attacks (e.g. Woolwich 2013, London Bridge 2017, Paris Louvre Museum 2017). The number of casualties might be lower, but such a terror act is easier to commit and the outcome might not be lesser at all. It challenges the authorities' abilities to act and prevent such attacks (for they are extremely hard to predict) – especially as they risk of becoming our daily routine. Close work with the communities and governmental and NGOs counter-narrative programmes seem to be solutions that can limit the scope of the threat, though, it will not be possible to eradicate it entirely.

The detailed conclusions and recommendations will be added upon completion of the research (due to October 2017).

The presentation will be a result of research being currently conducted by the author in Oxford and the Handa Centre for the Study of Terrorism and Political Violence at the University of St. Andrews.

An Integrated Multiplatform Approach To Joint Operations For Fighting Terrorism And Other International Threats

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Nowadays, governmental and fanaticism based provocation with ultimatums and threatening acts, as well as terrorism with CBRNE threats dominate international news. Also the use of electronic and information warfare are reported frequently. This kind of irresponsible behavior, veiled targeted information, electronic and cyber operations, and even direct violent acts towards other nations shake the line between the state of peace and war, and consequently, there appears to be at the moment an increased threat level on all over the world. Due to the situation, and possibly partly due to the fast development of technology and commercial interests of defence industry, new methods of warfare are taken in use increasingly. Especially, governments and defence industries invest currently heavily in robotics, autonomous systems and AI. These in turn increase the variety of capability requirements of military forces and defence, as the means of electronic warfare and RAS systems do not directly replace common warfare methods or the use of human force. Instead, new technologies and methods are at this stage added on the earlier armament and capability requirements become increased accordingly. For example, within the ground forces tanks are expected to stay as one of the key elements of armament for a long time ahead, and CBRN will stay as a significant threat in war, despite of being prohibited and banned globally by the declaration of the UN. Together with the development of technology and armament, there is an ongoing debate on whether the use of RAS and electronic warfare with robotized weaponry is ethic or even controllable at all. For example, automated systems are suspected to shoot people unselectively without human decision or to take power and control over humans. It has therefore been suggested that the UN should ban this kind of weaponry, even though the defence industry

has already created them and is continuing to develop them further. This presentation discusses the described theme from the defensive and protective side by claiming that robotized and autonomous systems are, until certain point, necessary in military use for saving lives and for eliminating CBRNE threats before they are born. The claim is reasoned by introducing an integrated multiplatform operating concept for detecting CBRNE threats in all domains and at all stages of a potential CBRNE strike like an attack with a chemical weapon. It is urgent that the preparation, planning and use of this kind of WMDs is detected and prevented in advance and that the released toxic agents are identified safely before human forces enter the place. The described safe detection of CBRNE threats in all occasions entails that surveillance and reconnaissance can be carried out scalably from varying distances by using intelligent sensors with different manned and unmanned operating platforms. These include manned and unmanned aircrafts and ground vehicles, such as airplanes, helicopters, UAVs, UGVs and drones, as well as hand held, wearable and stationary detection devices including instruments that are used inside mobile laboratories in the field. There also are solutions for underwater and surface detection on water, and many of the unmanned airborne solutions can be used in addition to the ground forces by the navy. Although single CBRNE threats may be detected in small local releases with a single specialized device, it is necessary to be prepared also for larger, multi-source and escalating threats with highly developed multiplatform detection systems by minimizing simultaneously the need of using human force in exposed areas. This kind of scenarios are plausible in international joint operations in all over the world, and in a smaller scale in multi-authority operations in severe CBRNE incidents within one country. Due to the above mentioned unpredictable international situation and technological development there also is an additional question of whether some of the autonomous CBRNE detection systems should be equipped with arms. This question is, however, more relevant for international military operations and less likely in homeland security. In addition, potential arms would possibly not be mounted in detectors per se, but as an additional payload on common operative platforms. However, as in this presentation some models of the referred CBRNE detection technology utilize powerful light sources, such as laser beams, there might, theoretically speaking, be a chance that the same detection devices would be modified to operate in a two-way mode. One functionality of the device would in that case be able to detect a CBRNE threat, and another to stop parties who are preparing or

carrying out actions for harming innocent people, businesses and property with that threat. The referred integrated multiplatform operating concept for the detection of CBRNE threats has been created within a European Commission funded Toxi-triage project of eight countries for producing new technical methods for managing large-scale CBRNE emergencies. The outputs of the project are primarily aimed at the first responders' use and for the dual use by military forces. The integrated multiplatform concept is created by the University of Jyväskylä as a part of the development of a hyperspectral CBRNE detection method and it is partly based on a recent doctoral dissertation research that was carried out in association with the National Defence University in Finland. The Toxi-triage project is led by UK and other partner countries are Finland, Germany, Norway, Greece, Spain, Czech Republic and the Netherlands.

Assessing the strategic effect of offensive air operations

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Keywords: airpower theory, strategic attack, strategic effect, operations assessment

The aim of this presentation is to present a literature review that shows a lack in current literature when it comes to how strategic effects from strategic air attacks are measured. The review is produced as a part of the authors PhD and covers theory from airpower zealots, airpower conservatives as well as literature on operations assessment and performance measures. For decades, airpower theorists and military scholars of all sorts have debated the utility of airpower in offensive operations. Is it possible to influence decision-makers through kinetic offensive operations to such a degree that it would actually change the course of the war? Is it possible to create strategic effects with offensive airpower? The jury is still out when it comes to a clear answer, and current literature is divided into two positions. One side (e.g. Douhet and Warden), argues that airpower used correctly will be able to influence decision-makers and together with other instruments – or in some cases all alone – be able to deliver decisive strategic effect. The other side (e.g. Pape and Crevelld) uses history as their primary argument and says it has never happened and it never will. Before we go deeper into the debate, it is necessary to appreciate the terms strategic effect and strategic attack. Once these terms are fully understood the next logical question – which also is the question that can put an end to the debate – or at least qualify it – is can we measure the strategic effect of strategic air attacks? If we can, we should be able to help the jury qualify the answer. If we cannot the debate appears to be based on assumptions, theories, and beliefs – some would say faith – and not facts. First, we need to establish what strategic effect and strategic attack is. In Allied Joint Publication 3.3(B) for Joint Air and Space Operations (NATO doctrine), NATO uses the phrase Strategic Attack. It defines Strategic Attack as: «A strategic attack is a JFT [Joint Task Force]-directed offensive action against

a target, whether military, political, economic or other, that is specifically selected to achieve military strategic objectives. These attacks seek to weaken the adversary's ability or will to engage in conflict or continue an action and as such, could be part of a campaign, major operation, or conducted independently as directed by the Alliance. Additionally, these attacks may achieve strategic objectives without necessarily having to achieve operational objectives as a precondition.» Though the actual paragraph in AJP-3.3(B) is slightly longer than the text above, this is about all NATO doctrine offers on the subject and the only definition of strategic attack in NATO doctrine. Strategic attack is also mentioned in AJP-01(E) Allied Joint Doctrine as a possibility, but without any further elaboration. USA goes somewhat further and the U.S. Air Force has issued Air Force Doctrine Document 3 – 70 for Strategic Attack. The AFDD 3 – 70 describes Strategic Attack as: «Strategic attack is offensive action specifically selected to achieve national strategic objectives. These attacks seek to weaken the adversary's ability or will to engage in conflict, and may achieve strategic objectives without necessarily having to achieve operational objectives as a precondition. [...] Strategic attack provides an effective capability that may drive an early end to conflict or achieve objectives more directly or efficiently than other applications of military power.» There is little doubt that the two actors' air forces and air forces' doctrines believe in the possibility to create strategic effect through offensive air operations. When looking at the two actors planning documents a similar agreement on how to plan offensive operations occurs. Both start with the desired end-state and plan backwards through strategic objectives, operational objectives and effects to actual actions, meaning that an action will create an effect. One or more effects will lead to an objective and one or more objectives will lead to an objective at a higher level or directly to the end-state. Lacking further NATO definition or doctrine on the matter of strategic attack (SA) let us take a look at AFDD 3 – 70 to learn how the USAF envisions the matter: «Unless the enemy's military forces are deemed to be a strategic COG, they are not useful as SA targets. In fact, the goal of SA operations is to bypass the fielded forces to the maximum extent possible. A way to illustrate this concept is to think of the military as a tool being used by a nation or organization to enforce or force its will. It very often makes more sense to attack the person, nation, or organization using the tool rather than the tool itself. SA's goal is to exert influence on the decision-maker rather than the tool being used by the decision-maker.» And now back to the main question; how can planners tell if they are successful in exerting

influence on their opponents decision-makers through their actions? It is highly unlikely that future opponents' decision-makers will provide NATO or the U.S. with a weekly status report on effects achieved on their will or ability to wage war. In fact, it is very unlikely that they will reveal anything at all if possible. Hence, those who plan offensive air operations in the form of strategic attacks must find ways to measure the effects of their actions and measure the strategic effect obtained on their opponents' decision-makers. How this is accomplished remains however a mystery. One should think that airpower zealots, or more conservative views on airpower, or documents on operations assessment would offer insight to the subject. Nonetheless, the literature review shows that the two opposing sides offers no answers to the question, nor does literature on operations assessment. Neither former nor current airpower zealots and proponents of strategic attack and strategic effect offers any solutions or ideas for that matter, on how to measure the effect of their actions. In fact, they do not touch the subject in their writings and leaves their readers with a more theoretical than practical take on the subject. Airpower conservatives whom disregard the idea of strategic attack and strategic effect do also not cover the subject. In their writings, they use historical examples to support their arguments on airpower's failed attempts to create strategic effects, but they too neglect to offer any insights on how strategic effects are measured during ongoing operations. Finally, NATO and U.S. documents on operations assessment offers practical ideas on how effects should be planned and measured, but when it comes to specifics on strategic effects created by strategic air attack they too lack clarity. The same is the case with other publications on performance measures and operations assessment. In short. There is a gap in current literature on assessment of strategic effect obtained by offensive air operations. A gap that if filled could help qualify the debate on the possibility to obtain strategic effect through offensive air operations.

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Rapid British Amphibious Response as a Force Multiplier in the Nordic – Baltic Theatre

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British leadership in Northern Europe is welcomed by the Nordic – Baltic States for several reasons. However, the common interest in keeping the region stable and prosperous, based on democratic and liberal values, is clearly the foundation. Considering a more revisionistic and assertive Russia, that has made them the major security concern in the Nordic – Baltic countries, security solutions are clearly a key aspect of the willingness for increased cooperation and acceptance of leadership in the region. The Nordic – Baltic countries contributes to NATO, EU and the UK led Joint Expeditionary Force (JEF) because they expect a *quid pro quo* military support in the event of a Russian aggression towards themselves. That means that UK must possess available credible support to obtain legitimacy for leadership in Northern Europe.

In the event of a Russian aggression NATO's Very high readiness Joint Task Force (VJTF) will have no or little utility in the Nordic – Baltic region and the JEF will have only British and Dutch forces available. This chapter will argue that the combined British – Dutch amphibious force should be employed rapidly to the most Northern area of Norway for optimized strategic effect. The main reasons are space to exploit superior ability to manoeuvre with the amphibious force and the proximity of the strategically most important area for Russia. The argument is based on the logic fact that the opposing part's uncertainty increase proportionally with own freedom of action. Only increase in forces can fully mitigate the risk that follows increased uncertainty. Since the operational freedom of action with an amphibious force is larger in Northern Norway than in the Baltic, the force multiplying effect will be highest in Norway. Further, recommendations will be that the landing crafts in particular need an upgrade to high-speed and long-range

capabilities, that the host nation needs to locally prepare for the rapid establishment of necessary sea control and shaping for the insertion of the amphibious force, and that the range of manoeuvres will be tested, developed and demonstrated during exercises.

Internationalization of ethnic conflicts and impact on regional and international security

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Keywords: internationalization of ethnic conflicts, ethnic irredentism, external intervention, etnodiaspor policy.

Ethnic conflicts do not only produce domestic results, but also affect international relations and foreign policy. Thus, the political demands of some ethnic groups (eg secession) may affect the legitimacy of the state's territorial borders. In some cases, other states consider it necessary for their own interests to intervene in domestic conflicts. In addition, etnodiaspora organizations can also carry out such interventions from the outside to help the «ethnic compatriots». Ethnic conflicts have international feature in each of these cases.

The scientific approaches to the process of internationalization of ethnic conflicts in the Cold War was purely from a domestic aspect. It is not so difficult to realize this. Because the rigid bipolar system did not allow such confrontations to take violent character and expand. However, the bankruptcy of a rigid bipolar system has led to loss of control over ethnic controversies and threats to international interests. In particular, the intensification of local ethnopolitical conflicts in the complicated ethnic areas such as Balkans and the Caucasus, which have fallen into the global geopolitical alteration zone, have given them an international inter-state character.

As a result, we come to the conclusion that the internationalization of ethnic conflicts can have different consequences for each conflict:

- the conflict may be exacerbated by external interference;
- Conflict can be the result of the interference of foreign interests;
- mitigating conflict as a result of international care and pressure;

- a mediation or interference of external forces may result in reconciliation between the parties to the conflict;
- Conflict inversion, that is, ethnic conflict can be non-ethnic due to the special interests of foreign partners and in general it can turn into another kind of conflict (for example, events that have taken place in Iraq since 2003, Arab spring since 2011).

Like Cain and Abel. Internal political tensions in the Iraqi Kurdistan (KRG) in the context of interests of external actors

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Keywords: Iraqi Kurdistan, Kurdish Regional Government, Middle East, Conflict Structures, Reflexive Control

This research is devoted to the relations between internal friction in Iraqi Kurdistan and the policy of external actors towards the Kurdish political forces.

The aim of the research is to find and explain the relationships between some of the internal problems in the Kurdistan region and the interests of external actors that directly or indirectly engage in aforementioned region. The purpose, however, will not be focused on finding the culprit of any event or crisis in the region or the vicinity thereof, nor to perpetuate stereotypes or to build an image or to evaluate the moral of any subject discussed directly or indirectly.

The issue has recently gained on popularity in the media due to the independence referendum held by Iraqi Kurds on 25 September 2017, despite the opposition of almost all the actors involved in the region. The topicality of these events and the lack of reliable sources of information is the reason why the analysis of such a phenomenon is difficult, so the author will discuss them only briefly and will show – where it is necessary – the continuity of certain processes.

In the first part of the speech, the author will briefly describe the Iraqi Kurdistan functioning and its legal fundamentals and characterize two main political powers the Democratic Party of Kurdistan and the Patriotic Union of Kurdistan as the main actors on the political scene in Iraqi Kurdistan.

In fact, both parties control separate parts of Iraqi Kurdistan armed forces (Peshmerga), other security services and administration (Dennis P. Chapman, *Security Forces of the Kurdistan Regional Government*, Mazda Publishers, Costa Meza, California 2011). During the characterization the author will use selected elements of the theory of Reflexive Control.

In Reflexive Control theory, particular emphasis is placed on recognizing the ability to perceive oneself and others (including those who seek to gain control of their actions). The undoubted advantage of this theory is the assumption that the analyzed entities can have both material and non-moral benefits, such as the fulfillment of sacrificial acts to improve their own image in their own eyes and others (Vladimir A. Lefebvre, *Lectures on Reflexive Game Theory*, Leaf & Oaks Publisher, Los Angeles 2010). With this theory, the author will present friction between the main Kurdish political forces and their possible relations with external actors, taking into account both their own image and how they perceive each other (Faleh A. Jabar and Hosham Dawod, *The Kurds: Nationalism and Politics*, Saqi Books, Beirut 2006). The components of this image are also the interests, intentions and goals. The difference in the latter lies at the root of friction.

The intention of the author is to present the problem in graphic form with the systematic analysis (Janusz Kacprzyk, Andrzej Najgebauer, Piotr Sienkiewicz, *Badania operacyjne i systemowe a zagadnienia społeczeństwa informacyjnego, bezpieczeństwa i walki*, Instytut Badań Systemowych PAN, Warszawa 2008) which will allow to clearly show complex relations between conflicting parties and their nearer neighbors (the other parties in the KRG parliament, the central government in Baghdad) and the surrounding environment as neighboring states and international organizations (Renata Kurpiewska-Korbut, *Spółeczność międzynarodowa wobec Kurdów irackich*, Societas, Kraków 2014). The analysis also includes trends (eg, the fall in oil prices, the plans to diversify the EU's oil and gas supplies).

The author's intent is not to determine whether the Iraqi Kurds are the object of information attacks. To articulate this thesis would require further research using specialized applications that analyze, for example, content flow in social media.

The presentation is a result of research which was conducted by the author in Iraqi Kurdistan.

Soviet and Russian Military Science Concept

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The content and understanding of military science depends on the culture in which it operates. Since individual cultures may vary considerably, it should be assumed that the understanding of military science in particular cultures will vary. It should also be assumed that due to the very essence of the war, regardless of cultural differences, there will be common elements in the multicultural sense of military science.

In the study of these differences relatively less literature is devoted to the Soviet and Russian military science. Therefore, the content of this discussion will be the evolution of the understanding of military science in Soviet and modern Russia. The reflections will be based on an analysis of original doctrinal documents such as: *Военная энциклопедия, Петербург 1912; Большая Советская Энциклопедия, третье издание 1969 – 1978; Министерство обороны Российской Федерации, Военный энциклопедический словарь, Воениздат, 2007; Д. Rogozin, Война и мир в терминах и определениях. Военно-политический словарь, Вече, 2011* and other connected doctrinal documents and scientific publications.

Traditional understanding of war is related to the so called Westphalian order existing among states. Even in this context, there is no one common definition of war. Legal definition is not the same as one coined from strategic point of view. We may agree that the military aspect is the essential feature of war and that military forces are still one of the most important instruments of international policy carried out by states to secure its both vital and less important interests. Therefore, in Russian doctrinal literature, military science is strongly linked to warfare, the essence of which is the use of armed violence.

However, contemporary geostrategic environment makes this problem much more difficult. Nowadays, we face clear appearance of a many powerful non state actors. What is more, recent tool set of international politics is much more complex that it was even a few decades ago. Moreover, importance of some domains of competition or struggle raised. Clear example of this is the information's domain and information security issues related to it. The extreme form of this phenomenon is information war which is waged to influence the consciousness of all social groups of adversary state to distort or change knowledge of basic social and natural phenomena, as a consequence, to weaken or destroy the foundations of society, which creates conditions for disorganization of counter aggression measures.

The former Soviet Union and Russia, they attached great importance to the information sphere of rivalry and confrontation. Currently, due to the informative nature of the present civilization importance of information struggle even more increased. Now we can observe an extensive Russian civilian and military theoretical and doctrinal activity aimed at studying the problems of information warfare and war. Russians are looking at a new ideas, theories and practical experiences to improve their information warfare and war, theoretical and doctrinal concepts.

In this situation the content of the proposed speech will be then also review of the opinions of different Russian theorists and concepts relating to the military sciences as well as characteristics of Russian doctrinal views on the subject.

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Intelligence Engineering: Operating Beyond the Conventional

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Contemporary defence and security efforts are open to being viably improved. With an overarching focus on ‘ways’, ‘means’, up and across to realising operational and strategic-ranging ‘ends’, this paper introduces a substantially-structured, multi-scaler ‘intelligence engineering’ (IE)-based framework and ‘step-by-step’ toolbox. That IE toolbox and its associated toolsets are useful for both deployment and employment for a multitude of purposes – essentially whatever is to be accomplished.

In sum, spanning both #2 Intelligence (e.g. G/J2) and #3 Operations (e.g. G/J3) areas of endeavour, IE encompasses: 1. intelligence-associated collection/gathering and analysis/ assessment (estimate) work; to 2. the further operationalised implementation of plans and intents generated by commanders and other high-level leaders and policy- to decision-makers.

As the presentation goes on to reveal, the IE framework can contribute towards helping progress several tasks. Notably, that effort includes – but is not limited to – the work of interest to this overall conference, for example, further advancing the Military Sciences and what they can offer the full-spectrum of practitioners and stakeholders.

Enhanced ‘situational awareness’ to deeper-ranging ‘contextualisation’ extending to ‘event and development transformation’ assistance value is offered. A main aim is for better understanding and then addressing the complex uncertainty experienced both now 1 Adam D.M. Svendsen, PhD – ISMS 2017 (War Studies Track – WG1) Tuesday, 16 May 2017 and that anticipated in the future – for example, as encountered in battlespaces. There is a strong focus on positioning, with both a priori (before) and post facto (after) concerns and considerations featuring, for instance, trying to better get ‘ahead of’ event and development ‘curves’ as they unfold, at times rapidly.

Demonstrating how they can be best harnessed, the different process ‘steps’ cover diverse areas such as, inter alia: ‘focus/topic selection’ (e.g., to assist in prioritisation and targeting tasks); which ‘federation or system of systems dynamics’ are chosen to employ or draw upon during analysis and assessment/estimate work (e.g. PMESII – Political, Military, Economic, Social, Intelligence/Information and Infrastructural – as used in NATO); the different ‘system variables/attributes’ and ‘levels’ (of experience and hence analysis) to consider; and the fashioning of ‘signifier node(s)’ for helping make decisions and for developing ‘where next?’ responses relevant to both now and for/into the future.

Concluding, the presentation highlights that the ‘whole is greater than the sum of its parts’, with the entire process involved facilitating: (i) greater risk appreciation; and then (ii) subsequent risk management; as well as even advancing (iii) risk engineering to resilience qualities, in overall defence and security enterprises and endeavours during an era of much uncertainty.

Remaining highly complex, many concerns stay in-play. However, overall strategic ranging ‘ends’ can be approached effectively both in and by following a ‘bite-sized’ ways and means manner. Several ‘edges’ benefit from their ‘extra sharpening’ via the methodology and approach of IE to gain advantage and comprehensively acquire and maintain the all-important initiative. Put another way, on attainable bases, IE provides viable alternatives to all problems looking like nails and to all solutions then being hammers. Equally, IE instead better equips anyone trying to ‘eat soup with a knife’. IE gives us essential innovation, and fast, enabling us to better operate beyond the conventional.

Serious «Gaming for Peace» and military cross-cultural competence

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Keywords: serious games, military education, CPPB training, Proteus effect, VR

The aim of the conference presentation and article is to introduce the basic premises, methodology and goals of the 2016 – 2018 Gaming for Peace (GAP) project, an initiative funded by the European Commission, led by Trinity College Dublin Department of Sociology, within a 14 European nations' consortium. GAP aims to generate an online game-based training curriculum for personnel (military, police, civilian) involved in conflict prevention and peace building (CPPB) missions. The purpose of the research study is to develop a multiple player online role-playing game which simulates scenarios from CPPB missions and is intended for its current and future personnel. The game will be used for training in:

1. 'Soft skills' such as negotiation, cooperation and communication, crucial for successful CPPB missions where diverse organizations must work together and with local actors to achieve the mission goals.
2. Empathic understanding of other people and roles within a CPPB setting in order that players may better understand the roles and motivations of different people they may encounter in the field.
3. Gender awareness (both inside and between participating organizations and in the local context of the CPPB mission) and cultural competency (including religious, ethnic and national sensitivities).

The GAP project aims at creating a virtual environment within which CPPB personnel can experience realistic mission scenarios through role-playing not only in their own, but also other organizations (known as the Proteus effect). This will increase their understanding, creativity and ability to communicate and collaborate. The presentation will also discuss the evaluation methodology of the VR effectiveness in military training

and the recent findings of the project the results of the recent 1 Yee, Nick and Jeremy Beilenson. „The Proteus Effect: The effect of Transformed Self-Representation on Behavior». *Human Communication Research* 33 (2007) p. 271 – 290 2 Trochowska, Kamila. „Cultural neuroscience and the military. Applications, perspectives, controversies» in: Faucher, Colette, Ed. *Advances in Culturally-Aware Intelligent Systems and in Cross-Cultural Psychological Studies*. Springer, 2017 (in print) research report performed by the author on the state of cross-cultural competence training for CPPB3, and the prospects of applying them in serious gaming for the military and civilians (as of November 2017), and in serious gaming beyond the project’s target audience. The project has received funding from the European Union’s Horizon 2020 research and innovation program under grant agreement No 700 670. More information on the project can be found at http://cordis.europa.eu/project/rcn/202_705_en.html/ and <http://gap-project.eu/>.

Deterrence and Escalation Control as Components of Conflict Management: The Theory-Analysis Nexus as Prior Requirement for Effective Operational Decisions in the Euro-Atlantic Theatre 2014–2017

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Keywords: deterrence, escalation control, missile defence, conflict management, nested theory of conflicts, critical thinking

As Kurt Lewin, the founder of modern social psychology, famously observed: ‘There is nothing so practical as a good theory’. In keeping with this notion of the real-world usefulness of formalizations of abstract reasoning, the Paper assesses the Euro-Atlantic theatre during the period 2014–2017 and seeks to link the theoretical and conceptual nuclear-deterrence literature (Freedman 2013) with analytical models as they relate to escalation dominance, especially in intra-crisis interactions that threaten a breach of non-conventional thresholds. A particular focus of the presentation sets out the role of BMD within the conflict matrix, given the centrality of the missile-defence issue on both sides of the current NATO-Russian divide and its role as a reciprocal driver of operational planning and field deployments. In addition, the argument is made that the current crisis, set in motion by the occupation of Crimea by the Russian Federation, is in many critical ways seen most constructively as a tiered or layered conflict that adheres to the *nested model* familiar in the conflict-management literature (Dugan 2015). This model posits that issue-specific conflicts are frequently embedded in more encompassing structural systems and sub-systems within which adversarial relations and

interactions play out. In appealing to this line of abstract thinking the Paper attempts to set out the tiered context of the deterrence-reassurance and escalation control components of both NATO (and NATO-partner) and Russian deployments and planning. Informed also by the modeling of conflict that advances the idea that escalating stages are endemic in conflict trajectories and that these stages in turn are characteristically marked by discrete triggering events followed by a chain of action-reaction cycles (Swanstrom & Weissmann 2005), the Paper seeks to apply these conceptual insights to the current conflict – one that not only has enveloped the greater part of the Euro-Atlantic theatre of operations but also reverberated globally to the effect of intensifying other conflict zones. Reference to the Conference Theme concludes the Paper when the case is made for academically and operationally solid conceptual and analytical reasoning, grounded in both deductive (modeling) and inductive (rigorous case studies) approaches, as an essential element of pre-deployment instruction and training for effective decision-making at key inflection points of crisis situations. As the responsibilities attached to carrying out operations increase, so too should prior recourse to state-of-the-art military sciences, including the kind of exercises in critical thinking set out in the proposed Paper.

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Mediation In Modern Armed Conflicts

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Keywords: mediation, armed conflict, conflict resolution

Mediation is one of the oldest and most often used methods of conflict resolution designed to help conflicting parties find their own solutions. In traditional approaches represented by Oran Young mediation is defined as an action taken by an actor, who is not directly part of the conflict, in order to reduce and remove problems between conflicted parties and terminate the conflict. Mediation is also described by Christopher Moore as an extension and elaboration of a negotiation process, it involves an intervention of a third party which is acceptable by contending actors. The third party is also neutral and impartial, and has no authoritative decision-making power to assist contending parties in voluntarily reaching their own mutually acceptable settlement. A broad approach to mediation presented by Jacob Bercovitch defined it as a process of conflict management and related to negotiations, where conflict parties accept assistance from an outsider to change their perceptions or behavior without physical force or invoking the law. The empirical study suggests that mediation is used in about 70 percent of all conflict. However it achieves some success in 34 percent of all cases.

In this article the author argues that a number of armed conflicts resolved by mediation will be reduced in subsequent years. This tendency is caused by the dynamic evolution of the nature of a conflict initiated after the fall of communism in Europe in 1989, which makes conflicts seem intractable by using only peaceful methods. This transformation has caused changes in manner of understanding international conflicts, which no longer are perceived as state-based armed conflicts (interstate and internal conflict), especially after 9/11. The participation of numerous nonstate actors in conflict, for instance terrorist groups, crime organizations, warlords, private armies, has led to developing new types of conflicts namely non-state and one-sided

armed conflicts where the last ones include actions against civilians committed by terrorist organizations. It needs to be stressed that the major shift in the nature of armed conflicts is characterized by complex causes i.e. ethnic and religious divisions, political, social, economic and cultural factors, natural resources. The number of violent conflicts reveals an asymmetric form of warfare based on blends of conventional warfare, irregular warfare and cyberwarfare as well as mass rape, torture, ritualistic violence, mutilation of civilian population. Moreover, genocide often used as war tools can rapidly escalate local conflicts to humanitarian disasters and entail states to collapse. A significant consequence of a conflict is a potential split over the war into neighboring countries as well as destabilizing effect of refugee flows.

Considering all the transformations changes in armed conflicts a question arises: *How can mediation effectively contribute to resolving modern armed conflicts?*

The answer will be found by analyzing and comparing traditional and modern approaches to mediation, with having in mind the nature of modern armed conflicts. During this research there will be examined factors important for mediation process, namely the participants' motives in mediation, the roles of mediators, mediation strategy. Likewise, there will be explored factors influencing mediation and indicating criteria of evaluating mediation. Finally, the study will lead to elaborate concept of mediation contributing to resolving modern armed conflicts.

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WG 2

Military History

The Egyptian Antitank Layout in 1973 Yom Kippur War – The Answer to Israel’s Armor Superiority

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The use of antitank weapons by the Arabs – especially the Egyptians – is regarded as one of the main innovations of the Yom Kippur War.

The two aggressor armies in Yom Kippur War – Egypt and Syria – acted according to the Soviet warfare doctrine. Defense in general and antitank defense in particular were planned down to the last detail. Since armor was the main tactic that Israel was expected to throw against an attack, antitank weapons became the Arab assault forces – especially the Egyptians – basic defense at the bridgeheads and in their deployment against the Israeli counterattack.

The Soviet doctrine held that antitank warfare should be based on secondary layouts that included static and mobile alignments. Well aware of their inferior maneuverability, the Egyptians developed their antitank defense mostly on a static layout. Over the years they had reinforced the layout, according to doctrinal recommendations, with troop concentrations and task-oriented weapons in strongholds, localities, and the dominating terrain inside infantry layouts. These layouts were made up primarily of antitank weapons. The Egyptians cleverly responded to the Israeli threat by dispersing the concentrations in almost equal proportion along the defense lines.

The Arabs' solution to Israel's armored superiority was to develop and train on a massive scale highly sophisticated antitank forces on both fronts. Most of the task-oriented units were equipped with antitank missiles (usually «Sagers,» or as NATO termed them – AT-3s) carried on foot or transported by special vehicle; personal rocket launchers – especially RPG-7 (That were used massively by infantry); antitank cannons; recoilless cannons; and even obsolete assault cannons used for reinforcing the western canal front.

The Egyptians fully understood that Israel's armor superiority posed a critical challenge to the assault force and bridgeheads on the eastern bank. The solution to this problem lay in meticulously planning and establishing an antitank layout, with special emphasis on antitank rockets.

The effective use of various antitank weapons – especially rockets – their integration into different layouts and concentration at the bridgehead fronts produced excellent results against the IDF's tanks in the Yom Kippur War. The Egyptian solution in countering enemy armor forces is still studied in military academies and will remain a tactic worth emulating in the future.

**גדוד חי"ר בצליחה מעמדותיו
ובפריסה בחזית ראשי הגשר**

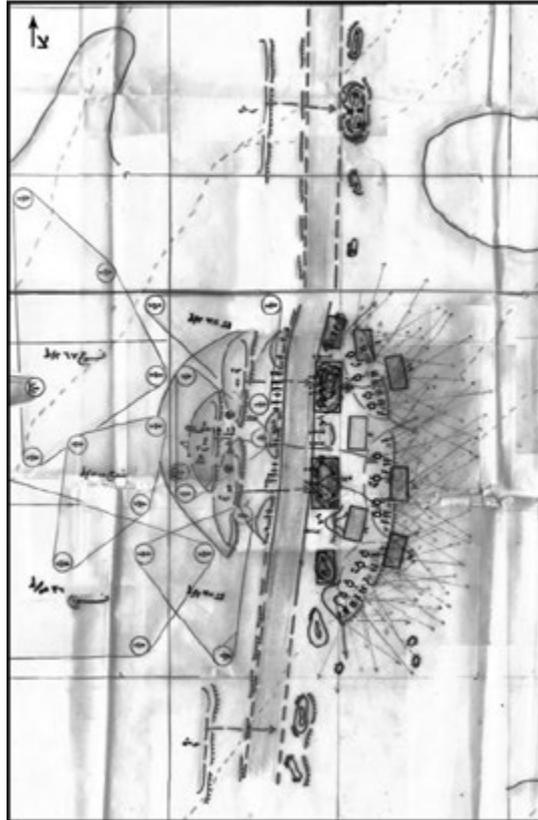


Figure 14: An Infantry Battalion Crossing the Canal from its Positions and Deploying at the Bridgeheads (captured document)

«Graf Strachwitz's Raid» in August 1944: What and how we can learn from World War II experience?

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The Paper will look at one of most renowned German tank commander Hyacinth Graf Strachwitz von Groß-Zauche und Camminetz (30 July 1893 – 25 April 1968) and one of his last successful operations in August 19 – 20, 1944 when in less than 48 hours improvised Panzer Division Strachwitz covered 65 km behind the enemy's lines and liberated Tukums. Not only this attack was one of the last examples of the German Blitzkrieg style of mechanized warfare but an example where tactical success translated into strategic success as well by securing German Army Group's «North» line of communications. So, it should become a natural choice for a case to teach the Latvian Armed Forces personnel how to use mechanized forces, especially taking in to account the terrain which did not change much over the last 70 years.

Unfortunately this raid is covered in urban legends and myths. We can read stories like «The Panzer Count radioed the cruiser Luetzow off the coast, and it blew away the Soviet tank battalion with its 280 mm guns» («The German Defeat in the East, 1944 – 45, 2001 by Samuel W. Mitcham, Jr) and «En route he stumbled across two Russian infantry divisions and a tank corps who surrendered to him in the mistaken belief that they were surrounded» («Panzerkrieg: The Rise and Fall of Hitler's Tank Divisions», 2002 by Peter McCarthy and Mike Syron). So it is hard to understand what actually happened and how the battle evolved into success. Panzer Divison Srachwitz existed only for a couple of days and after Graf Strachwitz got injured in the traffic accident was renamed into Panzer Divison Lauchert which disbanded in early October 1944 without leaving any trace in the form of War Diary or official after action report. That is why the well-written biographies (for example «Generalleutnant der Reserve Hyazinth Graf Strachwitz von Gross-

Zauche und Camminetz: Vom kavallerieoffizier zum Führer gepanzerte Verbände», 2011 by Hans-Joachim Röhl) while being detailed about Graf's earlier experience writes about August 1944 leaving details obscure. So even the Military History Research Office of the Bundeswehr is their official World War II history while acknowledging Panzer Division Strachwitz's attack as a tactical success did not provide much detail how this success was achieved. On the other hand, within last two years Russian Federation published online lots of original wartime documents showing what happened on the other side and of course, we today know that Panzergraf himself did not meet a single Red Army tank on its way to Tukums.

Finding what happened in those fateful 48 hours was only one part of the task. Academically correct reconstruction of the historical event is not enough. To achieve personal development simple narrative should be turned in to the tool, so the students not only learn what happened but enhance their skills which are applicable in the military profession. One way is to turn historical narrative into the decision-forcing case, the method advocated by Dr. Bruce I. Gudmundsson and used in the Marine Corps University (Base Quantico, Virginia, USA). This method is very effective in forcing the students to present the solution to the problem as if they are a character from the past. Decision-forcing case method demands that everything presented as a problem should be historical to the detail which creates some problems.

Today much of the training, for example for the Junior Staff Officers, is about using the right terms in the right places with precise meaning. It is not the solution to the problem or decision itself important but how this decision is presented in the plan or order. For example, if we take Panzer Division Strachwitz order for the upcoming attack on August 19, 1944 (published in «Panzeroperationen Sommer 44 – „Doppelkopf» und „Cäsar», 1987 by Gerd Niepold) it will present the NATO officer with some unanswered questions – what is our area of interest, where is our FLOT etc. We can ask only for the solution and leave the technical details out. On the other hand, can we «translate» Graf Strachwitz's order into the divisional order written according to the NATO standards, so the students not only search for the core of the problem presented but also enhance usage of the correct terminology? Will this «translated» order with the addition of contemporary details still be historical and in accordance with the decision-forcing case method?

The paper will present the compromise achieved between the historical narrative, the decision-forcing case, and usage of the right terms in the right places.

Three Seas Initiative as the Polish geopolitical concept

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The purpose of the paper is to present the historical and political determinants of Polish geopolitical thought in the aspect of the Three Seas Initiative. The Three Seas Initiative now appears as a concept whose functioning is possible thanks to the involvement of all political actors in Central and Eastern Europe. Around the whole idea of the Three Seas Initiative, there have been many myths and false beliefs. Poland as the main actor and director of the Three Seas Initiative.

The paper aims to present Polish cooperation plans under the Three Seas Initiative. Poland appears in this program as the main actor and director of the entire geopolitical concept. In this connection, it is important to grasp and define the aspects of cooperation between Central and Eastern European countries under the Three Seas Initiative.

The Three Seas Initiative is now understood as an idea of working together to tighten relationships. Unfortunately, it does not yet have an appropriate framework for involving actors. It is not an alternative to the EU and is not a military project either. At present, the Three Seas Initiative is an idea that requires an exchange of ideas and a series of strategic actions to make it happen.

The paper will present the historical, political, social and cultural determinants of the implementation of the Three Seas Initiative concept. He will try to answer what conditions must be met to establish cooperation between Central and Eastern European countries. He will also seek to work out appropriate levels of cooperation on which the whole idea and concept of the sea are firmly based.

Longbows, Coercion-Extraction, and General Maximus: The Military Revolution of Pre-Modern and Early Modern Europe and the Modern Officer

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Professional military education (PME) institutions play a critical role in the ability of mid-career officers to successfully negotiate the phase in their career when the focus of their efforts shifts from the tactical level of war to the operational and strategic levels of war. One of the most important tools for helping officers make this transition and better understand the challenges they will face in the dynamic operational environment of the present and future is the study of the history of warfare and diplomacy. Few periods in European history saw such profound changes in the art and science of war and diplomacy as the one that saw the Western World experience what historian Michael Roberts famously labeled the «military revolution.» During this time Europe and its militaries entered the Early Modern Period, experiencing and driving profound changes in war and society that would have global implications and effects on doctrine, organizational structures and cultures, and tactics that endure to this day—and are certain to exert powerful effects on the operating environments of the future.

Drawing from the author's extensive experience working with officers from over a hundred nations, ranging from major powers like the United States and Great Britain to smaller nations such as Poland, Canada, Belgium, Estonia, and Singapore, this paper is designed to offer ideas and stimulate discussion among multidisciplinary and interdisciplinary professionals in the field of military science. It will do so by addressing how lessons, ideas, and teaching techniques employed in the PME system in the U.S. can be relevant and useful for those who work in PME institutions in smaller nations and thus enhance

cooperation between the U.S. military and its allies and partners. It will offer observations and analysis of how the study, teaching, and preparation of curriculum on the military history of the Early Modern Period can be made relevant to and effectively engage military leaders and other students of military science in an age of smartphones and precision-guided munitions.

This presentation will be organized largely around two major concepts that are major concerns for teachers and students of military science today. The first is the debate over whether there is a «Western Way of War» that shapes not just how the U.S. military operates and thinks about war, but how its allies and partners among the states of Europe do as well. This presentation makes no presumption of offering the final word on this subject. Rather, it will be designed to serve as a point of departure for cross-disciplinary working group discussion and debate that addresses how the concept of the Western Way of War can be useful to teachers and students of military science. Among the directions such a discussion could take is to consider how the Western Way of War (and the concept of ways of war in general) can be used to help students develop a stronger appreciation of the ties between war and society. The second underlying theme in this presentation will be how the study of Early Modern Warfare can be approached from a pedagogical standpoint to facilitate student understanding of the causes, consequences, and contexts of revolutionary change in warfare—and in ways that provide common points of reference for U.S. officers and their allies and partners and thus enhance cooperation among nations in the conduct of military operations. Regardless of whatever nation’s military they serve, it is certain that one of the most important responsibilities PME institutions have today is to offer effective instruction and courseware that enhances the ability of officers to understand the relationship between war and society and the dynamics of change in warfare, for this has been and will continue to be critical to those facing the challenges of the complex operational environment of the 21st century.

Military History in Portugal. Post-Graduate Teaching in Military History in the University of Lisbon and the network with the Portuguese Military Schools

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Keywords: Military History; Military Education; Post-Graduated training; Network in Military teaching

This paper intends to be integrated in the working groups: Military History and Military Education, and will analyze the process of integrated, graduate and postgraduate training centered at the University of Lisbon, which, in addition to other universities (University of Coimbra, University of the Azores and University of Madeira), brings together the Portuguese Military Academies: Naval Academy, Military Academy, Air Force Academy and Military University Institute). Date of 2012 the beginning of an interuniversity program in Military History which emphasizes objective analysis and critical thinking, rigorous research skills, an understanding of the particular sources used and a high standard of writing ability. Military history is not only a small subdivision of History, or just history of battles or operational research, but instead offers a framework through many aspects of historical events and human behavior can be understood, including economics, politics, social issues, among other subjects.

This MA program intends to deepen and upgrade knowledge and competences acquired in a Master's Degree in History (or other kind of training). To develop the ability to work with and critically evaluate different types of sources,

to match data (albeit contradictory) obtained from such sources, to address complex issues in broad and multidisciplinary contexts, taking stock of their implications and both ethical and social responsibilities. It intends to develop the ability to report to a diversified audience the results of a study, as well as the knowledge and rationale behind it. Also aims to provide a high-level training that can be used as basis for developing original research, while allowing for sound judgment in contexts of limited or incomplete information. Finally intends to develop competences for enabling students to find autonomous ways of lifelong learning.

The mission of these joint academic and military institutions in this MA of Military History program is to provide students with a base of historical knowledge within the field of military history; build an awareness of differing historical interpretations; build the ability to synthesize diverse types of historical knowledge; build and refine student research, writing, analysis, and presentation skills. It is intended to develop both basic skills and a theoretical capacity to discuss the presented contents. In parallel intends to provide students with a foundation for developing a professional identity as a historian in the field of Military History. The aim is that the student acquires skills and competences to develop innovative work and independent research, using the methodologies and models of interdisciplinary approach. This program intends to train people with high-level capabilities of: 1) Creatively applying and integrating their knowledge in the solution to problems and in the proposal of hypotheses to explain the phenomena being studied; 2) Selecting sources and bibliography while considering their pertinence and credibility; 3) Applying concepts and other instruments for analysis from the Social Sciences in the construction of their assignment projects; 4) Developing critical reasoning about the past so as to identify cultural crossings and to avoid the critical traps of models such as the ones of national states or of religion, and to provide reading guidelines alternative to those of divisions among states or of civilisational clusters; 5) Designing research projects with the potential to expand the horizons of knowledge, while meeting the requirements imposed by academic quality and integrity standards.

This program comprises an interdisciplinary team made up of university professors, specialists in Military History, and officers of the different military academies, professors in those institutions and specialists in Military Sciences. In the paper to be presented we will give account of the research work

developed, thesis produced and interdisciplinary actions, such as national and international colloquia, book publishing and development of online resources for research in Military History.

The epistemology of Danish military history – A historiographical overview of the use of military history in Danish officer education and its scientific implications

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Keywords: Use of Military history History of science Military education Epistemology

In 1975 a conference was held in Denmark to bridge the gap between academic military history and military history used in officer education – two subjects that at the time had been marginalised within their own fields. However, what this conference made evident was how different the understanding of military history was in the two circles. Military history, as taught in the officer education, was utilised in a very foreign way compared to academic history, since military history in officer education at the time was primarily used as a means to teach officers strategic and tactical principles or used in the absence of war experience. Nevertheless, the theoretical understanding of the use of military history is left out of the scant literature on the use of military history in officer education. How military history is used for learning purposes in the Danish officer education will therefore be examined in this paper. The paper commences with a historiographical analysis on the descriptions of military learning using military history in officer education found in journals, educational plans, and textbooks. It will single out the different trends in the literature that will subsequently undergo a thorough analysis in order to uncover the underlying epistemological and scientific understandings of the uses of military history in Danish officer education. Within the scarce literature on this topic, primarily written by educators in Denmark, there seems to be an almost unanimous understanding about the fact that the study of military history can prepare officers for future tasks and

can help shape them in becoming professionals. Yet, the understanding of how they can learn and what they can learn differs depending on the authors underlining view of military theory, though often not expressed explicitly. What is also not expressed explicitly is how the process of learning from others experiences takes place. Among the few exceptions of literature that does describe the epistemology of use of military history in officer education, are articles written by Norwegian Lieutenant colonel Dr. Harald Høiback and Finnish Adjunct Professor Mika Kerttunen. Kerttunen, however, argues against the use of military history in officer education. 2 Military history has had a bad reputation in academic circles because of how it was utilised in the military for two main reasons: One reason is founded on political and ethical discomfort with military history based on the perception that military history glorifies war. This reputation is often associated to the Danish academic history tradition that had strong ties to the pacifist political party Radikale Venstre. The other reason is methodologically and theoretically based. Military history was used as a tool to prove theoretical principles of warfare and thus, almost changing into a nomothetic science leaving the ideographic nature of history behind. Even for those with a different underlying understanding of military science, that mean they do not subscribe to the nomothetic notions of firm principles guiding war, military history is special. Since the abovementioned conference in 1975, military history in officer education and academic history have evolved, which calls for further studies on this subject. The understanding that history is studied with a purpose outside that of knowing more about history does not necessarily constitute a methodological problem for newer academic history. This paper will build on history theory regarding the use of history from, amongst others, the research group Memory and Uses of Pasts at Roskilde University with associate professor Bernard Eric Jensen and professor Anette Warring at the helm. Different theories of knowledge will also be used in order to further explain some of the concepts of learning presented in the historiographical part, including Michael Polanyis' concept of Tacit knowledge. By describing how the views presented in the historiography of the Danish literature differ from international literature on the topic and the theoretical and scientific implications of this, the present will function as a preliminary study for my PhD-thesis. My PhD-project will investigate how the Danish Defence uses history in education and doctrine development to prepare for future wars and conflict. This paper will test some of the methodological concepts of the future thesis and seeks to give a preliminary understanding of how military

experience is transferred to learning using organizational and history theory focused on the use of history. References that contextualizes the topic – Murray, Williamson & Richard Hart Sinnreich (ed.) (2006): *The Past as Prologue. The Importance of History to the Military Profession*. Cambridge University Press (2006). – Høiback, Harald: *Kan vi lære av historien? Et studie i militær kompetensfilosofi*. Forsvarsstudier (2003). – Jensen, Bernhard Eric 2009. «Using a Past. Magistra Vitæ Approaches to history.» In: *3 Negotiating Pasts in the Nordic Countries*, eds Anne Eriksen and Jon Vidar Sigurdson. Lund: Nordic Academic Press. – Polanyi, Michael: *The Logic of Tacit inference*. In: *Philosophy*. Vol. 41, no. 155 (1966). – Kerttunen, Mika: *An Abstract approach. Rational non-sense to replace historical nonsense in educating leaders*». *Journal of Military Studies* Vol. 2, no. 1 (2011). Summary The purpose of this study is to investigate how military history is used in Danish officer education. The paper will focus on the process of transferring past institutionalised experiences into learning. The paper commences with a historiography of military history in Danish officer education. The different viewpoints presented in the historiography on using military history in officer education will undergo a theoretical analysis that serves to give a new understanding of the underlying scientific implications on how to learn from military history.

The Establishment of the Military Academy at Wiener Neustadt at 1751 from Empress Maria Theresa and the Battle of Kolin at 1757

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Keywords: Organisation and training content, Empress Maria Theresa, Austrian Army in the Age of Maria Theresa, Seven Years' War; Battle of Kolin, Fieldmarshall Daun, Military Maria-Theresan Order, Frederick II of Prussia

In Austria (and also may be in Europa) we are celebrating the 300 years birthday of Empress Maria Theresa. In 1751 she established the first military academy in the world – the so called „K.K. Theresanische Militärakademie» in Wr. Neustadt.

Maria Theresa of Austria (1717 – 1780) was the reigning Archduchess of Austria, Queen regnant of Hungary, Croatia and Bohemia, and Holy Roman Empress by marriage. She was married to Francis of Lorraine, Duke of Lorraine in 1736 at the age of 19 for love. She had 16 children with him.

Maria Theresa became dowager empress after the death of her husband Francis I, Holy Roman Emperor and accession of her son Joseph as emperor in 1765.

Maria Theresa helped initiate financial and educational reforms, promoted commerce and the development of agriculture, and reorganized the army, all of which strengthened Austria's resources.

Continued conflict with the Kingdom of Prussia led to the Seven Years' War and later to the War of Bavarian Succession.

The war of Austrian Succession began when Frederick II of Prussia (The Great) invaded and occupied Silesia. While Bavaria and France also invaded

Austria's western territories, it was Frederick the Great, who became Maria Theresa's foe during her reign.

After having been defeated in the First and Second Silesian War, Maria Theresa began to modernize her realms with the assistance of Frederick Wilhelm Graf von Haugwitz. She increased the size of the army by 200 per cent and increased taxes in order to guarantee a steady income for the government, and in particular for the military. These reforms strengthened the economy and the state of general.

One of the lessons learned by Maria Theresa in the wake of repeated defeat by her arch-foe Frederic II of Prussia was the need for a well-rounded training for her officer corps. Thus the far-sighted and prudent Empress deigned to order on 14th December 1751, that a Military Academy of Cadets' house for Noblemen be established in the old Babenberg Castle of Wiener Neustadt. Being socially minded, she also admitted commoners of officer training and improved her soldiers' rations.

The Cadets' house for Noblemen consisted of two companies with 100 boys each, one for cadets of aristocratic descent and one for cadets of officers. Minimum age of admission was 14.

In order to provide for a constant influx of cadet aspirants, Maria Theresa founded a Military Seminary (so called „Pflanzschule») in Vienna for 100 (from 1755 on for 200) sons of impoverished officers, aged 7 to 13 years. In 1796 these two establishments, were amalgamated.

The officer training commenced on 11th November, 1752 with a first batch of 191 cadets. The first graduation in Wr. Neustadt was celebrated in 1755.

In the curriculum at that time, a distinction was made between the acquisition of knightly skills or military virtues and the «scientific» teaching in the classroom. The subjects of dancing, fencing, riding, saddling, fencing and packing, vaulting, and shooting with gun and pistol included the acquisition of knightly skills and military virtues. Furthermore, the «officer's office» with the partisan, the rifle of the flag and the like, the stocking out of the camp and the guard service. The subjects of the lesson included the fortification,

the artillery classes, the arithmetic, the languages: French, Italian, Bohemian, geography and the doctrine of Christianity.

Under the Directorate-General, Fieldmarshall Anton Graf Colloredo, the teaching subjects were retained or supplemented in 1775. As was the case with teaching subjects, there was a distinction between the military virtues and the «scientific» teaching in the classroom. The following subjects were taught primarily in the classroom: Religion, Languages: German, Latin, French, Italian, Czech, History, Geography, Arithmetic and Algebra, Geometry, Applied Mathematics, Natural History, Natural History, Differential and Integral Computation, Artillery science, practical geometry, field attachments, permanent attachment, nature and morality philosophy, situation drawing, letter style and tactics. To acquire the military craft for officers, the subjects included dancing, fencing, riding, vaulting and shooting with the gun and gun. Furthermore, there were the exercises and exercises, the unloading of the camp, guard and patrol service, and the terrain survey.

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For Maria Theresa, the founding of «her» military academy had to lay or create the germ cell of a corresponding «forward-looking» officer image.

The first Director of the military academies was Field Marshall Count Leopold Daun. He was also the commander of the Austrian troops at the battle of Kolin in 1757.

At the battle of Kolin, on 18th June, 1757 – near Prague – Austrian troops fought against the Prussian troops. The commander of the Prussian troops was Frederick the Great. The k.k. „Austrian» army won this battle.

At Kolin the imperial «Austrian» infantry was better managed than those of the Prussians. There was a superiority of the imperial cavalry and above all the artillery. The Austrian victory was due to the good position selection in the field and the numerical superiority. A decisive factor was also the better reconnaissance and the possible counter-measures of the Austrian troops against a Prussian maneuver. For the first time the Austrian troops had already been trained by the first graduates of the military academy in Vienna. Neustadt.

As a result the Military Maria-Theresan Order was founded. This order (decoration) of the Austro-Hungarian Empire was founded by the Empress Maria. It was one of the prestigious and eagerly sought-after military awards that the Austro-Hungarian monarchy could bestow. It was specifically given for „successful act of essential impact, of a campaign that was undertaken on the officer’s own initiative, and might have been omitted by an honourable officer without reproach. This highest accolade of the Austro Hungarian monarchy came in three categories: Knight’s Cross, Commander’s Cross and Grand Cross.

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WG 3

Military Technology

Brain-machine interface and the future soldier. Where science fiction meets neuroscience

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Keywords: neuroscience; brain machine interface; brain stimulation; future soldier; DARPA; science fiction; *Black Mirror*

Today, it is not only feasible to read brain signals, decode them and use for a simple control of devices, but also to extract the information which remains 'hidden' and subconscious in our brain. Furthermore, brain stimulation creates novel means of altering man's mental and physical capabilities, behaviour, as well as her mood and emotions. Overall, neuro-technologies have the potential of merging brain and machine in a close and empowering interplay. As such neuroscience is one of the most promising fields of prospectus military human enhancement aiming ultimately to create super-soldiers.

Science fiction helps to realize the potential of present-day advances in science and technology. Most importantly, it brings them to their future logical conclusions. There are many probable paths of development that technoscience can take and there are plentiful social, economic and political consequences, ethical dilemmas, and risks that they can respectively give raise to. It is thus welcome that fascinating though gloomy visions of the near-future are increasingly and refreshingly brought into public awareness by literature, movies, video games and TV series. One of the most interesting and challenging television anthology is *stirring Black Mirror* created by *Charlie Brooker* and first broadcasted in 2011. This paper is an attempt to review how plausible is the vision of neuro-high-tech future soldier depicted in one of its episodes: *Men Against Fire* (2016). As a thought experiment, it may help grasps the main directions of US military research and development in neuroscience.

In the movie, high-tech brain-machine interface (BMI) is the grim fulfilment of centuries-old military aspirations to turn man into top performer soldier. The core of the story in *Men Against Fire* is brain-computer interface called 'MASS' used by the commanders to program the performance and behaviour of soldiers, reward or punish them, and prevent combat-related PTSD. It thus serves four intertwined functions. The first is the dehumanisation of the enemy. The second is making the killing emotionless, automatic and hence more effective. The third function is the prevention of mental disorders through memory management. And the last, though not the least important is rewarding good performance. How much science is in this SF vision? How close is the US military in achieving these goals?

Well, cyborg technologies no longer belong to the realm of science fiction only. In 2016 Elon Musk, a famous entrepreneur and innovator, set up a new research company called 'Neuralink' with the aim of designing a technology to biologically merge human brain with computer through a fully functional invasive brain interface, based on the neural lace technology. The ultimate goal is to be able to use thoughts to interact with the increasingly artificially-intelligent machines. Other companies including Facebook and Kernel are also known to be working on systems to connect brain with computers. Yet, the most advanced in this field and best suited to succeed in developing this breakthrough technology is the US military. Since the turn of the 21st century Defense Advanced Research Projects Agency (DARPA) has been pursuing numerous neuroscience programs. The military counterpart of Elon Musk

venture is, in fact, DARPA's most recent program *Neural Engineering Systems Design* (NESD). Its ambitious goal is to 'develop an implantable system able to provide precision communication between the brain and the digital world.' In a word, the US military seeks a high-resolution, implantable neural interface.

DARPA's past neuroscience programs included, for example, *Neuroscience for Intelligence Analysis* and *Cognitive Technology Threat Warning System* (CT2WS) which were based on the idea of extracting unconscious information from the brain which has crucial military application for enhancing the ability to analyse satellite images and to accurately recognise threats in the battlefield environment. The agency's other research has been on brain-machine interfaces to control machines such as drones with brain signal, as well as experiments with brain-to-brain interfaces which open prospects for direct brain-to-brain military communication (*Silent Talk* and 'thought helmets'). Further to this, the US Naval has been recently testing brain stimulation technology that would zap soldiers' brains with electricity to boost their cognitive skills.

Yet, interfacing technology with human brain raises some ethical concerns which are important to discuss not only in the context of the military but also commercial setting as these technologies are dual use and similar applications would sooner or later be used in the civilian world. Will members of a society invested with superhuman abilities to see what normally remains unseen, recognise what normally remains unrecognised, and interact with increasingly 'intelligent' devices by mind-controlling them become true cyborgs? Neural interface may not only revolutionary alter how we how we communicate and interact with machines and our fellow humans. It may change how we understand what it means to be human. And most importantly of all, it might represent the next step in human evolution towards posthuman (cyborg) condition.

As melding biotechnology with human brain raises myriad ethical concerns, it is even more worth bringing in science fiction visions to the debate on the consequences of employing neuroscience to the conduct of war.

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New Methods to Improve Privacy Protection in Wireless Military Networks

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Keywords: Wireless communication, security issues, privacy protection, digital signatures, public key algorithms, concept development

Privacy protection is vital in military operations. Besides the traditional encryption of communication, it shall cover issues like protecting our identities, what kind of transactions we are performing, as well as where and when we are. Sometimes, even our existence should be hidden. In many cases, the only available communication channel is wireless one. This means that the last three privacy categories, i.e., location, time, and existence privacy, are endangered. Thus, the privacy protection issues in wireless communication in military battlefield is literally matter of life and death.

Threats in wireless communication in military operations can be divided into two main categories external and internal ones. Usually, only the external threats caused by the external adversaries are considered as they may eavesdrop, disturb, modify, or otherwise utilize our communication for their malicious purposes. Internal threats may be caused by our own devices or our fellow entities that behave erratic, irrational, or for malicious purposes. These can be due to malfunction of the software or hardware, human error, or compromised nodes and persons.

Traditionally, wireless communication is protected against external threats using various technologies and methods varying from frequency hopping at the radio level to encryption of radio packets, messages or content on various protocol levels. These solutions tackle partially the external threats but leave the internal ones open. External adversaries are still capable of disturbing wired and wireless communication with various ways. And in

the worst case, the adversary can utilize our own nodes in their attack by replaying or modifying messages in the wireless ad hoc networks. A typical example is to corrupt a stream of IPsec packets on the way from the original sender to final destination somewhere on the path. Since the packets can be verified only by the final destination, it is impossible to detect where in the network the corruption has occurred. Simple protection can be done against corruption on the radio level encryption or with frequency hopping, but those solutions are of no use, when internal attacks occur. In the worst case, such a compromised node can jam the radio network and drain batteries of other nodes not only at the vicinity of that node but also over the entire ad hoc network.

Digital signatures and public key algorithms have been used already several years in protecting digital communication. With these techniques, it is possible to create «digital envelopes» into which messages can be sealed. In such an envelope, either the message integrity, its confidentiality, or both can be protected. The envelope also contains undeniable proof of the original creator (originator) of the message. Traditionally, these digital envelopes are intended to the final destination (recipient) that can perform all these above mentioned checks. This is rational, when the digital envelope is delivered in pieces (such as IP packets) and constructed only at the final destination. The two main reasons why the verification is not done at every node on the path from the originator to recipient are the computational complexity of the traditional public key algorithms and the size of the keys. For example, it is not practical to put enough strong RSA keys in every IP packet to enable intermediate relays to verify every packet. On the other hand, setting up security association with every node over the path is unfeasible in dynamic ad hoc networks. In addition, if message integrity is performed with shared secret methods due to computational efficiency reasons, it does not guarantee undisputable proof of the originator, as also the one that performs verification can sign the messages.

Alternative public algorithms have been developed in which the key lengths are reasonable and that are more suitable for hardware accelerators. Examples for these are elliptic curves and hyper elliptic curves. Some years ago at Helsinki University of Technology, a research project demonstrated a proof-of-concept implementation of both the protocols and the hardware accelerator modules that are capable of performing some 200 000 digital signature

operations (signing or verification) per seconds. It was also demonstrated that the solution is scalable for high capacity networks capable of verifying «at wire speed» of 10 Gbit/s core network traffic with a single chip solution. Since the elliptic curve keys are much shorter (some 260...300 bits), it is possible establish a similar «digital envelope» concept at the IP-packet level what has been previously available only at the higher levels (such as emails). This demonstrator (PLA, Packet Level Authentication) was implemented as an IP-extension that provides full transparency to higher level protocols. It is also fully interoperable with all IP-level routers as well as lower level transport technologies.

Since PLA carries in every packet among other things also the public key of the sender, any node that receives that message can send right away an encrypted message to that node as a single message. This obsoletes complicated security association negotiation what is needed for example in IPsec and HIP protocols. In practice, this means that an expandable node can beacon its existence on the battlefield, while an important node needs to send its message as one short message that is relayed further without endangering the location, time and existence privacy of that important node. Even most of the acknowledgements can be omitted. Once the message reaches far enough from the originator, the message can be broadcasted with high power to deliver it further. Thus, the adversaries can detect this high powered transmission of the expandable node but cannot locate the originator.

Typically public key algorithms are considered energy consuming due to additional computation requirements and also due to extended packet length. In military environment, PLA actually protects network also against power drainage of adversary's replay attack messages and packet manipulation. This is done by including time stamp and sequence numbers in PLA header of every packet.

In a military environment, trust management differs significantly from the commercial environment. For the wireless battlefield, it is quite straightforward to establish trust relation between the nodes by presetting the trust relation before the operation, while in commercial systems setting up trust relation is a big challenge. On the other hand, risk of compromising nodes at the battlefield is much higher. PLA is capable of handling trust management well in both of these environments. Especially, compromised nodes can

be excluded easily with PLA even in large networks with wide coverage broadcast messages.

With this presentations, we intend to rise discussion of the importance of the concept level development in military sciences. The new technologies shall have dramatic impacts on the operations. They may open new ways to do things or obsolete the old ones. This is also matter of saving money, when all alternative technologies are not implemented if they are not first proven to be useful. We would like to emphasize that the concept development ensures the young officers to understand how technology will impact military operations and reshape our future.

Modeling imbalance of cyber operations between closed and open national networks

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Keywords: Modeling military capability, Battlefield of the Future, Cyber Domain, Closed Network Nation, Asymmetric Frontlines, RuNet

We introduce a mathematical model to describe asymmetric frontlines that are formed if a nation closes their national networks. When considering defence, the model gives the capability as a probability for denying adversarial operation in a friendly network. The closing process is a well-documented course of development as Russia is likely to implement RuNet 2020. The model may be used to form and improve situation awareness as the process evolves.

We propose a model to describe the change in capability caused by asymmetric frontlines between closed and open national networks. The capability is presented as a probability for denying adversarial operations in a friendly network. In summer 2016, almost at the same time as NATO recognized cyberspace as a military domain, Russia declared that RuNet – the Russian segment of the Internet – would be disconnected from the global Internet by 2020 (Ristolainen 2017). The de facto process of closing national networks is referred to as a closing process. We have continued research in order to improve situation awareness of the closing process, analysed its military

aims and impacts. We have deduced that the military motivation behind Russia's network closing process is related to improving its military capabilities in cyberspace, namely traditional elements of combat power: protection, (relative) maneuverability and (relative) firepower. Hence, the motive behind a closed network nation is to achieve higher operational capability than an 'open network society'. On the other hand, the motive for introducing RuNet may also be related to challenging the current world order.

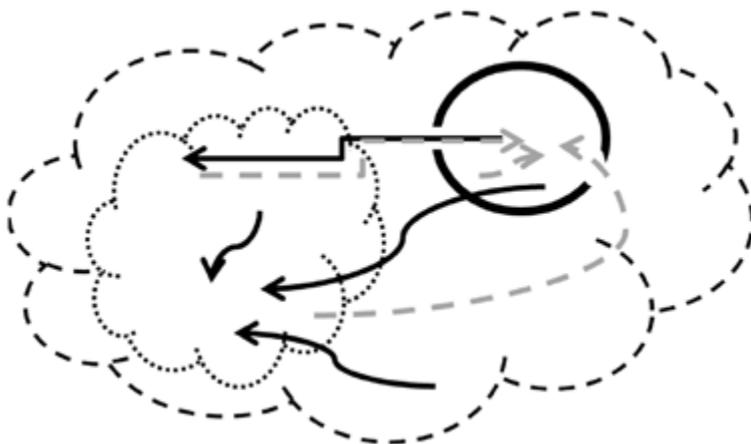


Figure 1. Schematic outline of open society network's asymmetry to a closed national network. The closed network is presented by a solid lined eclipse on the right and is enclosed by an open network society (i.e. the Internet). The dotted cloud represents an open national network. [Figure from: Kukkola et al 2017a]

Potential impact of the closing process

We have analyzed the outcomes of closing process from an open network society's perspective and shown how a closed network nation is able to shape the cyber domain. The purpose of shaping the cyber domain is to gain an advantage and consequently, to control the cyber domain. There is a danger of open network societies being forced into a reactive mode. In our earlier study, we analysed the choices facing open network societies and their

consequences in the case of escalation and even potential confrontation (Kukkola et al 2017a).

Maybe one of the most interesting results of the closing process is the formation of asymmetric frontlines in the cyber domain. In the paper we discuss how the fragmentation of global network is progressing towards the formation of national segments of cyberspace. These national segments will be walled with ‘digital borders’ and will enforce the concept of digital sovereignty; e.g. by closing their national networks. In the earlier study, we argue how the conventional asymmetry in cyberspace originates from the problem of attribution, and is challenged or even made obsolete by the concept of digital sovereignty. We demonstrated how ‘digital sovereignty’ is achievable by innovatively applying current technology and protocols. There is an obvious impact of the digital sovereignty and the resulting asymmetric frontlines to the (near) future cyber battlefields (Kukkola et al 2017b).

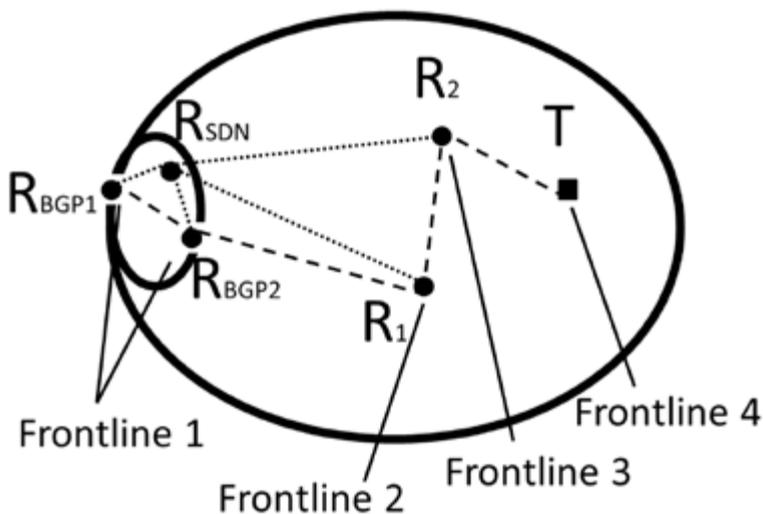


Figure 2. A simplified outline of the frontlines of a closed network. The largest ellipse represents the closed subspace and the smaller one demonstrates the ‘border crossing-point’ and ‘digital customs’ (cf. Streltsov & Pilyugin 2016) between the open subspace and the closed subspace. Since similar frontlines are absent in the open network it results in asymmetric frontlines. In the open national network all the safety measures are essentially conducted within or at the borders of the specific IT-system (marked as T=target in the figure). In the figure, one decision making router RSDN is actually a set of several routers that may be centrally controlled [Figure from Kukkola et al 2017b].

Obviously there is a need for more specific research on this subject. We reviewed our previous studies in a NATO IST-145 publication (Kukkola et al 2017c) pertaining to adversarial cyber operations aiming to the fragmentation of the global network. The motivation for writing the review article was to address the network closure process and its potential impacts on the open network society. We would like to guide the resources of the scientific community to work further with this problem.

There is a need for mathematical, technological and military research for considering the network closing problem. In the current research we provide mathematical analysis considering the problem related to closed national networks. The proposed model presents a probability based view of the military capability of closed and open networks.

Probabilistic Model

Probabilistic models of war have been proposed in the literature (Cioffi-Revilla, 1989; Cioffi-Revilla and Dacey, 1988).]. In this paper we use conditional probabilities to model asymmetric cyber-attacks and defence between closed and open national networks. The method is based on our earlier work on technology forecasting and capability modelling (Kuikka and Suojanen 2014; Kuikka, et al. 2015a/b; Kuikka 2016).

Military capabilities can be modeled with basic probability theory using conditional probabilities. Our modelling is based on a system of systems concept, where a system can be described as parallel and serial sub-systems with a desired granularity. The highest level of modeling can be comprised of capability areas or a subset of functionalities from one or more capability area. Functionalities are assumed to be independent — and if this does not hold, they should be further separated until the functionalities have no interceptions.

The general idea is to model the operation as multiple phases or levels. Typically, two taxonomies exist for the classification of attacks and defence actions. These two taxonomies may have common functionalities but usually

the probabilities of success are different depending on the scenarios and other environmental factors (Suojanen, et al., 2015).

In our first schematic model we have a structure for functionalities where inner levels are conditional to all outer levels of action. In a general form we express the model mathematically for the probability of successful operation as follows:

$$P = 1 - (1 - p_1 | 0)(1 - p_2 | 0 \wedge 1)(1 - p_3 | 0 \wedge 1 \wedge 2) \dots (1 - p_n | 0 \wedge 1 \wedge 2 \dots n - 1), \quad (1)$$

where $p_i, i = 1, \dots, n$ describe the probabilities of success in n tasks. These tasks or sub-functionalities together describe an operation. The nested structure shows up with the conditional probabilities denoted by $0, 0 \wedge 1, \dots, 0 \wedge 1 \wedge 2 \dots n - 1$. Conditional probability is a measure of the probability of an event given that another event has occurred, for example, $p_2 | 0 \wedge 1$ is the probability of successfully carrying out a second task given that tasks or events $i=0$ and $i=1$ have happened. The event $i=0$ is the presumption that the operation occurs at all.

In the following, we use the short hand notation $p_i = p_i | 0 \wedge 1 \dots i - 1$. If at any level $i=1, \dots, n$, alternative systems or operational procedures exist, the formula is modified accordingly. For example, the probability for task i having j alternatives is $p_i = 1 - (1 - p_{i,1})(1 - p_{i,2}) \dots (1 - p_{i,j})$.

If at any level $i = 1, \dots, n$, multiple functionalities are necessary for a successful task i , the probability is $p_i = p_{i,1} p_{i,2} \dots p_{i,j}$.

The idea is generalized for sub-level functionalities and at the same level both alternative and necessary structures may exist.

As an example, we describe a defensive operation (from a closed national network perspective):

$$P_{\text{defense}} = 1 - (1 - p_{\text{Deny Reconnaissance}})(1 - p_{\text{Deny Unauthorized BC}})(1 - p_{\text{Deny Advancement}})(1 - p_{\text{Deny Cyber Attack}}), \quad (2)$$

where $p_{\text{Deny Reconnaissance}}$ stands for the probability of denying reconnaissance, $p_{\text{Deny Unauthorized BC}}$ unauthorized border crossing, $p_{\text{Deny Advancement}}$ denying adversarial

advancement within the closed networks and $p_{Deny\ Cyber\ Attack}$ denying cyber-attack on or within the system itself.

The description for a corresponding cyber-attack operation is then:

$$P_{attack} = p_{Reconnaissance} p_{Border\ Crossing} p_{Advancement} p_{Cyber\ Attack}$$

$$= (1 - p_{Deny\ Reconnaissance})(1 - p_{Deny\ Unauthorized\ BC})(1 - p_{Deny\ Advancement})(1 - p_{Deny\ Cyber\ Attack}) \quad (3)$$

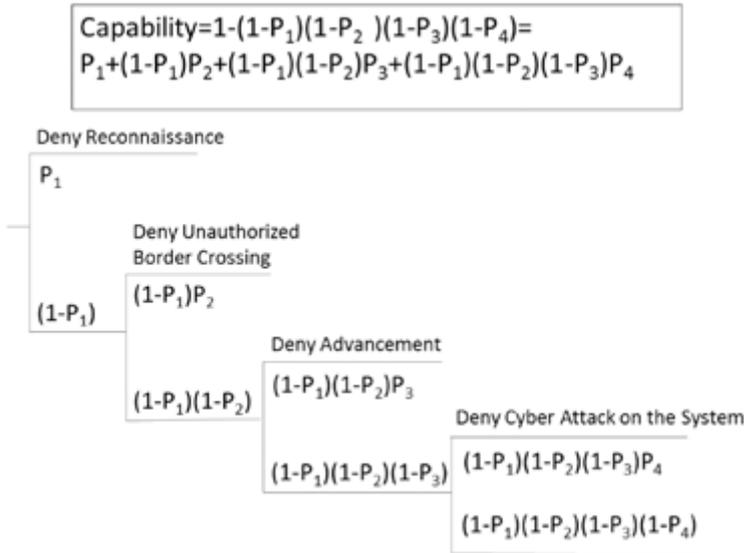


Figure 3. Illustration of a defensive operation (in the closed networks' perspective) of Equation (2).

When a cyber operation is conducted in the other direction, namely from the closed network toward open national networks, similar frontlines do not exist (by definition). This has been discussed in our earlier research (Kukkola et al 2017b) and the outcome is the formation of asymmetric frontlines.

Conclusion

We have presented, to the best of our knowledge, the first mathematical model to describe the imbalance of cyber operations between closed and open national networks. The effect on the military capabilities of the closed and open networks has been analysed with the model. The closing process is a well-documented course of development and will be de facto in 2020 as Russia is likely to implement RuNet 2020. As the closing process continues the understanding of it needs to progress as well. We are further developing the model and also otherwise constructing situation awareness of the process. We encourage the scientific community in general to further study the problem.

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The tendencies of unmanned ground vehicles development in the context of future warfare: The russian armed forces' concepts in support of land operations

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Advance technologies of the information age, recognized also as digital age, have significantly influenced all domains of social life as they have constantly demonstrated new capabilities allowing evolution of every area of mankind activities. Their evolutionary character looks like unlimited set offering endlessly new solutions which are encouraging their adaptation to fully exploit emerging opportunities. The new technological discoveries have found very quickly military applications becoming an inherent component of contemporary military operations with huge potential to change the future battlefield as of continuous research. Among them autonomous systems caught attention of military industry and armed forces. The development of unmanned vehicles is constant and dynamic process led by developed nations. It has influenced military operations by innovative approach to new weapon concepts supported by funds, technology and research sectors. The unmanned platforms have been verified in combat operations and the have been recognized as valuable tools to support soldiers when fighting conventional and asymmetric enemies. The paper is to discuss current developments of unmanned ground platforms pointing out tendencies but also mentioning their advantages and disadvantages. Currently, US is not only country developing unmanned capabilities as those were recognized by other nations and extremist organizations. Among them, Russia has been active lately, within modernization of armed forces, to move innovative programs ahead recognizing that it is behind in that domain.

Russian decision makers, theoreticians, academics made decisions after analysing the utilisation of unmanned vehicles, especially in the air, by the US and other nations in Iraq, Pakistan and Afghanistan. Following guidance of leadership the country has decided to do more. The Russians were shaken by the war in 2008, when Georgian forces used Israeli drones, demonstrating Russia's lack of well-developed solutions. It presented that the armed forces and national industry were behind the Western technological and conceptual approach toward UGV applications in the modern warfare. As the result, there are new concepts of unmanned platforms already in development undertaken by research institutes and they are being verified during tests and exercises. Russia began experimenting in the field of UGVs from the 1920s and 1930s, but this stopped for many years, except for unmanned air vehicles (UAVs). Russia's armed forces showed some increase of interest in unmanned systems at the beginning of the 2000s but it was short lived attempt. Defence Minister Sergei Shoigu's intention 'to spend 320 billion roubles (about US\$8.8 billion) by 2020 on a programme to supply the Russian armed forces with unmanned aerial vehicles' suggests Russia is now trying to catch up. The development of UAVs took off again with the programme 'Development of prospective military robotisation until 2025' under the Ministry of Defence's auspices. Parallel, military scientific and research centres under the General Staff of the Armed Forces of the Russian Federation started to develop concepts of UGVs' tactical employment. The importance of such a trend was highlighted by President Putin during a meeting of the Military-Industrial Commission in January 2017. He said that 'the direction of autonomous robotic complexes are important and promising. They are able to fundamentally change the whole system of armament and we need our own effective achievements in this field.'

The paper will present general tendencies, classification and characteristics of unmanned ground systems. Their utilization and progress by nations is to be covered briefly. Next, it will discuss Russian concepts of UGVs. It is based on following the current programmes and their implementation into the Armed Forces, National Guard and other security related services. It will present UGV programmes under development and will give an overview on the UGVs introduced into the land forces. The ongoing projects will be presented highlighting variety of proposed solutions and competitions among national military industry companies. Russia is significant progress in the development of unmanned land combat systems, but it is also working on

their conceptual utilisation in warfare. It is, however, limited by international sanctions as there is shortage of necessary technologies to further continue progress.

WG 4

Leadership, Command and Control and Basic Competences

Preparation Of Artillery Fire Support Officers Of Brigade Task Forces And Possibilities Of Their Practical Education

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Keywords: artillery, artillery fire support officer, targeting, military education, military training, joint fires, joint fires observer, artillery support, close air support.

Article is focused on problematic of czech artillery fire support officers practical preparation in context of available preparation options of czech armed forces personell. The goal of this article is to set up an options of practical education of artillery fire support officers which are consistent to requirements imposed on the work they conduct on fire support coordination centers (fire support cells) of brigade task forces. Additional goal is to harmonize these options with czech armed forces internal rules and regulations. To fulfill these goals there were performed current status analysis to asses current status of officers corps education and available options of practical preparation during active duty in czech armed forces. This focus is based especially on completion of different specialized courses provided by czech armed forces training centers as well as training centers of different NATO armies. Article presents new solutions of artillery fire support officers preparation in coordination of joint fires. Particular emphasis is based on content of this practical preparation and need to cover close air support requesting part. Designed solution offers possibility of practical education of artillery fire support officers in requesting, adjusting and controlling of artillery and close air support units. Resulting conception of military officers preparation enables to cover those areas, which are not contained current educational or training areas of military centers involved in military officers education process. Main benefit of this article is definition of possible ways of artillery fire support officers preparation which graduate on military high school of czech armed forces as well as those who got their univerzity degree outside of ministry of defence, in civilian sector. Result of this article is definition of common framework of practical education, which would provide the same knowledge for artillery fire support officers no matter what kind of univerzity or previous training they finished.

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Formal and Informal Leadership Processes in a JHQ

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The complexity in the planning and conduct of military joint operations has increased the last 20 years, embedding a wide span of actors and special advisors.

The use and involvement of these actors in different parts of the decision making process will thus have a large impact on the commander's decisions and the quality of joint head quarter products.

Two central processes in the head quarter staff work are partly the formal leading and planning process, and partly a number of identified but informal processes. The leadership carried out in the staff thus appears to play a vital role regarding a successful integration of formal and informal processes.

Formal doctrines and procedures have a cognitive heel, which may counter an agile interaction between the formal and informal processes.

This study thus investigates different aspects of formal and informal leadership processes in a military joint head quarter at the operational level, focusing on the decision making processes, leadership functions, and to what extent special function areas exercise more influence on these processes than other.

The aim of the study is to reveal knowledge which contributes to increased insight and the development of leadership processes and products in a military joint head quarter.

Psychology and Military applications: Military Resilience – the scale

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Keywords: military resilience, military environment, military personnel.

Background: Psychology finds a number of applications in the military environment, both in individual and in interpersonal level, because a healthy psychological state is one of the most important military supplies but also group leadership requires a deep knowledge of group psychology. Psychological resilience is a variable that can help individual adjust with new facts and situations, a variable very common in the military environment. Psychological resilience refers to the process of coping with or overcoming exposure to adversity or stress (Meredith et al, 2011) which is more than an individual personality trait, but mainly it is a process involving individual's interaction depending individual's life experiences, and current life context. Resilience is the capacity to adapt successfully in the presence of risk and adversity (Jensen and Fraser, 2005). It is rather a process of individuation through a structured system with gradual discovery of personal and unique abilities (Rutter, 2008) adjusting with family or relationship problems, health, financial or problems coming from workplace.

Purpose: The aim of this study is to present the Military Resilience Scale. Three Studies are presented. Study 1 the Manipulation test of the scale. Study 2 the 1st test of the scale. Study 3 the 1st retest of the scale.

Material and Methods: This new scale includes 20 items rated on a six-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree) and includes statements expressing attitudes about military psychological resilience.

Results: A manipulation test of the scale has been addressed to 100 (N=100) adults in the military environment, in order to verify that individuals understand in a proper way the scale, the items are clear and straightforward and also examine the topics for which they are designed and theoretically examine. One hundred ninety six (N= 186) participants having a strong relation with the military participated in the questionnaire fist investigation. One hundred ninety five (N=185) participants of the same strong relation with the military participated in the first retest of the scale. The reliability of the scale was very strong and *Cronbach's alpha* rated from .85 to .94.

Conclusions: The Military Resilience Scale is a very useful and extremely reliable scale. Repeated measurements need to be made in a variety of military populations over a long period of time.

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The Military Morale and Its Instruments in Estonian Defence Forces

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Keywords military morale, well-being, performance.

Morale is a widely known construct in the industrial context as well as in military, medicine and educational settings. Usually it describes the workers' motivation and enthusiasm to achieve some type of task or mission related goals or objectives (Britt & Dickinson, 2006, p. 164). As for today, the construct includes elements of confidence, optimism, enthusiasm as well as a sense of common purpose (Peterson, Park & Sweeney, 2008). Morale is used to describe individuals and groups, more precisely individuals in the groups and it is widely used in other settings besides the military ones, despite the slightly different meaning for the other disciplines (Peterson, Park & Sweeney, 2008). For instance high morale is understood in the educational settings as energy and enthusiasm (Mayer, 2009) and on the other hand in the medical context as satisfaction, purposefulness, optimism and self-esteem (Weakliem & Frenkel, 2006).

Among the different definitions one of the simplest will be that morale is a strong sense of enthusiasm and dedication to a commonly shared goal that unifies a group (Manning, 1991). Therefore, as the researchers has shown (Britt & Dickinson, 2006), the military morale is a motivational construct, which is influenced by 1) individual factors, such as inclination towards optimism (Carver & Scheier, 2002), hardiness, self-efficacy (reason for self-confidence) (Bandura, 2000), trust and military identity; 2) unit factors, such as collective efficacy (Shamir, Brainin, Zakay & Propper, 2000), unit cohesion and *esprit de corp* (Manning, 1991); 3) leadership factors, such as setting up clear and meaningful tasks, instilling efficacy and trust mostly through a personal example and organizing adequate trainings, emphasizing positive

outcomes and recognizing superior performance (Gal, 1986; Gal & Manning, 1987; Bliese & Britt, 2001; Chen & Bliese, 2002).

The aim of the present article is to adopt the instruments measuring directly the morale in military settings into Estonian language and evaluate empirically the factors influencing this construct (theoretically). Three different instruments were administrated: direct items (asking directly what your level on morale is); six items instrument referring respondents' motivation and enthusiasm for accomplishing mission objectives (Britt & Dickinson, 2006, p. 164); and multidimensional morale instrument with its core dimensions: dedication, vigour, cynicism and emotional exhaustion (van Boxmeer, Verwijs, Bruin, Duel & Euwema, 2007; Parmak, 2010). The sample of study consisted of Estonian military personnel (N=350) including conscripts and professionals. The study variables were measured over three times during one year training period. We used quantitative strategy to collect the data and statistical analysis included descriptive statistics (SPSS), explorative- and confirmative factor analysis (LISREL), and structural equation modelling (LISREL). The results indicated that translations of morale instruments were valid and reliable to use in Estonian language, additionally factors proposed to influence military morale were assessed over the training cycle. The value of this study for the military education were also discussed in the last part of the paper.

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Military mid-level leaders containing ability and leadership: A key to work satisfaction and organizational effectiveness

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Keywords: Mid-level leadership, sensemaking, sense giving, containing ability, organizational result

Most leaders could be described as mid-level leaders in the sense that they have superiors above themselves and subordinates below. Leadership along the hierarchical chain of command is a complex issue and could be described as follows: (1) a high-level leader reflects on what he or she thinks should be done, (2) the high-level leader acts, (3) mid-level leaders experience the high-level leaders action and image, (4) the mid-level leaders reflect on what they think should be done, (5) the mid-level leaders act, (6) the co-workers at the lower level experience the action of their mid-level leader as well as the image of the high-level leader and the mid-level leader, (7) the co-workers at the lower level reflect on what they think should be done and (8) the co-workers act. The scheme is obviously a simplification but it illustrates that we have come a long way from the thesis of the classic management school implying that the boss thinks and the people acts (Larsson et al., 2005).

The present study focuses on mid-level leaders which means that the steps 3–5 above come to the foreground. These steps involve the containing ability of the mid-level leaders. The mid-level leader should be able to perceive, evaluate and contain the information from higher levels before they pass them on downwards in the hierarchy (*sensemaking*; Weick, 1995). The containing also includes a transformation of the message from the higher level in such a way that it becomes meaningful for co-workers at a lower level, without distorting the content of the message (*sense giving*). The other way around is also relevant. Mid-level leaders should be able to receive and contain messages from «the floor» and pass them on to higher-level leaders in a constructive way (Larsson, Lundin, & Zander, 2017).

The aim was to explore military mid-level leaders' so called containing function in terms of their sensemaking ability of messages from higher hierarchical levels and their sense giving ability when passing these messages on to lower hierarchical levels. The aim was also to investigate the association between these abilities and organizational result and work satisfaction. Data was collected in 2017 using a questionnaire among Captains and Majors/ Naval Lieutenant-Commanders, attending courses at the Swedish Defence University and among Majors/Naval Lieutenant-Commanders at the Norwegian Defence University College. Responses were obtained from 110 officers (about 67% response rate). Using statistical mediation analysis (Hayes, 2013), the main result was that the containing function sense giving, in itself as well as combined with general leadership behavior, contributed to a favorable organizational result including effectiveness as well as work satisfaction. The containing function sensemaking contributed to a lower degree.

We suggest that the results point to an important and underestimated aspect of leadership. The main conclusion is that mid-level leaders' containing ability when it comes to sense giving, combined with their general leadership ability, has important consequences for organizational results and work satisfaction. If they handle the containing function well, the likelihood increases that subordinates experience a higher degree of organizational identification. If they handle the containing function poorly, they may contribute to a gap between the higher levels and the operative units. A practical conclusion is that, as the function sense giving, consists of behaviors, what you say and do, it is more open to development through personal reflection and practice.

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Effective way of training military-technical specialists of missile forces and artillery in the context of military conflict. Ukraine's experience

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Keywords: 3D Information Technology, 3D computer graphics, interactive training systems, interactive simulators and training simulators of missile and artillery armament models, modern systems for training the MFA specialists.

Annotation. The most effective and modern studying technologies used in the specialists training for the Missile Forces and Artillery (MFA) of the Armed Forces of Ukraine (AFU) are considered. The experience of warfighting in the East of Ukraine is taken into account. The types of self-developed, used and developing technologies of artillerymen training, based on modern 3D Information Technology, are described.

The armed conflict in the East of Ukraine made it possible to reveal the true state of affairs in the AFU, to uncover a number of problems without the resolution of which it is impossible to restore the combat readiness of the units and subunits of the MFA. The most difficult and most pressing was the problem of highly qualified specialists shortage, a low level of personnel training of all levels.

The theoretical knowledge and practical skills that officers, sergeants and soldiers of the MFA of the AFU had proved to be insufficient in modern conditions for competent planning and successful performance of combat

tasks. A superficial study of the material part of the missile and artillery armament (MAA) models, a lack of practical aspects of its operation, a lack of coherence of subunits' and units' actions against the background of the most severe resources saving led to large losses of MAA and casualties in the first months of the conflict.

This situation in the AFU was due to the fact that from the beginning of Ukraine's emergence as a sovereign state, the probabilities of external threats were not considered by the establishment. Financing of the AFU consuming needs has been decreasing every year, especially in training and retraining fields of active military formations and future military specialists. The MFA also has not become an exception, having undergone destructive processes, both in material and technical and intellectual spheres.

The specifics of the combat missions, carried out by the MFA, require special, painstaking training of personnel, using staff weapons and military equipment, conducting plenty of exercises, training and combat firing. Therefore, the qualitative training of the MFA specialists, who are capable of performing the assigned tasks correctly in the zone of combat operations for a minimum time, is a priority task.

Insufficient funding (inability to conduct combat and training firing regularly, to provide technical training, to study missile and artillery armament models on real objects) forces us to search, research, develop and introduce modern methods of military specialists training on a theoretical and practical level. The authors see a solution to the problem that has arisen in the development and use of modern Information Technology and 3D computer graphics in the MFA specialists training.

The experience of using our own developments in the MFA specialists training process, who are studying under the reserve officers training programs, shows that the tools that give the desired result include: 3D training models and animation of MAA models, interactive simulation training complexes and remote-acting training systems. A detailed description of the modern means, that are being developed and used in the specialists training system of the MFA of the AFU, is given in the paper with the presentation.

Thus, the introduction and usage of such technical solutions in the training process allows to reduce the time and improve the quality of training (retraining) of the MFA specialists at different levels (both officers and sergeants, soldiers and cadets), students who undergo training under the reserve officer training program. The proposed methods of training are also relevant in conditions of external aggression, when it is necessary to train a highly qualified specialist in a short period of time, who is capable of carrying out all the assigned combat tasks successfully.

The MFA specialists training model is being used and studied by the authors. It is flexible and multifunctional. This training model is easily applicable in the military specialists training of other armed forces branches, especially in the military-technical field. The created model of training on the modern informational 3D technologies basis can be applied to the development of any weapon models and military equipment, including weapon models and military equipment that are found in the arsenal of the NATO member countries armies.

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Leading with motivation: getting military personnel research findings into leadership training and development

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Subordinates motivation is one of the greatest challenges of today's military officers, as a society is affected by global culture of individualism and self-actualization. In the environment where multinational companies offer personal and professional fulfilment, promotion of entrepreneurship proposes self-satisfaction in start-ups, the ability to motivate followers is challenged. Both junior as well as senior military officers' leadership is confronted by subordinates' self-centred demands. Nevertheless some of the leaders are exceptionally effective by meeting new needs and building their units into motivated teams. Therefore key questions are: what types and techniques of leadership are most efficient and how this evidence based practice could be developed in leadership education and training; to what extend self-actualization is important in diverse military organization, where conscripts, professional military service personnel and volunteers are serving?

This paper seeks to contribute to the discussion on leadership development by focusing on findings in leader–subordinate relationships research where the most challenging and transforming element is subordinates' self-actualization. Accordingly, the aim of the paper is to identify and analyse key shifts in leadership practice that make positive impact on subordinates' motivation and are recommend taking into consideration in leadership training and development.

The structure of this discussion paper is as follows. First, the concept of the leading with motivation will be examined in the framework of values of today's society. Secondly, the review of recent research on military leader–subordinate relationships will be presented. The article draws on prior three

research findings on motivation in Lithuanian Armed Forces performed in 2016–2017 as well as newest paradigms in leading with motivation.

Leading with motivation is rarely used term in scientific literature however motivation is perceived as critical factor in leadership practice. This concept mainly is reflected in the framework of motivation and especially in the self-determination theory (Deci and Ryan 2000)³. According to this theory, all humans have three basic self-actualization needs: (1) experience feelings of autonomy; (2) experience feelings of competence; and (3) experience feelings of relatedness. The recent study by Rasskazova et al. shows that the needs tend to have parallel effects and «the more people report having all three types of experiences, the better off they are»⁴. At the same time the study of Ivtzan et al. (2013) found that middle-aged employees show higher levels of self-actualization than younger age workers⁵.

In our case we focused on three research projects that presented finding from different groups of military personnel: conscripts, volunteers and professional service and their motivational factors that are exploited in efficient leadership practice. Military personnel motivation varies significantly depending on the relationship with a military as an organization. The sample of the first research was conscripts. The reason for their service in the military is related to the duties as citizens; consequently motivation to participate actively and efficiently mainly is related with opportunity for socialization with peers and opportunity to prove itself in a new environment. As it was noticed by Ivtzan et al. (2013), the need for self-actualization in this group of young people is low, accordingly the leadership by example is the most efficient way for motivation.

The second research which results could contribute to leadership training and development was performed with the officer and servant of professional military service. On the contrary to conscription, professionally military

³Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11, 227–268.

⁴Rasskazova, E., Ivanova, T., & Sheldon, K. (2016). Comparing the effects of low-level and high-level worker need-satisfaction: A synthesis of the self-determination and Maslow need theories. *Motivation and Emotion*, 40(4), 541-555.

⁵Ivtzan, I., Gardner, H. E., Bernard, I., Sekhon, M., & Hart, R. (2013). Wellbeing through self-fulfilment: Examining developmental aspects of self-actualization. *The Humanistic Psychologist*, 41(2), 119-132.

service offers long-term employment and requires from leaders different way of leading with motivation. The sample showed high levels of needs for self-actualization and transformational leadership was the most efficient in this context.

The sample of the last research was volunteer military forces. This longitudinal research provided opportunity not only to evaluate leader–subordinate relationships but also to evaluate the change of motivational factors over the past four years. In contrast to the professional military service where motivational factors are similar to other places of employment, motivational leadership in volunteer military forces is mainly related with participation and collaboration. Accordingly self-actualization is mainly driven by the need to feel relatedness and collaborative leadership showed the highest efficiency.

This overview of three complimentary research performed by Lithuanian Military Academy identify key shifts in leadership practice that make positive impact on subordinates' motivation. Self-actualization as source of motivation has to be understood and incorporated into leadership training and development. At the same time, self-actualization needs are dissimilar in such diverse organization as military.

The Commanders decision making process during execution of operations

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.. Decision-making during execution of operations is categorised as operational management⁶ according to NATO doctrine. Critical functions are coordination and synchronization of the joint force actions⁷. All this based on a plan where focus on effects and assessment of these effects plays a key role in managing the operation. The underlying assumption is that one based on the plan have sufficient control of the operational environment and consequently there is only a need for management of deviations. To have an extensive understanding of the operational environment, focusing on achieving required effects is a good thing, but if taken to far it backlashes and prevents the ability to make required adjustments due to altered circumstances. The hypothesis of this paper is that NATO current focus on effects based thinking during execution of operations hampers the ability to adapt to an ever changing and complex operational environment. The paper will focus on the operational level of war in a complex operational environment. It will explore the commander's decision-making process as such, the assessment process and planning process and how it facilitates the ability to change⁸.

The decision-making process

In order to explore the hypothesis one needs to examine the NATO decision making process and how it accommodates change. The key words describing

⁶ AJP 3-C, Studie draft, para 3.1.

⁷ Ibid, para 3.8.

⁸ The term «change» in this context covers the ability to identify altered circumstances that requires changes to the existing plans and directives.

the execution phase of an operation according to this doctrine is efficiency, effectiveness and synergy. These are to be achieved through operational management⁹, which again is based on the operation plan. A plan characterised by commander's intent, operational objectives with described decisive conditions and supporting effects¹⁰.

However, the challenges military operations face today is characterized by increasingly degree of complexity and change.¹¹ The terminology used to describe the execution phase is more suited to an industrial process, where one more or less have control of all influencing factors. The doctrine tries to recognise this by focusing on assessment to adjust existing plans to exploit favourable situation or mitigate unfavourable ones. The question is whether this mindset accommodates a rapidly changing and complex operational environment.

NATO Joint task force headquarters decision-making process described doctrinally as a four-step process¹², monitor, assess, plan and direct. The amount of change and complexity does not lend itself to be managed in one decision making process. Further, there is a discrepancy between doctrine and current best practice as conducted during NATO operations and exercises. Best practice operates with the decision-making horizons¹³. The challenge is that these horizons are not fully recognised as decision cycles so when supporting process are designed there are inconsistencies and there is a tendency to mix information between the time horizons during decision-making. The paper will discuss these challenges and how to improve the decision-making process.

The assessment process

The assessment process is a vital part of the decision- making process. Changes to existing plans are based on the assessment. The NATO assessment proses

⁹ Ibid, para 3.1

¹⁰ AJP-5, Planning

¹¹ Joint Doctrine Note 3(!!)

¹² Ibid, AJP 3-C, 3.23

¹³ Militære fellesoperasjoner- en innføring, Abstrakt forlag 2016, s 441

consists of four steps measuring own progress¹⁴. The two first steps are part of and supports the planning phase of an operation. Based on the operational framework and desired effects¹⁵, measures of performance and effectiveness, and an information gathering plan are developed.

During the execution phase, data is received and analysed in what is termed campaign and operational assessments. The results of the assessment with recommendations, are validated by the commander in the assessment board as a starting point for further planning and adjustments to the operations plan. However, capturing changes in the operational environment is not only based on measurement of own progress. According to doctrine, the J2 community conducts parallel comprehensive assessments of the opposing and other actors in the area of operations.

Although there are many similarities between the two assessment processes they deviate in focus. The J2 assessment is based on the commander's critical information requirements dealing with capturing changes or confirming behaviour to opposing forces and other actors. It is trying to predict future actions. The operational assessment process on the other hand, tends to have a backward focus as it is based on analysis of historical data. The J2 assessments are supposed to be included in the operational assessment, but what parts of the J2 analysis are included depend on which decisive conditions and effects are being assessed. This paper will further explore the differences in the two assessment processes. It argues that both of them needs to be included in the assessment board to provide the commander a comprehensive basis for decisions on future planning requirements.

Planning process

NATO's doctrine on planning is thoroughly described in Allied Joint Doctrine 5 (AJP 5), and Allied Command Operations planning directive COPD. The process presents a comprehensive, detailed and effects based approach to planning. The focus however is mainly on the planning stage of an operation.

¹⁴ Ibid, s 462

¹⁵ Ibid, 425

Very little is described doctrinally on planning processes during the execution phase of an operation. As previously stated NATO's approach on decision making during the execution phase is on operational management. The paper will explore how this approach facilitates planning requirements in a rapidly changing operational environment and argues a requirement for stronger focus on planning with alternative planning tools.

In conclusion

The abstract is submitted for oral presentation as part of the War Studies or Command and Control working group.

WG 5

Law and Ethic

Laws, Ethics, and LAWS: The Legal and Ethical Implications of Using Lethal Autonomous Weapons Systems

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The use of lethal autonomous weapons systems (LAWS) has become a controversial and heavily scrutinized subject amongst public and academic commentators. In recent years, increased focus has correctly been placed on the development and potential use of fully autonomous weapons. However, modern militaries have been employing weapons systems that require limited to almost no human input to function, such as the Iron Dome, Phalanx, and Predator weapons systems, for decades. The purpose of this paper is not to provide a normative critique of the use of LAWS in modern combat, but is rather a reflection that is meant to help policy makers weigh the costs and

benefits of using LAWS. Far from providing a comprehensive analysis, three sets of legal and ethical implications that stem from the use of LAWS, are explored by focusing on the ways that weapons and the laws of armed conflict influence warfare. The first implication is that despite being controversial, LAWS do not inherently violate the fundamental principles of the laws of armed conflict, meaning it would be difficult to ban their use without amending or perhaps breaking with the LOAC tradition. The second, is that the complex nature of LAWS means that commanders and operators must become experts on all the potential functions of a given LAWS to ensure that it is not used in such a way that would cause violations of the laws of armed conflict. Unlike simple weapons such as rifles or grenades, LAWS might respond in unexpected ways during a conflict. It also means that the military must trust the weapons manufacturer to disclose all information about their product's functionality. The third implication is that the use of LAWS by one side in a conflict might cause the opposing side to target the weapon's manufacturer or maintenance personnel, rather than the military operators or command bases in order to combat those weapons. The high degree of civilian input into the operation of LAWS means that civilians who produce and perform maintenance duties on LAWS not only run the risk of becoming the targets of attack, but *legitimate* targets under the current prescriptions of the LOAC. These implications may not outweigh the benefits of using LAWS in armed conflicts, but they provide reasons for military leaders and policy makers to consider the degree to which they should allow automated machines to fulfill battlefield tasks.

Rules of Engagement – Some legal aspects when applied in peace striving [military] operations under UN-mandates; A Nordic perspective

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In international peace operations Swedish military units, along with forces from other states, abide by so called Rules of Engagement (ROE). These ROE have come to existence based on not only legal but also on political and operational aspects. In Sweden, ROE's did not exist in the national military context in the traditional sense until very recently. Because of this fact the ROE are not yet an everyday occurrence in the same fashion as in peace operations and in other military operations where coercion and use of force may be applied.

As a politico-military steering instrument often negotiated at grand strategy level troop contributing countries may have influence on the rules, at least is if being a member of the leading organisation running the operation with proxy from the UN. The one that have less or in reality no influence on the rules themselves are the soldiers that in the field, airmen in the air or seamen and marines in the naval domain, need to apply the implemented ROE. In fact, their position constitutes the background of the project; although soldiers and others should be able to trust the provided ROE and act according to them questions have been raised such as whether or not it is enough for them to rely on the rules only. In other words what is the status of the ROE?

Following this the main challenge and the purpose of the thesis is to discuss the status of the ROE in relation to mainly national but to an extent international law. Thus the research question of the project deals with the position of ROE in Swedish law and in the legal systems of fellow Nordic countries. The focus is, rather than aiming at discussing substantial and most often classified rules, on the process thus aiming at for instance the drafting process and

hierarchy of norms. More substance driven aspects, for instance how to ROE relate, or correspond, to established systems of international law, mainly UN Security Council resolutions mandates, International Humanitarian Law and Human Rights Law are also of interest as they focuses on the content and the application of ROE more in detail. For the purpose of this project, partially because ROE are classified (secret), such aspect will be discussed in the thesis however not reaches the level of answering an earlier contemplated second research question.

Confirming legal aspects are not the only relevant foundations for the ROE they however put the ambit for both operational and political considerations, which accordingly have to be discussed in the project. Striking a balance between these considerations is a challenge in order to avoid either too rigid ROE – hindering the command to fulfil mission objectives – or too liberal ROE – with a risk, at least theoretically, that force could be used undesirably wide by the peace units. The Nordic countries often, but not always, contribute to the same peace operations why I have chosen three recent with different character and with different lead organisations exemplifying the processes; EU Navfor Atalanta (Somalia), NATO OUP (Libya), and UN MINUSMA (Mali).

Security (and) Law – new field of law?

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In international public law and the also in Polish domestic law is many legal acts about different aspects of the security. There is now a classic division of the continental law system that applies in Poland and common law system. The concept of the legal system can also be considered in terms of the division into subsystems. For example, in the case of a statutory law, this would be a generally applicable law, and the legislative law subsystem could be distinguished within it¹⁶. In Poland – according to the system of continental law – the legal system can be divided into public and private law. More specifically, the legal system can in turn be divided into branches (in other words, fields, disciplines), which regulate a separate set of legal norms, content related, containing common concepts and principles. The criterion of division is the subject of regulation. As a rule, the field that governs the foundations of public institutions, the principles of the political and socio-economic system in the state is also distinguished. The main branches of law in Poland include civil, criminal and administrative law. That is why it is difficult to understand why security law, defense law, or military law has not been distinguished¹⁷.

In 2014 Parliament adopted amendments of few important acts in this area, e.g.: *the Act of 14 December 1995 – The Office of the Minister of National Defence, the Act of 21 November 1967 – Universal duty to defend the Republic of Poland and the*

¹⁶ *Wprowadzenie do nauk prawnych. Leksykon tematyczny*, red. A. Bator, Wyd. Prawnicze Lexis-Nexis, Warszawa 2008, s. 176.

¹⁷ However, it should be noted that there are scientific positions on these issues as separate disciplines, vide: Kitler W., *Bezpieczeństwo narodowe RP. Podstawowe uwarunkowania. Kategorie. System*, AON, Warszawa 2011; *Aspekty prawne bezpieczeństwa narodowego RP. Część ogólna*, red. W. Kitler, M. Czuryk, M. Karpiuk, Wyd. AON, Warszawa 2013; *Metodologiczne i dydaktyczne aspekty, bezpieczeństwa narodowego*, red. nauk. W. Kitler, T. Kośmider, Difin, Warszawa 2015; *Prawo obronne*, Praca naukowo-badawcza pod kier. M. Czuryk, AON, Warszawa 2013; *Prawo wojskowe*, pod. red. W. Kitler, D. Nowak, M. Stępnowska, WolterKluwer, Warszawa 2018.

Act of 29 August 2002 – Martial law and the competence of the Commander-in-Chief and his subordination to the constitutional authorities of the Republic of Poland. But new government is preparing new legal background for new command and control system. In general in the Republic of Poland exist more than 80 (statutes, bills and regulations, without international acts) legal acts about some kind of national security.

Therefore, it should be considered whether such fragmentation of core issues and scattering in such a rich collection of acts is the right solution? Another problematic issue is the number of amendments to various laws rather than creating new ones. In this topic, the Constitutional Court ruled, stating that: «In preparing another amendment to the Act, editor should consider the possibility of developing a new law instead of amendment, if proposed changes can make its content opaque, change a lot of affect its structure or consistency».¹⁸

Although, in this branch of law would be place for the legal definitions, which are not exist in any other acts (e.g. *entity, recognition, aggression, war, armed conflict*, and under Polish law: *state of war, «a time of war»*). This makes it difficult not only for their use, but, what it is even more important, in the interpretation. In the article, the author wants to show some examples of these definitions (which exist in public international and domestic law), because the correct interpretation is great important for security (and) law...

The most important hypothesis of the article refers to the belief that there are all the bases and predispositions to distinguish the security law (and within it, for example the defense or military law).

¹⁸ Postanowienie z dnia 28 lipca 2015 r. sygn. akt K 53/13, dostępne na stronie internetowej pod adresem: <http://trybunal.gov.pl/s/k-5313/> [06.08.2017].

Ethical Action Competence as the Foundational Notion of Military Education

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Keywords: Ethical Action Competence; Ethicality; Dialog Competence; Education

In education, the goal is to educate children such that a child becomes a good citizen. The aim of education is deeply anchored to the history of Western thinking. The foundational ideas were formulated with ancient Greek philosophy; especially the philosophy of Socrates, Plato, and Aristotle play central role in Western education. Military education is connected to the general educational tradition which has several interesting consequences. A natural characterization of the aim of military education is that it aims to educate good soldiers. However, it is not clear enough what is a good soldier. A good soldier must be at the same time a good warrior and a good human being. There may be some tension between warriorship and humanity. How to overcome the tension? A task of military education is to answer the question. Answering the question supposes deep philosophico-pedagogical framework.

Military education is education into an occupation. The character of occupations varies and the skills primarily supposed in them vary from epistemic skills, like is the case in pure science, to practical skills, like is the case for craftsmen. So, depending on the character of the occupation the needed education varies a lot. It may consist in theoretico-conceptual education as is the case in philosophy, mathematics, and pedagogy, or it may consist in practico-functional education. In work life, the distinctions are not so clear. Teaching, even if it supposes deep conceptual and theoretical knowledge, is very practical occupation; and very many so called practical occupations suppose deep going theoretical and conceptual acuity. The

military profession is not a single profession but a family of professions whose theoretical and practical basis varies.

To understand this better we have to consider the notion of expertise which Dreyfus (2006) classifies into seven levels from novice to mastery and even to practical wisdom. The classification is based on the depth of the relevant knowledge and skills. A novice is a beginner who follows explicit rules. The rule dependency diminishes when higher levels of expertise are achieved. At mastery level, the knowledge and skills are of high quality, and eventually practical wisdom is the ideal level of expertise. There is a strong belief that experts solve the problems we face (Feyerabend 2006; Horkheimer & Adorno 1944). However, it is a known fact that this trust is not well-founded. And already Kant said that we should not externalize our own thinking to experts but use our own reason which is a leading idea behind the Enlightenment.

Practical wisdom refers to the level in which theoretical, practical, and ethical deliberation meet each other. Especially ethical deliberation is part and parcel of practical wisdom. Ethical deliberation is context-sensitive commitment to the ethical good. The context-sensitivity is connected to Aristotelian contextualism characterized by Sookermany 2012. However, the ethical deliberation is essentially related to so called classical professions, like divinity, law, medicine, teaching, and military professions that constitute values of Western societies.

The notion of responsibility is central in understanding professions or, more generally, expertise. Responsibility can be classified technical and ethical. The technical responsibility refers, for example, to responsibility to update occupational knowledge and skills. That is, the trust of laymen on experts should be justified. Ethical responsibility refers ethicality of expert which is part and parcel of his or her professional competence. That is, besides epistemic and practical skills the ethical skills are expected. The notion of *action competence* characterizes the whole competence of an expert. The notion of action competence is a cluster notion which is characterized as holistic unity of four aspects of action competence, namely physical, psychological, social and ethical action competence (Toiskallio 2017). Moreover, the notion of action competence is scaling notion which means that anyone can be neither completely action competent nor completely non-action competent. The relationship between the aspects is quite a difficult task to do. The

essential idea is that they are interrelated. The ethical aspect is extremely central in characterizing deeply actor's humanity. Moreover, ethical aspect plays very central role in social life, especially in the dialog competence which is the foundational skill in all negotiations. Especially in the case of international crisis the dialog competence shows the power of ethicality and respect. (Heinonen 2017.)

Ethical action competence is not merely ideal action within an ethically complete world but it presupposes that the evil must be taken seriously. Conscience is our internal «moral alarm bell» which tells us that something is right or is not right. It is not possible to turn off the «moral alarm bell» and hence there are no moral holidays for us. (Pihlström 2014.) Ethicality that is foundation of ethical action competence is not mere ideal but concrete power in facilitating the negotiation processes. However, neither ethical action competence nor dialog competence are congenital skills but they have to be educated. The education presupposes deep understanding of the ethicality and human dignity which presuppose ethical action competence. (Värri 2017.) Practical problem-solving situations are not merely applications of the knowledge and skills but may also enrich our understanding of the foundational notions by extending the scope of applications of them as Ranta (2017) demonstrates.

The contexts of international disputes are messy. The international law does not offer a clear framework to analyze and solve international disputes. The genesis of international disputes have long history, and the solution may take extremely long time. There is no guarantee that consensus would be achieved. (Heiskanen 2017.) Moreover, the informational environment of international disputes is extremely complex: there are too little information, too much information but also intentionally messy information. This informational vagueness is reality which must be taken into account. The ethical action competence and dialog competence should be in action in such a messy context. (Wiewiura & Hendricks 2017). This create challenging environment for applications and for education. (Sookermany 2016.)

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WG 6

Security and Defence Policy and Strategy

Resilience in the Post-Truth World: integrating resilience in defense planning against information warfare

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Keywords: Information Warfare, Defense Planning, Resilience.

One of the main aspects of modern warfare is the idea that the main battlespace is the mind. As a result, new-generation wars are to be dominated by information and psychological warfare, aiming to achieving superiority in troops and weapons control, and morally and psychologically depressing the enemy's armed forces personnel and civil population. The main objective is

to reduce the necessity of for deploying hard military power to the minimum necessary, making the opponent's military and civil population to support the attacker in to the detriment of their own country, its values, culture, political system, and ideology.

It has the purpose of constructing a specific world view within the population, expressed ideologically by the political support for the interests of the opponent. The construction of enemies and the manipulation of reality is not a new thing and happens in the West too, although the process is different. The absolute freedom of information combined with the general public's appetite for conspiracy theories and postmodern relativism. Combined with social media becoming one of the most important sources of information, the result is a situation in which everything is true and nothing is true at the same time.

This gives the possibility for establishing a narrative that serves as an alternative reality as military strategy, where the support for the strategic objectives of war by society in a country at war, in other words, the legitimization of war, is fundamental to achieving victory. In other words, the success of military campaigns in the form of armed conflicts and local wars is much dependent on the relationship between military and non-military factors – the political, psychological, ideological, and informational elements of the campaign – then on military power as isolate variable. Therefore, the security of information systems at a technological level and the willingness of citizens to defend their country at a cognitive level are fundamental elements for guaranteeing the security of any country.

To integrate resilience into defense planning against information warfare it is necessary to consider the following points:

1. *Monitoring information environment and resilience:*

- The concept „resilience to information warfare» must be operationalized by setting measurable criteria for monitoring it on a regular basis. For example, the audit of information related processes at a technological level and measuring the willingness to defend country, trust in state institutions and other indicators at a cognitive level.
- The comprehensive system of monitoring and analysis of hostile activities in information environment (must include such domains as cyber, media, social media) should be implemented.

2. *Enhancing resilience at a cognitive level:*

- To explain adversaries' strategic goals and tools of their implementation.
- To implement national level strategic communication programmes for winning hearts and minds of our own societies. The main task is to decrease the gap between governments and societies, which is the main vulnerability that can be used as a leverage by adversaries.
- To enhance critical thinking of our own societies. This is the best way how to provide information environment security while not giving up democratic freedoms.
- To enhance high-quality journalism, because media business logic and the mediatization of politics are two main drivers of the post-truth phenomenon.
- To look for ways how governments and societies could interact directly, without media, because this way politicians and state officials can explain their policies and also get direct feedback from societies.

Is this the beginning of meta warfare, in the sense that using military tools to achieve non-military objectives, non-military tools to achieve military objectives, and/or both at the same time in any combination is becoming the norm?

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The Rebirth of the Russian Defense Industry and the Impact of Russian Arms Exports

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The Russian defense industry is a critical segment of the country's economy, employing at least 2.5 million workers, and accounting for 20 percent of all manufacturing jobs. The arms industry suffered considerably after the collapse of the Soviet Union in the early 1990s and subsequent years of neglect due to a precipitous drop in military spending. According to data put out by the Stockholm International Peace Research Institute (SIPRI), defense spending (in constant 2011 US dollars) fell from US\$371 billion in 1988 to a low of US\$21 billion in 1998. The resulting plunge in Russian defense procurement spending meant that the Russian arms industry had to find overseas customers or else face extinction. By the early 2000s, therefore, the Russian arms industry reportedly relied on arms exports for up to 80 percent of its income, and securing overseas buyers was absolutely critical to the survival of the Russian defense industry.

By the late 2000s, however, Russian defense spending began to rise again, spurring a revitalization of the arms industry. Between 2004 and 2014, military expenditures grew from US\$41 billion to US\$91.7 billion (in constant 2011 US dollars), according to SIPRI data; approximately 40 percent of spending goes to procurement, leading to a resurgence of domestic orders for armaments from Russia's arms industries. Consequently, currently 75–80 percent of defense industry output is for the Russian military, and about 20–25 percent is exported.

As a result, the Russian arms industry has been experiencing something of a renaissance. The defense sector has continued to grow, despite the growing impact of falling oil prices and Western sanctions (imposed after Moscow's annexation of Crimea) on the overall Russian economy. Domestic military

procurement spending is up considerably, reaching US\$26.3 billion in 2014. At the same time, overseas arms sales have remained strong, hitting US\$13.2 billion that same year. Russia's aircraft and air-defense (missile) sectors have been particularly powerful performers. For example, Russia's United Aircraft Corporation (UAC, which incorporates the Sukhoi, Mikoyan, Ilyushin, Yakolev, Beriev, Irkut, and Tupolev aircraft firms), has achieved remarkable success in recent years, both in terms of number of aircraft produced and in terms of sales. UAC produces about 200 aircraft a year, both military and civilian, although 80 percent of UAC's revenues currently come from military sales. Most of its output used to be exported, but currently purchases by the Russian military account for 80 percent of UAC's income (mostly Su-27/-30/-35 fighters, as well as upgrades of MiG-29s).

While arms exports are not nearly as essential as before, they are nevertheless still important to the continued wellbeing of the Russian defense industry. After the collapse of the Soviet Union, Russia's share of all global arms transfers fell to around 12 percent (according to SIPRI); starting around 2000, however, Russian defense exports began to recover, and by 2014 it held a 27 percent share in the global arms market, second only to the United States. According to Russian sources, in 2014 Russian defense firms exported more than \$15 billion worth of arms to more than 60 countries, and signed almost \$14 billion worth of new contracts.

In this regard, the Asia-Pacific market has been particularly crucial for Russian overseas arms sales. The Asia-Pacific is still Russia's single most important market, despite some diversification of buyers. Between 2005 and 2014, nearly two-thirds of all Russian weapons exports, worth approximately US\$42.3 billion, were to this region, according to SIPRI. In particular, this region contains Russia's two largest arms buyers, India and China, who together account for over *half* of all Russians transfers period (32 percent and 21 percent, respectively).

At the same time, the longer-term future of the Russian arms industry remains tenuous. In the first place, Western sanctions on Russia could also soon affect the defense industry. These restrictions have halted not only Western military exports (which help fill critical gaps in Russia's defense capabilities) but also commercial high-tech transactions that could have dual-use military applications. The Russian defense industry also faces critical

structural challenges as well, including inflation, high levels of debt, and the loss of qualified personnel. Many defense firms are still struggling to achieve profitability. More important perhaps, the manpower base within the Russian defense industrial base is aging rapidly; the average age of its scientists and engineers is now around 50 years, meaning that, in a few years, the Russian defense industry could face a severe shortage of technical personnel.

Consequently, the Russian arms industry could find that, once again, exports are more necessary than ever. In its efforts to secure increased overseas arms sales, certain factors are in its favor. Russian arms are reliable and relatively easy to operate. In addition, the Russian defense industry is increasingly emphasizing after-sales servicing, so MRO (maintenance, repairs, and overhaul) and upgrades are increasingly on hand. Most important of all, perhaps, Moscow offers many types of very capable weapons systems (such as the Su-30 multirole fighter and the S-300/400 air-defense missile) with few restrictions and at very competitive prices.

The Asia-Pacific will continue to be a prime market for Russian arms sales. At the same time, former Soviet states – especially those now under the new Moscow-led Collective Security Treaty Organization (CSTO) – along with African countries, are likely to become growing customers for Russian arms. In general, therefore, one should expect that Russia would remain a powerful player in the global arms market.

NATO in the Baltics: Credible deterrence or paper tiger?

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Keywords: NATO; deterrence; Readiness Action Plan; the Baltic States

With much fanfare and a lot of publicity, NATO adopted its so-called Readiness Action Plan (RAP) at the alliance's summit in Wales, September 2014. Since then, NATO has meticulously implemented the plan's main ingredients. «Assurance measures» were put in place immediately after the summit as NATO-troops were deployed to the East to do air policing, training, exercising, and maritime patrolling, and within weeks allies began implementing «adaption measures» setting up an enhanced NATO Response Force (e-NRF) and the so-called Very High Readiness Joint Task Force (VJTF). Also, new multinational NATO headquarters (so-called NATO Force Integration Units – NFIUs) were established on the territories of nine eastern allies to accommodate and prepare the arrival of allied forces in the event of a crisis. On the surface of things, the allies responded swift and firmly to the new challenges posed by Russia's aggressions in the Ukraine (see for instance Brooke-Holland 2016; Olshausen 2016; Ringsmose & Rynning 2017; Zapfe 2017).

Not everything is perfect in «NATO-land», however. As the RAP and additional measures are being implemented, it is becoming increasingly clear that the alliance's plan for the Baltic Sea region has serious shortcomings. Russian A2/AD capabilities challenge the allies ability to deploy reinforcements to the Baltic States (see for instance Burton 2016); alliance authorities are struggling to identify and designate sufficient high-readiness follow-on forces; and almost three decades after the end of the Cold War, NATO is realizing that the logistical skills associated with the deployment of large force numbers and weapon systems have to be relearned. In short, if the security of the

Baltic States is to be based on more than thin «tripwire forces» (in the shape of NATO's Enhanced Forward Presence – EFP), the alliance will need to do more.

The article starts out by briefly describing the initiatives taken by NATO in response to Russia's aggressive behaviour in Eastern Europe. We provide a short account of the RAP and the EFP and present an overview of the bilateral initiatives taken by the U.S. with regard to the defence of the Baltic States. In the article's second and third part, we zoom in on the challenges related to NATO's Force Structure (NFS) and the NATO Command Structure (NCS). Based on interviews with senior NATO officials and military personnel based at NATO HQ (Brussels) and Allied Command Operations (ACO) (Mons), we identify areas where the alliance is still struggling to fulfil its plans. With regards to the NFS, we zoom in on force numbers and the alliance's (in)ability to deploy to the East; in the section dealing with the NCS, we take a look at the effectiveness of the NFIUs. In the article's fourth (and last) main section, we assess the alliance's ability to counter a hybrid threat. Does the alliance have the doctrinal tools and mind set to fight and prevail in the grey area between outright war and peace?

U.S. grand strategies towards Russia, 2001–2017

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Keywords: Grand strategy, National Security Strategy, USA, Russia.

After the collapse of Soviet Union, the United States (U.S.) became the sole superpower in the international system. The U.S. still is one of the few countries in the world that can enact proactive, global grand strategy. With resurgent Russia flexing its military and diplomatic muscles in Eastern Europe, understanding grand strategies, understanding ideational foundations and rationale behind U.S. foreign policy towards Russia is important not only for countries in this region, which these U.S. strategies directly affect, but also for the global community of states, as interests of U.S. and Russia compete again not only in Europe, but in Middle East and elsewhere.

Grand strategies are comprehensive, long – term plans used to achieve preferred U.S. foreign policy goals; as Charles Krauthammer puts it, grand strategies discuss «the American role in the world». They discuss both domestic and foreign policy, the means and ends of U.S. involvement in the international system of states. This paper analyzes U.S. grand strategies U.S. has used in its foreign policy towards Russia from 2001 to 2017. It compares the policies of President George W. Bush and President Barack Obama, addressing following two research questions: What are the main contemporary U.S. grand strategies relevant in relations with Russia? What strategies has U.S. used in relations with Russia during Bush and Obama presidency?

The grand strategy classification used in this paper focuses on four elements that play role in U.S. foreign policy. Firstly, the role of U.S. leadership. Secondly, the role of democracy, liberal values and other idealist ideas. Thirdly, the role of cooperation. Fourthly, the role of soft and hard power in relations with other states. Depending on different emphasis on each element, different

U.S. foreign policies can be attributed to three grand strategies: primacy, liberal internationalism, and offshore balancing.

This grand strategy classification is used in content analysis to code and analyze U.S. National Security Strategies (NSS) published during presidency of George Bush and Barack Obama as well as to code and analyze speeches about Russia by both Bush and Obama. Altogether four NSS, two for each administration, are coded and analyzed. To analyze grand strategies towards Russia during Bush's presidency 12 speeches and 4 short statements (used as a single unit of analysis) on Russia-Georgia War during August 2008 in speeches of George Bush are included in coding and analysis. To analyze grand strategies towards Russia during Obama's presidency 17 speeches and 4 short statements during Russia's aggression in Ukraine (used as a single unit of analysis) of Barack Obama and 5 speeches by the Vice President Joe Biden, altogether 23 units of analysis, are used.

Using grand strategy classification in analysis of Bush and Obama NSS, the conclusion is that both Bush NSS 2002 and 2006 were leaning towards primacy. They contained multilateralist elements of liberal internationalism, but they emphasized unilateralism and military power far more than Obama's NSS. Obama's NSS were liberal internationalist. NSS 2010 was almost explicitly liberal internationalist, while NSS 2015 contained somewhat more references to primacist military power grand strategy element. Comparing grand strategies outlined in NSS with specific strategies towards Russia outlined in these documents, while overall NSS 2002 and 2006 emphasized primacy, in references to Russia there were no unilateralist and military primacist elements. Obama NSS 2010 was liberal internationalist and specific references to Russia were also liberal internationalist. Obama NSS 2015 was also liberal internationalist, but it did include increase in emphasis on primacist military power grand strategy element. The emphasis on primacist military power grand strategy element was even bigger in references towards Russia in this NSS.

Analysis of 12 speeches and four short statements during Russia-Georgia war indicate five stages in Bush's foreign policy towards Russia. The first stage in foreign policy of Bush administration towards Russia was from 2001 until mid-2003. It emphasized multilateral cooperation with Russia in order to address various global problems. The second stage was from June 2003 until mid-2006 and in this stage in his speeches Bush connected

democracy and human rights situation in Russia with cooperation between the U.S. and Russia offering strong criticism to Russia. The second stage in relations to Russia also corresponds to what various authors have described as the linkage strategy. However, the logic of this strategy proved to be false. Promise of cooperation, if Russia democratizes did not deliver and starting with mid-2006 a third stage – the drift – in relations between U.S. and Russia started. Bush's speeches about Russia became vague and contained less grand strategy elements than speeches before and after this period. This drift ended in early 2008, when the fourth stage in Bush's foreign policy towards Russia started. This fourth stage was Bush's reset. Bush returned to positive, multilateral agenda of cooperation with Russia, abandoning idealist values. However, Russia-Georgia war in August 2008 stopped this reset. After this war, the fifth stage started where Bush returned to idealist values and talked about multilateral cooperation. However, this time not with Russia, but against Russia. Although there were different stages in Bush's foreign policy towards Russia, all of them were within confines of liberal internationalist grand strategy.

To analyze grand strategy towards Russia during Obama administration, 23 units of analysis – speeches and statements – were used. First stage in Obama's foreign policy towards Russia during 2009 was a proposal to cooperate multilaterally with Russia on issues where both states have similar interests. Obama also rejects primacy explicitly. However, in this stage Obama still retains cautious idealist rhetoric similar to Bush's speeches. Second stage in started in 2009 and lasted until June 2013 and can be called Reset of relations. In this stage Obama emphasized multilateral cooperation and used dual track approach. This approach separated pragmatic cooperation with idealist values and problems with democracy and human rights in Russia. The logic of this stage was contrary to Bush administration's. If Russia cooperated, it would see the benefits of increased cooperation that would come if Russia democratized. However, unlike Bush's first stage which talked only about multilateral cooperation, this stage kept some occasional vague references to idealism. However, this logic was also flawed and did not deliver. Already before Russia's aggression in Ukraine U.S. strategy towards Russia begun to change. Deteriorating human rights situation in Russia, Russia's support to founder of WikiLeaks Snowden and increasing disagreements in Syria led to an increased emphasis on idealism in Obama's speeches. The rhetoric on cooperation changed too. Obama talked more about «potential»

cooperation. Russia's aggression in Ukraine, March 2014 marks not only a fourth stage in foreign policy towards with Russia, but also an end to the liberal internationalist grand strategy. Obama starts invoking primacist military power grand strategy element in relations to Russia. Previously it appeared on few occasions, but now it played a prominent role. However, Obama talks not only about military power, he talks also about all other grand strategy elements, except unilateralism. While Obama emphasizes soft power in relations to Russia, he also emphasizes idealism and multilateral cooperation against Russia. Even burden sharing element of offshore balancing is occasionally invoked in this stage. This increased support to military power grand strategy element indicates that in this period Obama is leaning towards primacist grand strategy towards Russia.

Relevant scholarly publications

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«Keep Calm And Carry On» – Danish governance strategies for cyber strategy

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Keywords: Cyber, Strategy, Resilience, Public-Private partnerships and cooperation.

The institute for strategy (IFS) at the RDDC hereby propose to present a recently initiated research project to analyze the Danish governmental approach to the development of a more comprehensive cyber strategy. The purpose of the research is to investigate challenges (and advantages) to the initial doctrinal approach, which is to allocate responsibility for resilience to cyber events to individual societal sectors headed by their respective ministries while developing a framework for cooperation between sectors.

This will contribute to the stated #ISMS 17 purpose by demonstrating how military educational institutions can support development of national policies by applying military science to research of emerging challenges.

Background: In 2014 Denmark published its first cyber strategy as an intermediate answer to the emerging threats in cyber space to the state, citizens and businesses. The 2014-strategy was from the outset a temporary means meant to provide a basis on which to proceed to a more comprehensive strategy. This was originally scheduled to be presented in May 2017, but has been delayed as challenges in developing a comprehensive strategy has been realized (Forsvarsministeriet 2014).

Initially the Danish Centre for Cyber Security was established as a part of the Danish Defence Intelligence Service under the Ministry of Defence in order to protect against threats emanating from states and non-state actors while the National Cyber Crime Centre (NC3) was established as part of the police to investigate and prosecute criminal activities in cyberspace. This construction

reproduced the traditional relationship between state and citizen: Focusing on avoidance of disruptive events as the state provides protection against external threats and divides responsibility between military and police pending on the threats origin. However, the strategy did not cover another societal responsibility normally allocated to the state: The development of resiliency to overcome the effects of successful cyber attacks (Centre for Cyber Security 2015).

The Danish government has given the Danish Ministry of Defence the task to develop a new strategy which is much more focused on the resilience aspects. This will shift the focus from avoiding attacks to overcoming the effects of attacks and other cyber events that will eventually occur (Forsvarsministeriet 2016).

Traditionally Danish planning and preparation for societal resilience has been conducted following a doctrine of decentralization (*sektoransvarsprincippet*), henceforth referred to as The Principle of Sectorial Responsibility or PSR. The PSR implies that the authority, company or institution that has the daily responsibility for an area also has the responsibility in case of a disruptive event, including planning how to uphold and resume provision of services within this area (Beredskabsstyrelsen 2006).

PSR was the backbone of Danish resilience planning during the Cold War. Although some difficulties were experienced regarding inter sectorial coordination, generally the doctrine was well suited to maintain resilience against relatively well defined external threats (mainly war and natural disasters) amongst providers of essential services who were generally owned or controlled by the government.

Based on these experiences, the Danish government stated that the cyber strategy is to be developed along the lines of PSR. However, two major changes challenge the PSR when it comes to countering cyber threats:

1. As cyber threats only come to fruition when successfully exploiting unidentified weaknesses of either software, organizations or both, they are by their very nature difficult to define in more than general terms prior to their effect being recognized. Hence, their first and second order effects are also difficult to foresee and prepare against.

2. A large number of essential services has been transferred from the public to the private sector and many are not even owned by nationally based entities. This reduces the government's ability to plan, coordinate and eventually command these service providers to take actions to improve societal resilience.

In literature on the state's role resilience planning these two factors have led to the identification of the need to establish a governmental approach that involves both centralizing and decentralizing elements. The unforeseeable nature of disruptive events make them unavoidable. This changes the relationship between state and citizen as failure at some point must be expected. The state's success in the role of protector hence also is measured by its ability to provide not only protection but resilience in a very complex environment of public and private actors (Herrington and Aldrich 2013) (Brassett and Vaughan-Williams 2015).

Theoretical literature on the topic suggests that a state should encourage and support a resilience mindset and active approach at the individual and private entity level in order to provide the necessary local knowledge and agility to respond to cyber events (Dunn Cavelty, Kaufmann, and Soby Kristensen 2015). Also the state has a role in providing guidance and structures for communication, coordination and defensive efforts for all these individual efforts before an event. During trans-sectorial disruptive events the state has a role in gaining and maintaining situational awareness and allocating resources to mitigating and eventually overcoming events accordingly. In this regard, there is a tension between the need to centralize in order to maximize situational awareness and influence on the strategic and operational level and the need to decentralize in order to achieve necessary local knowledge and agility to react efficiently at the tactical level (Walker and Cooper 2011). As described above, the current Danish approach puts more emphasis on the perceived advantages of decentralization.

IFS' research project is to

- explore theoretical literature on the topic,
- at the international level explore empirically other national approaches to the cyber challenges,

- at the national level explore empirically the challenges and advantages of PSR experienced by key actors within both the public administration and the private sector.

The intended outcome is to be able to provide both strategic guidance and, where identified, best practices to the ongoing development of a new cyber strategy.

We suggest to submit the presentation under Defence Policy and Strategy. Secondly under War Studies or Armed Forces and Society.

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Countering the U.S. Third Offset Strategy: Russian Perspectives, Responses and Challenges

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The U.S. defence community is currently debating a range of capability requirements and top priority investments that will shape U.S. strategy and the use of force in the 21st century. Embedded in a broader conceptual umbrella of the Third Offset Strategy, the U.S. Department of Defence (DOD) seeks to develop technologically enabled novel operational and organisational constructs. Its strategic aim is to sustain U.S. military superiority over its capable adversaries at the operational level of war, thereby strengthening conventional deterrence. At the same time, the Third Offset strategy aims to revamp institutional agility in U.S. defence management to succeed in a dynamically evolving operational environment. By speeding up the implementation of organisational and conceptual innovation, a strategic technological advantage is sustainable. Strategic effectiveness of the Third Offset, however, will not only depend on the institutional agility and adoption capacity – the financial intensity and organisational capital required to adopt military innovations, but will also depend on the responses, resources, and counter-innovations by peer competitors. Notwithstanding the diffusion and convergence of novel technologies – electronic miniaturisation, additive manufacturing, nano-technology, artificial intelligence, space-like capabilities, and unmanned systems that are likely to alter the character of conflict over time, the patterns of «challenge, strategic response, and adaptation» will continue to shape the direction and character of long-term strategic competitions.

Accordingly, this paper focuses on the evolving contours of the Russian strategic thought and responses toward the Third Offset strategy. It argues that while the U.S. Third Offset is a recent development, its core technological initiatives have been a significant cause of concern for Russia for a long time. In this context, Russian responses to counter these initiatives consist of two major elements:

- The first one is ‘countering the Third Offset Strategy with the First Offset Strategy’, which means prioritizing the development of a wide array of both strategic and tactical nuclear weapons systems. For Russia, maintaining a sophisticated arsenal of nuclear weapons can effectively offset conventional military innovations of the U.S., NATO, and China.
- The second element of the response strategy is more ambitious, and carries greater technological risks. Russia began to counter many U.S. technological initiatives via similar indigenous programs, although more narrowly focused and smaller in scale. In October 2012, Russia established the Advanced Research Foundation (ARF) – a counterpart to the U.S. DARPA. The ARF focuses on similar areas such as the Third Offset Strategy, including hypersonic vehicles, artificial intelligence, additive technologies, unmanned underwater vehicles, cognitive technologies, directed energy weapons, and others.

Although in some programs, Russian military research and development are at initial stages relative to the U.S., in other areas such as directed energy weapons, rail gun, hypersonic vehicle; unmanned underwater vehicle programs are progressing into advanced stages. The key challenge for Russia, however, is a sustained resource allocation to translate these disruptive innovations into actual military capabilities.

To this day, Russian officials have not made public comments on the Third offset strategy. From the Russian point of view, the Strategy is still in its early formation stages, with intense discussions in the U.S. defence community, and subject to change under the Trump administration. However, the Russian military has been closely monitoring the Third Offset Strategy’s areas of technological development, supporting research by leading Russian academic institutions, while assessing its long-term consequences. According to the Russian writings, the Third Offset Strategy is viewed to be primarily ‘anti-Chinese’ although it has significant strategic implications for Russia; much as the First and the Second Offset Strategies were ‘anti-Soviet’, but with

profound consequences for the rest of the world. In essence, the U.S. expects to leverage its technological superiority to offset the growing resources that China can channel into its defence sector. Like the first two strategies, the Third is emerging at a time when the U.S. is facing budgetary constraints, while the resources of potential U.S. adversaries are growing. In some aspects, the situation is even more complicated than in the past.

For Russia, key aspects of the Third Offset strategy that are of immediate concern include the Strategy's effect on the strategic stability and its influence on the globalization of processes in the high technology industry. Russia views both its strategic and tactical nuclear forces as the cornerstone of its national security. Furthermore, Russian defense leadership closely monitors select U.S. R&D projects related to directed energy weapons, hypersonic weapons, and ballistic missile defenses, among others. While these technological initiatives have existed long before the Third Offset Strategy, they shape top priorities in the U.S. military innovation. At the same time, Russian experts have also noted the Third Offset's emphasis on spin-on and spin-off effects from civilian science and technology bases for defense needs. From the Russian perspective, the U.S. could potentially establish additional export barriers for select technologies, previously considered as civilian, especially to peer competitors such as China and Russia. These concerns strengthen the cause of the proponents of more active import substitution policies, and contribute to increased interests in forming industrial partnerships with major developing countries, such as China and India.

In the long-term, Russian conventional capabilities will likely reflect investments and technological R&D milestones in the following priority areas:

- Robotic and remotely controlled systems, including UAVs, as well as ground vehicles – combat, reconnaissance, logistical, which are currently undergoing vigorous testing;
- New generation of electronic warfare systems and expanded capabilities in cyber-warfare;
- Introduction of the advanced command and control systems, including battlefield internet;
- Advanced long-range and ultra-long-range air defense and missile defense systems with ASAT capabilities, which will be used not just for air defense, but for gaining air superiority, offsetting the advantages of the Western adversaries;

- New generation of well-protected armored vehicles that will dramatically reduce losses in the local conflicts;
- Advanced fighter aircraft capable of engaging the 5th generation Western fighters;
- Hypersonic weapons as the main way to defeat future developments in foreign anti-air and missile defense systems;
- Directed energy weapons programs designed to establish foundations for the future weapons development;

The implementation of these programs over the next decade may enable Russia to keep pace with disruptive innovations taking place in the U.S. Third Offset Strategy. At the same time, however, Russian investment into other power projection capabilities, including the new generations of the major surface combatants of the Navy, strategic airlift, amphibious capabilities are and will likely remain limited — aimed at maintaining the current potential at best. Such disparity in priorities seems to be defined by the ongoing confrontation with the West and the expected developments in defense technology, which make it necessary for Russia to concentrate resources on a limited number of strategically relevant projects. Under current conditions, it is very unlikely, and almost impossible for Russia to assume a role of a global military power capable of opposing the West in geographically distant areas. As described once by the U.S. President Barak Obama, Russia will remain a 'regional power'. Although Russian military capabilities in the areas along the Russian borders will likely remain formidable, their ability to maintain a presence and influence in the more remote parts of the world, including Southeast Asia will be limited.

That said, the Third Offset Strategy and concomitant Russian and Chinese countermeasures will shape East Asia's strategic environment in the 21st century. First, the ongoing military innovation changes the dynamics of great power competition, and thus the character of future warfare. In this context, regional strategic competition will likely reflect asymmetric negation, strategic ambiguity, denial and deception, particularly in the emerging new domains of warfare: space, cyber-space, near-space, and underwater. With the widening operational requirements and diffusion of advanced technologies, Russia, China, and the U.S. will rethink existing concepts of operations, organisational force structures, training, and ultimately, military-technological acquisition priorities. Select military technologies

and capabilities will subsequently diffuse throughout other major powers in the region, reshaping military modernisation paths and patterns, while bringing about a complex set of new strategic and operational challenges.

To Better Understand The Promises And Shortcomings Of Strategic Forecasting: Case NATO 2030

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Keywords: North Atlantic Treaty Organization (NATO); strategic forecasting; strategic studies; research methods

This submission seeks to serve two goals: first, to introduce a research plan on a project scrutinizing the North Atlantic Treaty Organization's (NATO) role in European security in 2030 and, secondly, with the help of this case study, to discuss the ways strategic forecasting can contribute to an officer's professional skills.

As of 2017, NATO faces unprecedented challenges both internally and externally. While NATO's external security environment has during the recent years seen deteriorating level of stability due to increased tension with Russia and the mounting unrest in the Middle East, the organization at the same time is met with a challenging transformation from a crisis management organization to one focusing on collective defence. Moreover, tensions within the Transatlantic community due to American global military over-stretch and the growing frustration with the lack of European burden-sharing have gradually intensified during the 2000s and turned into nearly an open quarrel since the start of the Trump Administration. Will these divisive trends continue within NATO? Are we going see a remarkable turn for more coherence during the coming decade?

The credibility of NATO, like any defence alliance, is constituted of two dimensions: political and military. On the political level, credibility follows above all from trust by the member states to the Alliance and foreign powers to execute common defence should a need to do so emerge. Militarily, NATO's credibility and thereby its capacity for deterrence, collective defence and

crisis management is dependent on a demonstrable capability, readiness and usability of the member-states' military force (Bartels 2014).

The idea of the research project is to anticipate the future prospects of NATO credibility from the political point of view. To be more precise, the project will scrutinize three issues: how central or coherent will NATO's role in European security architecture be in 2030; what will be the key factors promoting internal cohesion and incoherence within the Alliance; and how will NATO's relationship to the European Union be arranged in terms of security. The research material is constituted of public official documents produced by NATO and its key member states, elements of the public discussion and selected interviews conducted by the researcher.

In terms of method, the project seeks to observe the methodological principles of strategic foresight. The goal is to identify the most important megatrends affecting NATO's future in European security and to identify indicators or warning signals predicting certain paths of development. The idea is not to produce an exact forecast of a particular future, but rather to sketch an outline or a range of possible futures. In addition, the possibility of various «black swans» – unexpected variables with potentially far-reaching effects – will be kept in mind throughout the process as well.

As said, the second function of the paper is to discuss the ways strategic forecasting can contribute to an officer's professional skills. While forecasting is often seen as a key element in strategic studies and national defence planning in many countries, its reliable and successful exercise is notoriously difficult (see e.g. Choucri and Robinson [eds.] 1978 or Jervis 1991/92, 39 – 46). The wide range of possible approaches and the diverse levels of scholarly ambition of strategic forecasting (Schneider; Gleditsch & Carey 2010) does not make its understanding any easier for an officer studying or applying such research in his/her work. This submission seeks to promote a better understanding of strategic forecasting from an involved officer's point of view by discussing its strengths, limitations, issues and the choices that are involved.

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Evolution of Military Affairs from Business Architecture Viewpoint

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Keywords: Business Architecture; Military Affairs; Enterprise Strategy; command, control, communications, computers, and information system; Enterprise resource planning

This paper approaches military affairs from business architecture viewpoint trying to create a tool to help architects in analysing the enterprise situation and foresee challenges in implementing the command, control, communications, computers, and information systems (C4I). There is evidence of many failed C4I and Enterprise Resource Planning (ERP) system implementations within armed forces. The paper is a part of the writers' research in finding why so many information related development programs have faced challenges when implemented in military enterprises.

The design of research follows the approach of pragmatic worldview, using qualitative deduction in explaining how military affairs (business) have evolved through time and how that may affect the way C4I systems should be implemented. The paper assumes that evolution of military affairs can be explained by a confrontation situation defined by Clausewitz (1984) using a combination of the Ross et al. (2006) model for strategic operation methods and the Gattorna's (2010) model for a strategic position in the competition. When main changes of military affairs from 30 years' war to contemporary doctrines are studied through the hypothesis, a roadmap of evolution in military affairs emerges. The roadmap tool is further tested by three reductional experimentation cases.

The evolutionary architecture roadmap considers military affairs from confrontation, organizational structure, and a strategic resources approach focusing on the business level. The roadmap explains better the dynamic nature of business architecture thus avoiding the linearity of existing architecture frameworks. Consequently, a more balanced systems based model is proposed to the Military Science and business architecture body of knowledge.

For many military enterprise architects, it is challenging to define how the strategic posture and processes of the organization will adopt the tools and systems being rolled out. The roadmap for the evolution of military affairs helps the architect to assess the status of affairs. It also helps the architect to consider different approaches to develop military capabilities and the culture without creating insurmountable obstacles between the information systems and existing habits.

Grand Strategy is Attrition. The Logic of Integrating Various Forms of Power in Conflict

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Keywords: grand strategy, hybrid warfare, unrestricted warfare, military power, non-military power

For the past two centuries, military strategy has been studied thoroughly in a scientific manner to improve our actual conduct of war. Although many important debates persist in strategic studies, much common ground has also been established. This state of affairs within strategic studies emphatically does not extend to grand strategy. Despite being in use since the early 19th century, the term not only has not been studied scientifically, but its meaning has changed continuously. As a result the concept is taken for granted, even though there is no consensus on the actual meaning of grand strategy.

Grand strategy, it turns out, is one of the most slippery and widely abused terms in the foreign policy lexicon. The concept is often invoked but less often defined, and those who define the phrase do so in a variety of different, and often contradictory, ways...The result of all this is that discussions of grand strategy are often confused or superficial. Too frequently, they muddle or obscure more than they illuminate.

Two main understandings of grand strategy stand out. The first, an earlier definition which is less popular today, conceives of grand strategy as the integration of various forms of power—both military and non-military—in war. The second meaning is more popular today, especially in American academia, and conceives of grand strategy as an intellectual framework which sits above and directs foreign policy. The second interpretation is flawed as it essentially represents ideology, a level of thought on which reasoned debate, let alone compromise, is rarely possible. Treatises advocating one

grand strategy or another not only rarely engage other similar works but are often inherently flawed.

To my mind, one of the main problems with the idea of grand strategy is that it places a premium on a certain kind of intellectualizing. It is never enough just to call for a particular course of action; one has to justify the strategy by rooting it in a certain theory about what is at the bottom of international politics, or at least what is at the heart of the situation one is trying to deal with. Since the strategy needs to be simple and all-encompassing, there is a tendency for the theory to be framed in rather grandiose terms—that is, for the theory to overdefine or to misdefine the problem, and in any case to misdirect attention away from the real issues that policy should focus on.

This most common currently popular interpretation of grand strategy simply does not allow for scientific study.

The older understanding, which centered on the integration of military and non-military forms of power in war, *can* be studied scientifically but has not yet been studied in such a manner. This affords a significant opportunity to advance the scientific study of strategy, through the systematic development of grand strategy as a concept. Many important strategic theorists in the past have put forward definitions of grand strategy which adhere to this integration principle, such as maritime theorist Julian Stafford Corbett, military theorists JFC Fuller and Basil Liddell Hart, as well as modern day strategists Edward Luttwak and Colin Gray. Such a variant of grand strategy may be studied scientifically because it remains fundamentally strategic—that is, focused on instrumental logic within the unique context of war—in a way that the current, more popular form of grand strategy does not. However, no one has yet seriously examined how military and non-military power may be integrated. In 1992 Lawrence Freedman posited that «[t]he view that strategy is bound up with the role of force in international life must be qualified, because if force is but one form of power then strategy must address the relationship between this form and others, including authority.» Freedman's challenge stands to this day.

This paper will lay out the basic instrumental logic of this integrated form of grand strategy. To do this, first the assumptions and basic capabilities which underpin military power will be explained through the examination

of military strategic theory, with reference to military history. It will be argued that military power is unique because it is the only form of power for which distinct modes of employment may be discerned: attrition and annihilation. Only military power has the ability to annihilate; only military force can impose control over the pattern of a war.

Non-military power can only impose or support attrition. This is the case because non-military power generally works by denying the enemy access to resources or other goods. Such strategies of denial require extended periods of time to take effect because the most significant factor is the rate at which the enemy's stocks of those denied resources or other goods is exhausted. Due to the adversarial nature of war, such resource denial is effective usually only once the resources have been exhausted and the war effort itself is being inhibited, because the prospect of an externally imposed resource cap is not usually a sufficiently significant threat when compared to the wages of battle and military operations. Grand strategy, which integrates such non-military power alongside the use of military power, is therefore inherently attritional.

This conclusion is supported by examination of the specific instrumental logics of cyberpower and of economic and financial sanctions. The United States' color war plans, devised in the 1920s and 1930s, represent a real world example of defense planning for strategy and grand strategy in practice, an example which not only corroborates the attritional nature of grand strategy but demonstrates that, due to this attritional logic, grand strategy is inherently situational and cannot nor should not be considered a universal solution.

This concept of grand strategy—integrating military and non-military power—bears considerable resemblance to two contemporary non-Western strategic ideas: Russia's hybrid warfare and China's three warfares or unrestricted warfare. If the logic of combining military and non-military power is inherently attritional, then both hybrid warfare and unrestricted warfare must also be attritional. Consequently the logic of these non-Western ideas will be examined, through the study of their practice if possible, to determine whether or not they are, in fact, attritional. This paper posits that these two non-Western strategic concepts are indeed attritional, but they do not necessarily appear to be so due to variations in practice when compared to the older Western concept of grand strategy. The prime variation is that both hybrid and unrestricted warfare operate mostly in peacetime, with

military action only as the culmination of a preceding longer period of pressure and attrition, whereas grand strategy is conceived largely within pre-existing adversarial relationships.

This paper will argue, first, that conceiving of grand strategy as the integration of military and non-military power is more useful than as an intellectual framework for foreign policy and, second, that its logic is inherently attritional due to the combination of wholly unlike forms of power. This attritional logic will be confirmed through the subsequent study of hybrid and unrestricted warfare, which also integrate military and non-military power and therefore also become attritional.

Comparative Strategy: a neglected sub discipline of military sciences?

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Keywords: Comparative strategy; strategic culture; cultural awareness; military concepts
Comparative strategy, understood as the analysis of two or more comparable national strategies, is increasingly evoked in the field of military education but it is rarely the object of a rigorous academic analysis. Political science already documented the need for scholars and practitioners to use comparisons in order to identify patterns and detect major changes. In the context of war colleges, strategic comparisons – whether from different regions of the world or from other historical periods – broaden the knowledge of officers, nurture their cultural awareness and bring them precious perspectives for their future responsibilities.

Comparative strategy is also a constant subject of military education because of the evolution of war colleges themselves: foreign participants from allied nations are more and more integrating the syndicates while faculty members can come from various countries, bringing with them diverse experiences and knowledge. Finally, educational programs and institutions specifically designed for an international audience (e.g. the NATO Defense College, the Baltic Defense College, the 5+5 Defense College, or the ongoing project of a Gulf Cooperation Council Defense College) have significantly changed the landscape of military education. Altogether, these developments have created a favorable environment for the development of comparative strategy as a strong sub-discipline of war studies.

However, because of the lack of methodology, comparative strategy is too frequently leading instructors and students to misinterpret the lessons of case studies. Issues such as the specific social and political contexts, the cultural differences, or even the linguistic subtleties of countries under study are too often underestimated, if not merely ignored. Concepts such as ‘national security’ – historically an American invention – or ‘deterrence’ – a notion

that cover different assumptions in Western countries or elsewhere – are misused in other national contexts where they do not systematically reflect a similar reality in the local military environment. As a result, officers too often reproduce their national framework to different countries facing different challenges.

Against that backdrop, my paper would offer an analytical framework of comparative strategy that would be of benefit to instructors and researchers in professional military education institutions. To that aim, the framework would stress the importance of several interrelated indicators, among them: the national strategic culture and its historical roots; the political system and its impact on civil-military relations; the social and religious environment susceptible to shape the security priorities of a country; or the local language and the way it influences the translation of strategic concepts.

To build this analytical framework, my paper would rely on previous teaching and research experiences. Specifically, I would look at selected case studies where US and NATO military concepts were sometimes used in other regions – here, the Middle East and the Gulf – without considering appropriately the local context. For instance, I would explain how the use of the concept ‘deterrence’ has a very different meaning in Israel or Lebanon. Likewise, I would analyze the values and limitations of importing principles of military planning, or of security sector reform to Gulf countries through military education programs.

As a result, using a systematic methodology to draw comparisons between national strategies would enable officers to better grasp the value, as well as the limitations, of the analogies. Eventually, it would contribute to the reinforcement of comparative strategy as a rigorous sub discipline of war studies.

Since You Left: United Nations Peace Support, Private Military and Security Companies, and Canada

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The 1990s marked the decline of Canada as a substantial troop contributor in United Nations (UN) peace support operations for a variety of reasons. To begin, these operations were becoming more complex and dangerous. This was exemplified by the UN Security Council's ground-breaking December 1992 invocation of Chapter VII of the UN Charter for the humanitarian operation in Somalia. Subsequently, Canada's UN engagements in Somalia, Rwanda, and the former Yugoslavia were tumultuous, draining, and ultimately unsettling for a military accustomed to earlier UN operations that relied upon the traditional principles of consent of the parties, impartiality, and the non-use of force except in self-defence. Moreover, these operations coincided with what General Rick Hillier, when he served as Chief of the Defence Staff, retrospectively described as the «decade of darkness.» During the 1990s as the government tackled the deficit, the Department of National Defence's budget dropped by 23 percent, with a resultant purchasing power loss of 30 percent. Concurrent with the financial cuts was a troop reduction from 88,000 personnel to 60,000 personnel as laid out in the 1994 Defence White Paper.

To compensate for these reductions and to take into account the changing context of peace support operations, the government offered a new conceptual approach in its 1995 proposal «Towards a Rapid Reaction Capability for the United Nations.» The document espoused a «vanguard concept», a well trained 5,000 member force that could quickly enter zones of instability to prevent the spread of violence. Because the force would arrive early, combat was not to be expected. On the one hand, the proposal eventually meshed with Scandinavian initiatives and led to the creation of the Standby High Readiness Brigade for UN Peace Operations (SHIRBRIG). It was ready for operations

from 2000 to 2009 and then stood down. On the other hand, Canada's zeal for participation in UN peace support endeavours had definitely ebbed over the decade. Though the Canadian military fielded 1,002 personnel in UN peace support operations in 1990, that number was 425 by the close of 2000, and only 198 in 2002. Participating troop levels continued to decline over the next decade.

There were, however, new actors in the 1990s that might have been willing to take the place of Canada, and other countries, who were doing less and less peace support work: Private Military and Security Companies (PMSCs). These companies, epitomized by the South African firm Executive Outcomes (EO) and its contracts in Angola (1993 – 1995) and Sierra Leone (1995 – 1997), were well trained, well equipped, and not hesitant about working in a dangerous milieu and applying force therein. They were also not averse to casualties. Taking into account the 2000 Report of the Panel on United Nations Peace Operations, PMSCs seemingly possessed what states often lacked: «The United Nations has bitterly and repeatedly discovered over the last decade, [that] no amount of good intentions can substitute for the fundamental ability to project credible force if complex peacekeeping, in particular, is to succeed.» Though, as we shall see, the UN did not engage PMSCs as providers of frontline peace support personnel in the 1990s, one proponent nevertheless made the industry's benefits clear: «Write a Cheque, End a War.»

While a mission had not been launched at the time of writing, the Liberal Government, on 26 August 2016, did announce Canada's desired return to UN peace support operations. Hence, this paper is an early intervention that investigates the conceptual and operational environment in which the Canadian military would likely be engaged should an endeavour be initiated. Indeed, there are several questions for Canadian policymakers and analysts to consider: Why did a frontline PMSC presence not come about in UN peace support operations in the 1990s? What roles do PMSCs nevertheless have today regarding UN peace support operations? How does the PMSC presence change the UN posture in the field? What might the implications be for the Canadian military should they work either to train peace support personnel or to serve in UN missions directly?

To investigate these questions, the balance of the paper has four parts. First, it presents the reasons why the PMSC presence did not come to fruition as

expected in light of the 1990s era challenges. While it considers state and UN factors, the paper particularly emphasizes the impact of interventions in the first decade of the 21st Century and the corresponding, defensively-minded regulations that came about. In these matters Canada was an active participant in shaping the PMSC industry. Second, the paper considers the role PMSCs play in training peace support personnel. Given that Canadian policymakers have espoused that Canada can provide peace support training, appreciating the implications of PMSC-supplied training funded by the United States will be key. Third, the paper identifies the increasingly protective and insular stance in UN activities in which PMSCs play a role. This PMSC informed protective posture is in keeping with the defensive focus instilled by states, but it is also in accordance with perpetuating commercial dynamics that may not be beneficial for the achievement of UN and Canadian objectives. The final part concludes and indicates implications for future Canadian policymaking. Overall, the Canadian government and its military must take these factors into account either through their own operations or through recognition that the utility of force may be limited in the strategic context.

The NATO military scenarios and implications for the Czech Armed Forces

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Keywords: Scenario, Czech Armed Forces, capability planning, security, end state, objective, operations planning.

A future operational environment is characterized by increasing level of uncertainty and unpredictability; therefore, the Armed Forces will have to be prepared to participate in a much wider range of military operations than ever before. The Czech Armed Forces currently meet the requirements for providing a bigger contribution to the collective defense as agreed in the framework of NATO Defence Planning Process. However, balanced capability development needed for the full spectrum of potential future missions and operations has for years been neglected. This situation may be remedied by creating a set of scenarios that provide a clear vision on the tasks the Armed Forces may be called upon to fulfill in the future. Even though the Czech Republic, as a member of NATO, has currently the most reliable security guarantees in the history, joining the Alliance has not released the country from its own responsibility for a defense and particularly for a development of credible defense capabilities.

Capability- (based) planning in the Czech Republic's defense sector requires the existence and application of many effective building blocks. Among others, there are «scenarios» or «snapshots of the next», which are inherently bound to this process. Scenarios do not represent the future as a whole, they also do not represent the future «as such», but rather as a possible, future-oriented construct of certain key factors in the specific circumstances, environment or conditions. Connected with this is the fact that every such scenario-construct is based on assumptions about how the future might one day look: what direction certain trends (adversary, his strategic or operational end state

and objectives, desired effects etc.) might take, what developments might remain constant, and which ones might change during the course of time.

In a practice, there are used basically two types of scenarios, exploratory and normative [1]. When creating the exploratory scenario, a prospective approach (from the present to the future) is used. An exploratory scenario can describe the picture of a possible future world or the possible evolution of the world from the present to the future. It can, therefore, use the forms of a descriptive or development scenario [2] or use both forms. Normative scenarios use retrospective procedure (from the future to the present). Exploratory scenarios deal with how the future may look and what future development can be, normative scenarios are about how the future should look and how can be achieved. Normative scenarios describe a desirable end state that represents the world after the crisis has been resolved, and by means of objectives and effects, it indicates a process to reach such end state. Normative scenarios are an appropriate tool for their subsequent use in a capability planning.

Scenarios in relation to the nation's security interests and security threats will generally focus on geographical areas whose stability is important to securing the nation's interests and where sources of threats may exist or be created. Among the geographic areas, it is necessary to assess other areas in which threats can be manifested. Such areas may include banking, telecommunication, strategic communications and other non-geographic areas. [3]

The internal structure of the scenarios allows them to be used for capability planning, operating concepts development, and operations planning. Therefore, there is no need to work always with a different type of scenario.

The exploratory part of the scenario consists of a description of historical developments leading to the crisis, a general description of the crisis situation, a structured description of the crisis situation using PMESII aspects (Political, Military, Economic, Social, Information, and Infrastructure) and a description of the overall strategy of the hypothetical adversary – crisis maker. In the description of the overall strategy of the hypothetical opponent, there are presented his strategic and operational objectives and strategy that can be expected and the political and military implications of such strategy.

The description of the individual strategic and operational end states, objectives and effects, the phasing of objectives and the graphical description of the individual objectives and their interrelations form a normative part of the scenario. This normative part expresses a possible way of resolving the crisis and creates the basis for setting tasks and requirements for capabilities and for developing crisis management plans.

The introductory part of the scenario usually presents a description of the strategic end state, indicating political, economic and civilian objectives and effects. In the next part, the military-strategic end state follows, proceeding from the strategic end state, objectives and effects.

In the following part of the scenario, there are expressed the interrelations of the individual objectives; the process of their achievement is described and divided into phases that can be assumed to be conducted in relation to the solution of the crisis. The graphical depiction of the interrelationships of individual objectives and the progress of their achievement, in the phases, is another part of the scenario.

The internal structure of the normative scenarios – end states, objectives and effects are elements that are used in the operations planning; they help form a part of the operational framework. The use of these elements creates a link between defense planning and operations planning. The internal structure of the scenarios is specific and its purpose is to create the conditions for determining the capabilities needed to achieve the objectives and effects described in the scenario.

Scenarios are a key element of Capability Based Planning, the launch of processes for force generation, development of tasks list and capability goals, the following capabilities development, and the development of investment plans. [4] For the practical use of the scenarios it is necessary to develop the scenarios into the required level of detail and fill them with real data.

Scenarios in this form are used by the Alliance to prevent or react to threat against a hypothetical adversary and at the same time, they serve as a possible recommendation for the nations to participate in defense in accordance with the Washington Treaty. The principle of collective defense is the cornerstone of NATO's founding treaty, therefore its application affects all members of

the Alliance and each nation should participate in this task from its own perspective. Due to the growing demands of development new capabilities of the Czech Armed forces to ensure collective defense and defense of the own territory the military officials as well as academicians see existing Alliance's generic scenarios as a possible key to its processing in its own security environment.

The subject of capability planning as well as scenario development is a solid part of education in the military career courses at the University of Defense as well as science activities at this institution within the framework of the long-term strategic project Strategic Alternatives (STRATAL) under the auspices of The Center for Security and Military Strategic Studies (CSMSS), Brno, Czech Republic. The results of these activities were presented at the III. International Scientific Conference «Defense and Strategy» held by the CSMSS in June 2017, with the main topic «Informing credible defense».

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Is Russia an emerging threat to Arctic security?

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Keywords: Russia, Arctic, Security policy.

After Russia's annexation of Crimea and subsequent war in Eastern Ukraine in 2014 a fierce international debate on how to view Russia's foreign policy has evolved. Much of the discussion has focused on Russia's alleged «revisionist position» towards the present international system, which Russia considers too Western dominated, and Russia's supposed «assertiveness» or «aggressiveness». (Piontkovsky 2015) (Kasparov 2015) (Bartles og McDermott 2014) (Illarionov 2014) Part of this debate has focused on Russia's alleged breaking or bending of international rules and concepts. (Allison 2014) (Lamont 2014) (Kupfer og Waal 2015)

However, if one takes a closer look at Russia's policy vis-à-vis the Arctic, Russia does not look like a revisionist power. It looks more like a status quo power following a well established long-term strategy. (Staun 2017) Paradoxically, Russia has in the Arctic – all the time while it was 'breaking the rules of the game' in Ukraine – followed the 'rules of the game' in the Arctic. Thus, Russia has been a constructive supporter of the Arctic Council and the Barents Euro-Arctic Council and it has strictly followed the process of delimitation of the undersea territory in the Arctic under the auspices of the UN Convention of the Law of the Sea (UNCLOS) – off which it (the Soviet Union) has been a signatory part since 1982 – and met deadlines and requirements of the UN Committee on the Limits of the Continental Shelf (CLCS). It has not bullied or threatened its neighbours and fellow members of the Arctic Council on Arctic affairs, at least not in connection with Arctic affairs.

At the same time, however, Russia has engaged in a rearmament process of opening military bases, introducing new weapons systems, engaged in massive snap drills and undertaken a large-scale rearrangement of its forces in the

High North. The question asked here is thus to what extent this rearmament of the Russian Arctic constitutes a break with the cooperative line, which until now has been the main tenant of Russia's Arctic policy. Is it just a matter of time – a period of 'all quit before the storm' – until Russia is strong enough to use its steady growing military power in the Arctic for breaking rules and making territorial gains in that area also?

In order to discuss this, we will first 1) take a look at what Russia's overall foreign and security policy goals and interests are and how the Arctic plays into this. This is done by analysing what their stated goals are in the main white papers and strategy documents which are open to the public, and by comparing this to what central Russian decisionmakers say publicly. 2) Then the stated goals are compared to the actual policy, which Russia leads in the Arctic, with a special focus on Russia's rearmament in the High North.

The Power of Bulk Interception. An analysis of Digital Communications Interception and its Strategic Aspects

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The ability to intercept communications has throughout history provided intelligence agencies with a powerful advantage in understanding an enemy's intentions. Intelligence agencies have therefore continuously sought to advance their interception capabilities in order to keep up with the rapid evolution of communications technologies. Those who are privileged with interception capabilities adapted to the contemporary security environment – as well as the current communications trends – will necessarily also possess an advantage that contributes to increased intelligence power.

Two main developments are significant in this regard. First, the Internet has become the primary platform for communications and a reflection of merely all human affairs. Second, communication is transmitted via internet in fibre-optic cables. Subsequently, *bulk interception capabilities* – the ability to intercept and assess digital communications transmitted in fibre-optic cables has become the ultimate tool for intelligence collection.

Three commonly held assumptions dominate the discourse on bulk interception power today. The first assumption is that the primary function of bulk interception capabilities is to intercept vast amounts of communications and thereby constitutes a system for so-called mass surveillance. The second assumption is that bulk interception capabilities are a diminishing asset, due to widespread encryption and the difficulties of extracting any relevant information from the vast amounts of data transmitted online. Finally, the third assumption is that primarily the most powerful intelligence agencies engage in bulk interception of communications. This notion probably

stems from the revelations of the British and American bulk interception programmes by former NSA contractor Edward Snowden in 2013.

The reality of bulk interception has however changed significantly over the last two years. In fact, bulk interception systems have become a fundamental asset for any government seeking to extend its power to the digital domain. This paper therefore seeks to move the debate on bulk interception capabilities beyond these entrenched positions, by focusing on its strategic aspects, and pose the question: how can bulk interception capabilities contribute to intelligence power? This focus raises three sets of sub-questions. First, what is the utility of bulk interception capabilities? Second, what are the factors that affect the power of these capabilities? And third, how can bulk interception power be used strategically to enhance national intelligence power?

This paper argues that bulk interception has become an indispensable asset for intelligence agencies. Moreover, it asserts that in order to understand contemporary intelligence systems, we must also understand the power of bulk interception and its associated strategic features. This is articulated in three core arguments. First, bulk interception capabilities certainly increase intelligence agencies' abilities to uncover potential threats from global terrorism, and is crucial in detecting and attributing Computer Network Operations (CNOs), as well as carrying out offensive cyber operations. Second, although several factors contribute to advancing the strength of national bulk interception power, the physical geography of internet infrastructure has significant impact on the utility of bulk interception systems. Third, bulk interception capabilities do not only contribute to intelligence power *directly* by detecting and mitigating threats to national security, but also *indirectly* by improving a nation's position in international intelligence cooperation.

To demonstrate the importance of bulk interception power, the paper proceeds in two main parts. The first chapter provides a historical context of communications intelligence (COMINT). The historical background demonstrates that the evolution in telecommunications technology has favoured different interception methods, and thus also favoured different interception capabilities. The second chapter outlines the methodology and research design of the study and justifies the selected cases. Chapter three analyses the conceptual debate on *intelligence power* and argues that bulk interception capabilities should be integrated into the concept.

The second part of the paper analyses the three articulated sub-questions in order to answer the research question. Chapter four examines the utility of bulk interception capabilities, and addresses some of the most common arguments against its efficacy. Chapter five identifies the factors that affect the power of bulk interception capabilities and argue that the geography of the Internet infrastructure is a significant factor in this regard. A comparison of Denmark, Sweden, and Norway serves to illustrate that countries are assigned to various conditions for success as «bulk interceptors». Finally, chapter six analyses how bulk interception capabilities contributes to intelligence power. This analysis is based on the preceding findings from the study of Denmark, Sweden, and Norway, and examines how their bulk interception power has been, or could be, used strategically to enhance a nation's intelligence power.

This qualitative study on bulk interception power contributes to the theoretical debate about intelligence power more broadly. It also proves the role intelligence agencies maintain in nation's offensive and defensive cyber operations, through their bulk interception capabilities. Moreover, the paper demonstrates that the academic community engaged in research on strategic and geopolitical aspects of cybersecurity, and particularly those engaged in research on «cyber power» would benefit from including strategic aspects of intelligence into their analysis.

Strong indicators suggest that the power of bulk interception and its associated strategic features is likely to receive increased attention in military and security studies in the coming years. The digital dimension of conflicts is expected to increase, making bulk interception capabilities an indispensable asset, due to its position as the best available defence against disruptive cyber operations.

New Actor Strategies?

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In the conflicts and hotspots of the 21st Century, a number of terms have become increasingly salient. Some of these terms point to new strategic actors: foreign fighters, «little green men», «little blue men», «troll farms» and «useful idiots». Concepts like «hybrid operations» and «digital Pearl Harbour» have also emerged and gained footholds in strategic discourses.

These actors, arguably, signify a different character of war in comparison to that of 20th Century wars, the latter aptly characterised by General Sir Rupert Smith as «battle in a field between men and machinery, war as a massive deciding event in a dispute in international affairs ...» That the character of war is different from age to age ought to be obvious. As Clausewitz argued, war «must adapt itself to its chosen means, a process which can radically change it». As he subsequently wrote,

the less intense the motives, the less will the military element's natural tendency to violence coincide with political directives. As a result, war will be driven further from its natural course, the political object will be more and more at variance with the aim of ideal war, and the conflict will seem increasingly *political* (emphasis original) in character.

The distinction that Clausewitz suggested, between the logic and grammar of war, is in other words, an important aspect of how we understand war. And while the logic of war might be immutable, its grammar is necessarily different: differences in political aims and desired outcomes, the technological conditions of the age, the political-societal nexus, even the physical geographical contexts of different wars. All of these elements will shape the specific character of wars that emerge at different times and places.

This study focuses on the challenge of strategy, given the character of war that this study accepts as the dominant characteristic of wars in the 21st Century. If strategy is the bridge that spans political purpose and military power, it ideally shapes – and is shaped by – the conduct of military operations that ought to lead towards the attainment of the political objective of the war in the first place. However, as has been argued elsewhere, strategy is already difficult enough. There are simply too many variables that operate in war for outcomes to be guaranteed. However, the existing body of literature on the concept of victory has focused principally, if not exclusively, on state-centric wars. This study seeks to address the issue of strategy and victory in war in an age where the character of war arguably has changed, where state actors of war are supplemented by individual non-combatants (both mobilized by the state and self-mobilised), and new «instruments» of war emerge (for instance, fishing vessels).

The Role of Resistance to Social Influence in Information Security

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Keywords: Resistance, Social Influence, Persuasion, Inoculation, Reactance, Behaviour, Attitude.

The purpose of this research is to highlight the significance of the theories of resistance that enable withstanding the impact of social influence transferred in mass communication and the implications for maintaining and improving information security strategies.

Various methods of resistance are exemplified, with special attention paid to theory of inoculation and theory of reactance which appear applicable in fighting against manipulative attacks in information warfare.

Social influence enables social processes taking place. It is a crucial factor of development regarding individuals, groups, or organisations hence the medium of interpersonal coordination. Without it, there wouldn't have been possible to build society as it requires attitude change to become a part of every social group.

However, regarding national and international security there are several sources of influence – including governments and non-state actors – that can be challenging to international stability or pose a threat in their attempts to convince the mass society to change its attitudes or the behaviour with manipulative techniques.

Therefore the origins and the outcome of resistance in humans has been long researched in fields such as social psychology, sociology, political communication or marketing. With regard to military sciences persuasive techniques are valued, while far less focus is put on strategies of resistance to social influence and persuasion in particular. As though persuasion and

resistance are two parts of persuasive interaction, principles of theories of resistance seem to be underrated in terms of explaining social processes and answering questions, such as how resistance affects information security or what consequences of either developing or overcoming resistance to social influence can follow.

The subject of this paper requires hypothetico-deductive approach based on theories derived from social psychology. This research includes case studies and comparative analysis of the strategies and methods of resisting social influence and particularly persuasion.

Resistance with regard to attitude is developed under perceived social pressures on one's beliefs, actions and emotions. Therefore resistance is founded on cognitive, behavioral and emotional grounds respectively.

Motives for resisting social influence includes several factors, such as individual differences, cultural dispositions, presence of allies, or the structure of the group. This research considers the possible perspectives of application the theory of reactance and the theory of inoculation in constructing strategies aimed to develop information competence in citizens.

Psychological resistance as a desire to counteract someone else's attempt to limit one's choices or ambivalence about change it covers a broad variety of definitions explains the motivational role of resisting social influence.

Reactance theory (Brehm 1966) comprises four components, namely: freedom, threat to freedom, reactance, restoration of freedom, where freedoms are beliefs about the ways in which one can behave. Reactance in this theory is a motivational state due to occur when a freedom is eliminated or threatened with elimination. This originates from the presumption that choice and control are highly valued in society. Social influence may be perceived as a threat to one's freedom. It was discovered that social influence is more efficient when not threatening individual's freedoms and the presence of options tends to reduce it, whereas domineering controlling language induces the reactance.

Overcoming reactance involves reverse psychology which is often used in marketing that creates a perfect world increasing dissatisfaction with the targeted audience own achievements hence trying to transform their reality

with the advertised products. Therefore if something is scarce, not much known it piques people's curiosity e.g organisations, conspiracy theories, other pieces of information available only on the web.

Inoculation theory (McGuire, 1964) is based on the assumption that people's beliefs can be inoculated against persuasive attacks through exposure to an initial attack that is easily resisted. According to McGuire, when people resist an initial persuasive message, they are likely to become more resistant to future messages, as they gain motivation and ability to build strong defences. This theory appears to be essential in the age of information warfare that involves public opinion and numerous channels of persuasive communication.

It was recognized that inoculation theory was applicable as a useful tool of preventing socially unacceptable or dangerous behaviour in numerous studies across different domains – from political communication, to health campaigns, to marketing communication. The hypothesis of this research states that this theory can be applicable in developing citizens information competence skills, such as critical analysis of information, hence immunizing them from becoming subject to manipulative attacks in information warfare. It is assumed that resisting social influence and persuasive attacks that challenge national stability and information security can be vital to developing information competence in citizens while information competency skills can be trained.

Likewise psychological reactance can be operationalized in information security, providing that both aspects – the motive and the outcome – are understood with all the implications.

Dual nature of the above-mentioned theories implies several consequences depending on the established goal. The resistance of an individual can be either built up or reduced. On the contrary, methods of overcoming resistance to influence is crucial to understanding how communication strategies should be managed not to be dismissed as persuasive.

The reference literature is divided in two groups. One highlights the theories and case studies as well as application of the theories in mass communication. The other gives an insight on the fields, in which the theories can be suitable and how it is related to information security.

The article ends with a discussion of the prominent role of resistance to social influence in decision making of the individuals – be it a consumer decision or a political vote – and its significance for information security.

Form of presentation: research-based oral presentation supported by slide show.

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Denial and Control: A New Pair of Concepts for Military Analysis

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Instead of offence and defence, the concepts of denial and control present a potential alternative for researching military affairs. For centuries, this pair of concepts, defence and offence, has been used for analysing military build-up, strategies, and international relations, such as the offence-defence balance theories by Butfoy. However, the increasing blurred boundary between offensive and defensive military capabilities presents a significant obstacle for research, because many kinds of weapon systems and military assets can be interpreted as having the dual purposes of defence and offence. Therefore, it is difficult to determine the nature of a country's military, as to whether it is offence or defence oriented. Status quo, whether changed or not, presents another criterion for identifying offence or defence orientation. This criterion, however, contains two drawbacks: contesting definitions of status quo and the need for real action. Major actors in a specific case may not share a consensus on the status quo, particularly in a dynamic situation. Additionally, as military capability can be applied in various ways, before real action is taken, it is not always certain as to whether a country's military capability really challenges or reshapes the status quo.

Denial and control, a pair of concepts from naval strategies, present an alternative perspective for analysis. Based on the overall picture of military structure, denial refers to a military's exclusion or disruption of an enemy's presence in a specific space at a specific time, but where the former lacks the capability to take over the space. Control, a step further from denial, signifies a military not only excluding an enemy from a specific place but also securing the space for its own use. In the naval context, denial and control respectively correspond to distinct military structures, reviewed by Friedman. A denial oriented navy is composed of submarines, fast attack craft (FAC), and aircraft having the capacity to launch anti-ship missiles, torpedoes, and / or lay sea

mines, all of which to aim at attacking its adversary's maritime activities, merchants, drilling platforms and other means of utilising maritime space, as well as the main platforms for their protection, major surface combatants. In contrast, a sea control oriented navy is usually composed of capabilities that not only exclude adversary naval activity but also protect its own activity. To deal with sea denial threats, there are various capabilities for anti-submarine, mine hunting, and air and missile defence on a variety of surface vessels, such as major surface combatants, aircraft carriers, minesweepers, which are also potentially supported by land-based, space-based or even cyber based capabilities. Apart from securing a certain body of water, a sea control oriented navy would possess other capabilities of using at sea, such as aircraft carriers, amphibious fleets, and sea lift for missions beyond the maritime domain. Undeniably, most navies are equipped with combined capabilities for both denial and control, but the mainstay of their naval composition would indicate a preference one way or the other. Furthermore, examining the balance between a state and its potential enemy would suggest whether denial or control were more feasible.

Air forces and armies can also be reviewed with in terms of the dual concepts of denial and control. A denial oriented air force would be aimed at air defence to deny or disrupt a hostile airpower from utilising the sky. A control oriented air force, however, focuses on first securing air superiority and then conducts missions to utilise the airspace, such as ground attack, airlift, and anti-ship missions. However, the composition of air forces could be misleading as most air forces possess airlift and other control oriented capabilities. Thus, to determine control or denial would mainly depend on their ability to achieve air superiority, a factor related to the balance between an air force and its adversary. As for land warfare, control would appear to be the common goal, because of the zero-sum nature of land control: one side's withdrawal is usually followed by the other's occupation. The increasingly longer ranges of weapons, land mines and guerrilla warfare, however, suggest the available denial operations for armies. The long-range artillery systems, rockets and missiles, can be used to deny or disrupt an enemy's control over a territory, such as Iraq's Scud missile attack on Israel and Saudi Arabia during the first Gulf War. This represents disruption only rather than preparation for invasion. By the same token, guerrilla warfare is used to undermine an adversary's control over its territory, just as landmines obviously disrupt an enemy's land use. The US's difficult counter-insurgency operations in

Iraq and Afghanistan demonstrate the latest version of land denial through guerrilla warfare. Denial could also be appeared in a tight confrontation during peace time or impasse during wartime. For example, the no man's land between both sides of the west front in the first world war, as well as the demilitarised zone between North and South Korea, represent areas which neither side could control due to the denial firepower from the other.

Regarding the use of the paired concepts of denial and control in national and international arenas, it is necessary to note that more than the sum capabilities of all three services need to be considered. It is also important to take geostrategic circumstances into account. Geographic conditions, for example, have a salient effect on whether an invader can establish control or not. The potential of third party involvement would have considerable influence over the meaning of denial and control in a regional or even global arena. This paper will conduct a general discussion on denial and control as an alternative research tool for military affairs.

WG 7

Armed Forces and Society

British Future Reserves 2020: Can the Army Reserve fill the capability gaps left by the recent retrenchment and can history help predict success?

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Keywords: Army Reserves, Army 2020, Future Reserves 2020, Pre-deployment Training, Territorial Army and Territorial Force.

This paper investigates whether the recent British Armed Forces reforms (or retrenchment) Army 2020 and Future Reserves 2020 can work. Future Reserves 2020 will see a hoped for reserve of 30,000 part-timers try to fill in the capability gaps left by the sacking of 20,000 operationally experienced regular soldiers.

Historian Peter Dennis wrote in the introduction to *The Territorial Army 1907–1940*, that the Territorials, antecedents of the Army Reserve (AR) ‘has had a chequered history. Apart from a short period immediately after its establishment, it has suffered from periodic indifference and neglect, and occasional hostility, both at the hands of the government and from the public.’¹⁹ Now once again the spotlight is well and truly back on the organisation in its supposedly new incarnation as the Army Reserve. The government’s Army Reserves 2020 and Future Reserves 2020 scheme will by 2018 have seen the sacking of 20,000 multi-tour veteran regular British soldiers to be replaced by 30,000 part-time AR soldiers (the new name for the Territorial Army (TA)); which together has contributed to making British combat power 20–30 per cent less effective.²⁰

This paper, therefore, looks into whether history can determine if the AR will be able to step-up and fill the capability gaps left by the retrenchment of regular soldiers and become a better trained and more deployable force than the old Territorials. Plans and strategic intent on how to use the new smaller more reliant on reservist forces army, Royal Navy and Royal Airforce have appeared in government and Ministry of Defence publications.²¹ The new order of battle (ORBAT) is a four tier construct named the ‘Multi-Brigade ORBAT’ which comprises of a deployed force, a high readiness reserve force, a lower readiness reserve force and an extended readiness force. Within all of these tiers the AR feature as a component. The government have also stated, more worryingly, that the AR can be sent overseas with the minimal amount of pre-deployment training (PDT).²² However, it is hard to see that the AR is capable of fulfilling its stated roles. Moreover, surely it is not ethical to send these volunteers overseas with minimal PDT. The AR has a high readiness reserve force to be used as a spearhead force and who complete extra training over their 27-days commitment. However, even if the AR’s high readiness reserve did their extra training as well as their 27-days commitment before deployment they would have only a few extra

¹⁹ Peter Dennis, *The Territorial Army 1907-1940* (Woodbridge: Royal Historical Society, 1987), p. 1.

²⁰ International Institute for Strategic Studies, *The Military Balance: The Annual Assessment of Global Military Capabilities and Defence Economics* (London: IISS, 2015), p. 68.

²¹ Ministry of Defence (MoD), White Paper, *Reserves in the Future Force 2020: Valuable and Valued – Key Facts* (London: MoD, 2013), p. 3.

²² MoD, Future Force 2020 Multi-Brigade ORBAT, <http://www.publications.parliament.uk/pa/cm201012/cmselect/cmdfence/761/76107.htm> [Accessed: 08/04/15].

weekends training in preparation for this role. The White Paper on Future Reserves 2020 states that these volunteers would not receive Pre-deployment training before being deployed. It is difficult to think that these troops are going to be effective on a kinetic overseas deployment.²³

To be able to carry out this research the training, pre-deployment training and deployment of the Army Reserves antecedents – the Territorials of the Territorial Force and Territorial Army, who provided the structure and framework of how the AR operate, is used from 1908 through to 2012. The paper also asks whether the AR can ever be trained to a higher standard than that achieved by their antecedents. If so how would this be possible when the organisation’s participants still operate with the same restrictions, such as having jobs and families, both demanding the reservists time. A model constructed for the research – ‘The Territorial Trinity of Commitments’, a three-sided triangle comprising of military training, employment issues and family issues reveals how much training a part-time soldier can achieve against the tensions inherent with the competing demands of having a fulltime job and a wife/husband and/or family.

This paper will also look at the kit and equipment issues that plagued the old Territorials who were always seen as a second class organisation, an organisation that only took funds away from the regular army; consequently, they always received second best and second-hand equipment, mostly obsolete, to train with.²⁴ This beggared existence and the limits of training with poor equipment, in the past, forced unintended consequences. One of these unintended consequences came at the start of the Great War when Lord Kitchener, Secretary of State for War bypassed the Territorial Force to set-up a completely new army the ‘Pals Battalions’, a source of embarrassment and anger among the Territorials of that generation.²⁵

The research contained within this paper reveals that due to the historical continuities from the Territorials through to the AR – 1908–2013 (they use the same framework of organisation for training and deploying as their antecedents did), will ensure that one of the only new things about the AR

²³ *Ibid.*

²⁴ Ian F. W. Beckett, *Territorials: A Century of Service* (Plymouth: DRA Publishing, 2008), p. v-vi.

²⁵ John Pollock, *Kitchener* (London: Robinson, 2002), p. 387.

will be their re-branding. History shows that the same type of employers still support the AR (big business and the Civil Service) as they supported the Territorials of the past, although, as the world becomes more globalised historic support from big business is receding. Moreover, the same types of businesses still do not support the organisation, such as Small and Medium Enterprises, the self-employed and organisations such as the Trade Unions etcetera.²⁶ Further to this the employer of the reservist also still has a massive say how much their employee could/can participate in Territorial/Reservist training. Furthermore, the volunteer's family has a very strong influence upon a volunteer joining the part-timers, how much training they complete and how long the volunteer will serve. The AR's still today only have to commit to 27 days training (as with the Territorials). If they are mobilised they still have to undertake theatre specific pre-deployment training lasting months not weeks or they will become a danger to themselves and other friendly soldiers. One major change though is that the cost of a reservist soldier is spiralling upwards sometimes costing thousands of pounds more to deploy than a regular soldier (discussed in my other paper).

The ancient Greek historian Thucydides when examining the origin of the Peloponnesian War said that human nature, being what it is, will do the same and similar things again. That is why his history was said by him to be a *Kitema es aei* — a possession for always — because we always make the same mistakes. The British government and British part-time soldiering are not exempt from this rule and are essentially prisoners of history.

²⁶Tim Corry, 'How can Defence best work with Employers?' SaBRE Official Blog, 18 Oct. 2011, <http://www.blog.sabre.mod.uk> [Accessed: 08/01/14].

When Soldiers Can Refuse to Surrender: A Moral Argument Based on Charles de Gaulle's Resistance

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In liberal democracies, the nature of soldiers' obligations is clear: they are bound to obey orders not only from their superior officers but also from duly elected public officials. This implies not only the obligation to wage war but also to stop fighting. Therefore, the military and its members are considered servants of the state and totally subordinated to the will of their statesmen, provided that their orders fall within the range of the military's obligation to obey; that is, insofar as the orders are legal.

This broad understanding of the dynamic between the soldiers and their state can nonetheless be troublesome when perfectly legal orders create morally problematic situations, such as the orders that were given to the peacekeepers in Rwanda in 1994 and to peacekeepers a year later in Srebrenica to not protect the civilians from being massacred (Caron, 2017). Another problematic situation can occur when soldiers are ordered by their statesmen to stop fighting and to surrender to the enemy. We cannot ignore the fact that despite their obligation to obey their statesmen's decision, in the past certain members of the military have chosen to resist what many have considered a terrible humiliation. Of course, some forms of resistance are more morally dubious than others. This was notoriously the case in Germany in 1945, when some Nazi soldiers continued to fight in a more or less organized fashion through the *Werewolf* and *Edelweiss Piraten* organizations. Although this example might raise some eyebrows and be interpreted as unwarranted in light of the nature of what it sought to preserve, the question of military resistance after a peace treaty must also acknowledge what is probably the most admirable example of a military leader's defiance of his government's decision to surrender: Charles de Gaulle's Appeal of 18 June 1940, which he

launched from London one day after Marshal Philippe Pétain announced the government's intention to seek peace with the Nazis.

What needs to be realized is that de Gaulle and his followers' decision to keep fighting the Germans was condemnable based upon the nature of soldiers' obligations. According to it, Marshal Pétain's surrender order was a legitimate one and, accordingly, all French soldiers should have obeyed it. However, knowing the consequences that this surrender had on the French people, this conclusion is obviously highly disputable from a moral perspective. If this example informs a moral intuition that refusing to surrender might be the right thing to do, there is a need to establish an objective normative theoretical framework that would allow us to determine when soldiers who serve liberal democracies have an obligation to disobey that does not rely solely upon the conventional nature of their duty to obey and disobey.

To identify these criteria, it is first necessary to understand the full meaning and normative implications of soldiers' obligation to obey or disobey. The most accurate way to describe this dynamic between members of the military and their state would be through the use of a liberal theory of political obligation that is based on the notion of consent (Walzer, 1970). Under this logic, individuals' duty to obey or disobey is founded upon their membership in a specific organization to which they have voluntarily pledged either to behave in a certain way or to respect a certain set of rules. One such set of rules is the military's voluntary decision to accept its full subordination to the democratic sphere and the fact that its personnel is bound to obey the orders of statesmen notwithstanding what they personally think about such orders (Huntington, 1957). However, contrary to what some might think, this principle does not completely prevent members of the military from disobeying their statesmen simply because they have agreed to submit themselves to their will. Their obedience is applicable only insofar as they are ordered by their political officials to act in ways that are not blatantly illegal and contrary to the norms that they promised to uphold when they joined the military.

However, for reasons that will be evoked in this text and in light of de Gaulle's decision to resist the Nazis, soldiers' right to disobey cannot be limited to this legalist paradigm. This case study clearly illustrates that another fundamental element — one that is more important than the mere legal dimension of

an order – must be taken into account. This fundamental element must be soldiers' obligation to respect orders insofar as such orders are moral. As this presentation will emphasize, the de Gaulle example shows that legal orders may not always be moral, which may transform soldiers into direct or indirect perpetrators of the same terrible crimes that they had pledged to prevent at the time of their enrolment. For the reasons that will be evoked, such a possibility is highly dangerous and ought to be corrected. The de Gaulle example shows that the obligation to disobey legal yet immoral orders must be the core element of soldiers' right to disobey.

The entire challenge here is to determine the nature of such orders – which can be very different and opposed to legal orders – and to determine the circumstances under which a legal decision to surrender can be opposed by soldiers on the basis of its immorality. Only through this prism is de Gaulle's disobedience defensible. As this text will argue, soldiers' right to disobey a decision to surrender from that standpoint would be possible only if the peace that is sought by their elected officials would result in the establishment of a regime that would offend universal principles of justice and morality.

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The Impact of Social Media Communication on Armed Forces' Legitimacy

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In democratic regimes, Armed Forces as a part of the political system of a nation depend on legitimacy in order to justify their existence. After the end of the cold war in the 1990's, communication is one of the prime means to achieve public legitimacy, reputation and trust (Deverell et al., 2014). In the last decades, there has been a growing interdependence between public spheres such as the political system and communication, culminating in the phenomenon of mediatization. The term mediatization stands for a merge of the political and the media reality, meaning that the public perceives the political reality mediated by the media and at the same time, a change of logic within the political system oriented towards the logic of the media system (Sarcinelli, 1998). Considering this, the meaning of political communication including the Armed Forces' communication becomes obvious as it forms the most important basis for political legitimization processes. However, communication is not simply happening but needs to be adapted according to the message to be transmitted, the desired outcome and the target groups. For the Armed Forces, target groups vary. They have to address the whole

population in order to achieve legitimacy, but there is also a particular need to reach youth, as they are the future recruits, soldiers and cadre.

Today's youth belongs to the generations of the Millennials, born between 1977 to 1995, and generation Z, born 1996 and after (The Center for Generational Kinetics, 2017). They have grown up in a time where information is abundant and omnipresent, technology being the means to access the desired information. To these digital innates, technology and social media as part of it is natural and a way to interact with the world (Hershatter & Epstein, 2010). These postmodern generations have grown up in a world which through the internet and modern communication media seems to be of infinite expanse (ibid). To them, technology is just an extension of their physical reality and their bodily senses and the distinction between real and virtual world has become obsolete (ibid.)

Generations which find the answer to every question with just one click cannot be (exclusively) addressed via analog media. In order to activate these and upcoming generations for the military, they must be addressed via the media of their choice. For millennials and generation Z, these are social media. Armed Forces need to be present on these platforms if they wish to be noticed and to be taken seriously. If Armed Forces do not have a social media presence, they will either seem old-fashioned and/or address the wrong target groups. However, social media is not only populated by those two generations and/or future Armed Forces recruits. Numbers of the Swiss Facebook population of March 2017 show the demographics of the platform is composed of 8% 19 years and below, 30% 20–29 years, 42% 30–49 years, and 20% age 50 and above (Bernetblog, 2017). This audience might and should notice the Armed Forces social media channels and will be impacted by them. However, these other generations might perceive an official Armed Forces social media presence very differently.

At its best, the official Armed Forces social media communication has the potential to bring the Armed Forces closer to the people and to enter into a dialogue with them. By creating interaction, participation and collaboration on social media platforms, the Armed Forces will potentially become a more transparent organization (Brainard & McNutt). A communication pattern which is aligned to the principles of participation, collaboration and deliberation and does not rely on reputation solely is oriented towards

the communication model of New Public Service (NPS) (ibid.). In contrast to the model of New Public Management, which imitates the communication behavior of private corporations and fosters reputation management more than civic responsibility, the NPS aims to address a nation's citizens as inherently motivated democratic beings, which like to participate in democratic decision-taking (ibid). By doing this, it emphasizes the fact that the Armed Forces as part of the democratic political system do not define their missions themselves, but are remaining politically neutral and following the public will (Deverell et al., 2014). Such a correct understanding and execution of the principle of separation of powers added up with the willingness to lend the citizens a voice and to actually listen to them should lead to increasing legitimacy and trust into the Armed Forces.

To measure the effect of social media communication on the Armed Forces' legitimacy, the Military Academy at the ETH Zurich has conducted a survey amongst the representative Swiss internet population aged 15 and above in July 2017 with 1200 participants. Based on this data, the paper will show whether and if yes what impact the official social media communication of the Swiss Armed Forces (SAF) has on the legitimacy of the SAF and on its reputation. The role of military sciences clearly lies in analyzing expected and unexpected effects and in providing the corresponding information to the Armed Forces leadership. Being on social media, the SAF need to be able to continuously adapt their communication behavior and to react to developments regarding simply platforms or, more important, to react to unintended consequences. Therefore military sciences need to deliver the data for future decisions. Besides that, the information must be included in the education of the Armed Forces personnel and in particular, its cadre personnel as they function as leaders, role models and ambassadors of the organization. By including the findings of military sciences into their education, they will find themselves to be taken seriously and to be respected members of the Armed Forces.

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Swiss Foreign and Defense Policy between 1976 and 2017. During uncertain times, Swiss believe in neutrality, independence and trust the Swiss Armed Forces

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The series of studies «Sicherheit» [Security] determine trends in the formation of opinion on foreign, security and defense policy in Switzerland. Each year in January circa 1200 Swiss will be interviewed by telephone. Partly the data set goes back till 1976 (Szvircev Tresch, Wenger, Ferst, Pfister, Rinaldo, 2015). Especially in education and training of officers the study «Sicherheit» is an important and useful teaching aid. Within the study the current civil-military relations and the formation of opinion on foreign- and security policy are illustrated. Furthermore the publication is the best known ETH-study and it used by politicians, research-ers and the public in many cases. More over current political issue can be examined.

Switzerland is in the European comparison due to its neutrality and the fact that it is neither a member of the North Atlantic Treaty Organization (NATO) nor an European Union (EU), a special case (Ferst, Szvircev Tresch, 2017). The Swiss Armed Forces (SAF) have often been used for domestic tasks since the establishment of the Swiss federal state in 1848. Thereby, the protection of the neutrality through the armed forces has great importance. Under protection of the neutrality, border control, service of border control, securing Swiss airspace and airspace policing are included. In Switzerland, the fight at the boarder was the most important task for an independent, neutral and unoccupied state (Siegrist, 2008).

In Switzerland the distinction between internal and external security has been relativized a long time ago (Haltiner & Kümmel, 2008). Between the SAF and the neutrality there is a close connection. Switzerland still has the conscription and the SAF have an important social role (Ferst & Szvircev Tresch, 2017). Due to the neutrality Swiss are skeptical towards su-pranational institutions like the EU, NATO and the United Nations Organization (UNO).

Within the past forty years the global political situation and the security situation of Switzerland have changed deeply. Are there any changes in foreign- and defense policy? The data of the study «Sicherheit» contain this information. Based on the data of the study „Sicherheit» the Swiss opinion towards the SAF, neutrality and supranational institutions (EU, NATO, UNO) over the past forty years will be shown. The items of the Swiss foreign policy include opinions about neutrality and cooperation with EU, NATO and UNO. The items of defense policy involve attitudes relating to the SAF. Table 2 shows the used items. Because the data is not available every year, on the left side of the table, the available time period is expelled.

Table 2: Items of foreign- and defense policy (Szvircsev Tresch et al., 2017)

Period	Policy sector	Items
1983–2017	Defense policy	Necessity of armed forces
1976–2017	Defense policy	Social role of the armed forces
1976–2017	Defense policy	Support of the militia
1983–2017	Defense policy	Abolishing conscription
1986–2017	Defense policy	Opinion on defense expenditures
1995–2017	Defense policy	Trust in the SAF
1986–2017	Foreign policy	Evaluation of the global political situation
1989–2017	Foreign policy	Maintaining neutrality
1993–2017	Foreign policy	Identification function of neutrality
1993–2017	Foreign policy	EU-accession
1993–2017	Foreign policy	NATO-accession
1983–2001	Foreign policy	UNO-accession

During 1976 till 2000 the support of the SAF and the neutrality is declining. During this period Swiss tend to support an accession to EU, NATO and UNO (Haltiner et al., 2001; Haltiner et al., 2002). Whereas an accession to the European Economic Area (EEA) was denied in 1992 (Schweizer

Eidgenossenschaft, 2017c), in 2002 Switzerland became an UNO-member (Schweizer Eidgenossenschaft, 2017e). After 09/11 Swiss are more in favor of neutrality and the SAF. And they are more skeptical against the EU and the NATO (Szvircsev Tresch et al., 2016; Szvircsev Tresch et al., 2017). Based on the argumentation above, two hypotheses are provided.

- H1: *If Swiss support the SAF, they will support the neutrality too.*
- H2: *If Swiss support the neutrality, they will deny accessions to the EU and NATO.*

The global political situation, the security situation of Switzerland and the attitude of foreign and defense policy changed during the last forty years. Are there some key events, which are linked to the changed global political situation and the security situation of Switzerland? What are the relevant events of the Swiss foreign and defense policy of the last forty years?

In the era of globalization and international terrorism the internal and external security border are blurring. Many social scientists argue with an extended security concept (Daase & Rühlig, 2016).

Traditionally, Swiss still distinguish between internal and external security. In Switzerland respondents feel secure and trust their institutions (Szvircsev Tresch et al., 2017). On the other side, Swiss feel more insecure abroad. For example, one side of the feeling of insecurity abroad is illustrated in the adaption of general travel behavior. As a consequence of world-wide terrorism, in 2017 29% of the Swiss adapted their general travel behavior in the last two years (Ferst, De Rosa, Szvircsev Tresch, 2017). In 2017, 95% of the Swiss support neutrality and 76% support the Swiss economic and political independence. By contrast Swiss deny an accession to EU or NATO (Szvircsev Tresch et al., 2017).

Both the aim of foreign- and defense policy is the establishment of internal and external security. Key events can concern only foreign policy or only defense policy, or both. Relating the content-related overlap an explicit distinction is waived. But there is made a distinction for the key events between national and international events. Naturally the selection of key events is selective and orientated on public reporting. Because of its length, the investigation period is divided in four periods (see table 1).

Table 1: Subdivision of the investigation period in four periods

Period	National level	International level
1976–1991	... 1989 rejection of public initiative „Swit-zerland without an armed forces and for a comprehensive peace policy» ¹ ...	1986 rejection of a UNO-membership ² 1991 end of cold war ³
1992–2000	... 1992 rejection of EEA-membership ⁴ 1995 military reform „Armee 95» ⁵	1991 war in Yugoslavia ⁶
2001–2010	... 2002 Switzerland becomes UNO-member ⁷ 2003 Swiss accept the referendum about the military reform „Armee XXI» ⁸	2001 09/119, fight against international terrorism (wars in Afghanistan, Iraq) ¹⁰ 2008 global financial crisis ¹¹ 2010 Euro-crisis ¹²
2011–2017 2013 rejection abolishing conscription ¹³ 2017 military reform „Weiterentwicklung der Armee» (development of SAF) ¹⁴	2010 upheaval in the EU ¹⁵ 2011 civil war in Syria, Islamic State (IS), 2011 Arab Spring ¹⁶ 2014 fight against IS ¹⁷ 2014 increased terroristic attacks in Europe ¹⁸ 2015 refugees crisis in Europe ¹⁹

Procedure

The approach of the paper is the following. At first the opinion of foreign- and defense policy will be summarized for each time period. Then the national and international key events will be discussed for each time period. Finally we proof, if the change in public opinion in foreign- and defense policy is linked by national and international key events. Furthermore the two hypotheses will be proven.

Conclusion

The conclusion will be presented at the upcoming ISMS conference.

Culture forecasting for Nordic states security: sub-consciousness culture codes analysis based on preliminary culture forecasting model

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Keywords: international forecasting, culture forecasting, sub-consciousness codes, culture codes, Nordic states, regional security

New world order brings new challenges and threats for international peace. Currently it is possible to mentioned several places over the world which can be named hot points for future conflicts. According to the M. Górnikiewicz forecasting preliminary model, the paper is dedicated to analyzing culture sub-consciousness codes of Nordic societies due to these challenges in the regional security area. Knowledge about decision making-process on every level should bring the preliminary image of potential «stimuli-response» actions.

The main topic for the study was a forecast for regional security of Nordic societies 2017 – 2020. The main research question was: how the international situation will evaluate in Nordic states in next three years due to regional security challenges? During the research, authors studied the impact of Brexit, war in Ukraine, last US presidential election and migration crisis in EU. For the purpose of the study authors used both theoretical and practical research methodology including: analysis, synthesis, comparison, observation. This work was possible thanks to dr M. Górnikiewicz preliminary model and wide knowledge and experience of prof. T. Szczurek. Both authors express hope that this paper should be useful for future, deeper research in similar scientific areas.

Sharia as ‘desert business’ – how social science can help military analysts understand northern Mali

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Keywords: Mali, MINUSMA, jihadism, crime, smuggling, Gao, Kidal.

How can we understand the social and economic dynamics that enables the operative space of the militant networks in northern Mali? The paper argues that jihadist militant groups are actors in local power struggles rather than ‘fighters’ or ‘terrorists’ with extremist ideological motivation. Understanding the conflicts in northern Mali requires an increased focus on the links between jihadist militant groups, local politics and criminal network activities in Gao and Kidal. In this paper, the argument is that social science research can support the analysis conducted in international military operations such as MINUSMA in Mali. Through application of concepts from social science, military analysts will increase their understanding of the dynamics in northern Mali.

Selecting members for a military task force from a social network

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Keywords: Team Effectiveness; Team Member Selection; Team Network; Social Network; External Network

In the military context, organizing a task force to a mission is a critical function. In ad hoc situations, both the time to create the task force and the resulting group's effectiveness are the main issues. To support the decision-making in an ad hoc situation, some analytic support can be provided.

The basic organization in a military context is a hierarchical structure. The task forces are formed by commanding a task leader and assigning the needed supporting elements around the nucleus task group. While this may be an effective method of creating task forces, it becomes cumbersome in situations, where the number of task forces becomes large. From this point of view the hierarchic relationships could be seen more as a primary situation for the entire organization, which is actually just a resource pool for the task forces, which are the actual mission elements.

The typical issue in an effective organizing of a task force, or a project team, is the missing analysis of the existing relationships between the potential team members. The relationships are either regarded as strict command relationships, or less strict support relationships. However, there is a social aspect that is usually left unnoticed. The better the potential know each other, the better they can interact with each other in a collaboration situation. These relationships can be better seen in the social media connections.

Selecting the most effective team from a larger social network has two different viewpoints. The team should be connected together in a proper way to enable co-operation. In addition, the individuals should have needed skills to complete the task. The selection problem arises from optimizing the combination of these two aspects. A modeling method is described for a situation where specific skills are required for different tasks in a project. A novelty in this paper is to consider also connections of the team members with a larger social network around the team.

Whistle Blowers: A litmus test of organizational integrity

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Keywords: Whistle Blowers, Organizational Integrity

Every organization will have to deal with issues that are unpleasant. The Armed Forces in this respect have developed extended integrity procedures to tackle financially murky dealings, harassment and sexual violence, and abuse of the concipients of military assistance in mission areas. From a qualitative study (interviews) into whistle blowers and the integrity organization in the Netherlands Armed Forces it is concluded that whistle blowers are normal people acting in the context of integrity dilemma's, that the basic problem is in the integrity of the organization, power and dependency relations and thus in the organizing of the integrity system, and therefore it is structurally hard to report abuses or moral wrongs.

Perception of Inclusion of Minority Groups in the Swiss Armed

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Keywords: Diversity Management, Minorities, Inclusion Policies, Military Educational Program, Equal Opportunity

With the beginning of 2009, the Swiss Armed Forces (SAF) introduced measures for diversity management that are based on a command of the chief of the SAF from 2008. Implementing this management strategy can be considered as a response of the SAF to the more and more diverse society as well as increasingly complex and specific missions of the armed forces. In this process, diversity management as a HR-policy has an economic and a democratic component. This means that diversity management is not only based on a business imperative, but also on a moral one. On one side, a diverse workforce is expected to bring organizational advantages, on the other hand, an effective diversity management should reflect the social diversity of society (Kamarck 2015, Soeters & Van der Meulen 2007), especially an organization like the SAF with its conscription and militia force. Furthermore, widening the pool of human resources and knowledge is expected to contribute to job satisfaction and to more stability in work teams (Bundesrat [Federal Council] 2010).

However, various studies have shown that many diversity support programs do not conform social reality and that the chosen organizational measures are often inadequate and not expedient (Bonnet 2016). To get an idea of the concept of diversity management in the SAF and the measures that have been taken so far I conducted expert interviews with eight diversity officers from the Swiss Federal Administration and the Defence Department.

The interview results showed that the diversity officers agree on the common definitions of diversity management. That means that according to the interviewed experts, diversity management is about recognizing, handling

and promoting diversity, which should bring an economic advantage for the organization (business imperative), but it is also about guaranteeing equal opportunity (moral imperative). Also, they mentioned that diversity management depends on the understanding of leadership and management style and stressed the importance of military leadership culture and education.

According to the diversity officers, there are important legal bases and regulations that support fostering diversity and preventing discrimination. For example, the service regulations [Dienstreglement] of the SAF state that the duty of comradeship is an important obligation and a central value of the SAF and is imparted in the military education. It obliges the soldiers to «collaborate comradely» and to «mutually respect each other's personality (...) regardless from military rank, political or religious beliefs, age, gender, language, origin and skin color» (Dienstreglement 04, 1994).

Even though legal bases and policies exist, the practical implementations sometimes bring some challenges that have to be overcome in order to promote an effective diversity management. First of all, the clash of cultures of the federal administration (of which the SAF are part of and thus subordinated to its personnel ordinance and other legal requirements) and the SAF with their different values is one problem. According to the interviewed diversity officers the Swiss Federal Administration is very progressive in general, whereas the armed forces are an organization with a strong basic need for regulation and routine. Thus, introducing new or alternative working models and the concept of diversity management itself (see Pinch 2006) is a big challenge just because of the nature of the military. Besides, the current political climate in Switzerland is not prioritizing diversity policies in federal departments and therefore financial and personnel resources are strongly limited. With this limited resources it is very hard to persuade the military management to promote diversity management, as one of the experts mentioned. The other diversity officers agreed that in this context the official commitment of the leaders would be crucial, but is often missed because other issues receive higher priority compared to diversity measures. The diversity officers see another problem in the lack of communication and missing information concerning employee's knowledge about existing policies and their rights and obligations. This is due to the fact that there are basically no campaigns, flyers or educational courses that would sensitize not only the employees, but also their supervisors. And since the diversity officers have no direct

access to the decision makers, it is especially hard for them to prevail with their arguments. Thus, they recommended amongst other important points the significance of awareness-raising in order to combat prejudices, inform the employees about their rights and show leaders how to manage diversity, and emphasized that communication on all levels is essential.

In fact, next to the various legal regulations, diversity management is part of the leadership education program in the professional armed forces of the Swiss military. Furthermore, as already mentioned, the soldiers are also being sensitized to these values during their education in the lessons about the service regulations [Dienstreglement-Unterricht]. So there are already implemented measures that impart the moral aspects of diversity management. The question is: in what way do these diversity measures affect the inclusion and equal opportunity and treatment of minority groups?

Based on the findings from the expert interviews, I intend to pursue this questions by evaluating the perspective of different minority groups of the SAF. What are their attitudes towards the existing HR-policies and military guidelines which regulate the cohabitation and collaboration in heterogeneous groups? Do they feel integrated, included and given equal opportunities? What is their opinion towards the importance of diversity management as an educational element in their military education cycle? Where do they see potential for improvement?

The findings of these qualitative interviews with individuals and focus-groups, which I intend to present at the ISMS conference, will also be the basis for a standardized questionnaire that is supposed to evaluate the attitudes and experiences of a wider range of military members – regardless of their rank or minority status – towards this management strategy.

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Values and goals of military classes students in Poland

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Key words: education, military class, uniformed schools, students, security, values, goals

The military classes in Poland we can define as classes of lower secondary and upper secondary schools, which carry out broadly understand the education in national and international area. The program of these classes is enriched with issues related to military defense, the history of the Polish army as well as the history of evolution of patriotic attitudes among children and young people in Poland. This way the classes are very popular among both teachers and students. And their functioning have strong influence of increasing aunity in the local society. In addition, the classes are an main factor of shaping an patriotic, civic and prosocial attitudes among Poles.

For the military classes was developed in schools education programs based on the principles contained in the decree Ministry of National Defense Republic of Poland regarding the innovative programs of defense training and education for security. Programs were written by teachers of various subjects and specialties, so they address a wide range of security issues but are not prepared for military service. Prior to implementation, each of the programs had to be accepted to the Teaching School Council and administrative authorities responsible for education in the voivodeship.

The author of this article argue that these educational programs caused a significant change of goals and values of the military classes students. It included increasing their interests of patriotism and state security issues. Therefore, the author conducted in January and February 2017 the scientific research which aim was to define socio-psychological profile of the military classes students as well as diagnose these values and goals. In the research were involved 200 students from uniformed school of one voivodeship

andwererandomly selected. The used tools was «The questionnaire survey for students of military classes» crated by the author, and included an survey questionnaire and scaling table.

The comprehensive analysis of the research results have allowed to answer onthe question: *What is the socio-psychological profile, values and goals of the military classes students?* It came out that the military classes students are interested of military security issues. For them most important values were homeland and family. Also they were looking for carrier opportunity in the national defense administration. The least interest they shown in health problems.

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WG 8

Defence Management and Economics

Reassuringly Expensive? The Spiralling Cost of using Part-Time Soldiers overseas: from Britain's Territorials to the new Army Reserve

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Keywords: Army Reserve, Army 2020, Future Reserves 2020, Territorial Army and Territorial Force.

This paper will reveal the true costs associated with an overseas deployment of the modern part-time Army Reserve soldier, and why the price of using part-time soldiers can only ever increase. By looking back at the history of the deploying Territorial soldier from the Great War (1914 – 18), the Second

World War (1939–45) and the recent deployments to Iraq and Afghanistan (2001–13) this paper will chart the rising cost of using the supposedly cheaper option. For example, a Territorial Force soldier of 1914–18 could only claim for separation allowance for his wife and children, up to the age of 14 years old, payments that never kept pace with the cost of living, and high wartime inflation. The story was a similar one for the Territorials of World War Two. However, for the contemporary Territorial Soldier during the ‘War on Terror’ (2001–2015) the TA could claim for loss of earnings, company cars, childcare, school fees, health insurance payments, and even civilian accommodation. Some of the claims are capped, however many claims can be pursued without financial limit. Moreover, the cost to the government does not stop at the individual part-time soldier’s claims. The business or place of work that employed the deploying part-timer was offered (and will be offered in the future) generous financial assistance packages which cover additional costs the company has regarding the deployment of a member of its staff. Furthermore, the business or place of work can claim one-off costs, all uncapped, for agency fees to find temporary replacements, advertising costs, financial assistance for retraining and pension contributions.

Investing In Multiple Public Goods For Safety And Security

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This paper argues that to assess whether NATO partners can be considered as over- or under contributors to Western security, investigations should include contributions to other dimensions than military expenditures only. For instance, member states facing strong domestic opposition to military expenditures may contribute instead to non-military security dimensions, such as foreign aid, counter terrorist financing, export controls, or sanctioning non cooperative countries. To this end, the paper, first, extends the NATO burden sharing debate beyond the military by providing a conceptual model that, based on two distinctions, encompasses contributions to international safety and security on military as well as non-military dimensions. The first distinction is between system and environment, holding that safe systems are able to have desired effects on their environment, whereas, security denotes the inability of the environment to have an undesired effect on the system. The second distinction occurs between malicious and accidental harm, resulting in defining safety to designate the degree to which accidental harm is prevented, detected and reacted to, and security to designate the degree to which malicious harm is prevented, detected and reacted to. Furthermore, the model's usefulness is demonstrated by putting forward how states may or may not improve organizing safety and security, based on investments in specific public goods. Finally, using four dimensions: military contributions (by means of defense expenditures), foreign aid (by means of overseas development assistance), combating terrorist finance (by means of compliance to financial standards) and carbon dioxide reduction (by means of metric ton CO₂ reduction), we empirically analyze different national contributions to international security. In doing so, we strive to clarify that to meaningfully assess contributions to today's new safety and security environment, the yardstick of military expenditures of two per cent of GDP, taken on its own, offers only narrow and one sided information.

Paradigm shift for Peace Operations and the Role of Armed Forces in times of mixed migration flows: The Example of Austria

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Keywords: Migration, Peace Operations, Military tasks, Whole of Nation Approach, Homeland Security, Paradigm Shift, Crisis Management, Social Coherence, Coordination, Civil-military interaction

The prospective new role for the Austrian Armed Forces in the context of the migration crisis; Structural changes and its impacts for Austrian peace operations and tasks in the homeland; Coordination challenges of an Austrian Whole of Nation Approach to national and international crisis management.

The lack of security and future prospects for the population in several protracted conflicts in the larger European neighbourhood has generated «push factors» for migrants to seek refuge in EU countries, while Europe's attractiveness has led to its appeal with a «pull factor». This «push and pull» combination has triggered a new wave of migration from the MENA region and beyond since 2015. From the European perspective, one focus should be to manage the root causes of migration by providing civil and military support, and engaging regional actors and transit countries to adequately control the migration flows within the region.

I argue that, instead of contributing substantially to diminish root causes for mixed migration flows, Austria's engagement in front of the migration crisis has concentrated much more on adapting and changing its internal structures (several other EU countries showed comparable activities). As a consequence, Austria's approach to internal security issues and (external) peace operations has shifted within only two years. One of the most striking changes generated by the migrant crisis is the new and enhanced role of the

military in the homeland that has led to a paradigm shift: Peace operations have gradually lost political relevance, while increasing migration flows (and terrorist attacks in Europe) represent a main driver for the military and the police to attract funding and human resources for prospective internal tasks. The role of the military in the homeland (in Austria and in the EU) to maintain law, social order and social cohesion has gained in relevance and is as important as contributions to international peace operations.

Arguments to support this paradigm shift are, e.g., the changing character of mid-term procurement and defence acquisition programs, the strengthening of the provincial military commands and the formation of the „High Readiness Command« (Kommando Schnelle Einsätze / KSE). KSE is mainly addressing security-related incidents in the homeland. This underlines the shift from the (former) prioritisation of peace operations to a more balanced, homeland-orientated role of the military that is manifested in the „Teilstrategie Verteidigung«. The forthcoming „Threat Assessment (Bedrohungsbild) for the Austrian Armed Forces« and the future „Military Strategic Concept« also support this shift.

In addition, I also argue that migration flows have contributed to the shift in the role, tasks and defence management of the military. These developments are not only touching the military but also implicate the necessity of an adequate change management for other Austrian ministries and NGOs that are active in peace operations, international policing, development cooperation and humanitarian missions. Whole of Nation Approaches (WoNA) to make use of synergies from all relevant Austrian stakeholders that are engaged abroad are currently under debate and have been put to test as a multiplier to improve effectiveness and efficiency of crisis and conflict management both in the homeland and in the theatres of peace operations.

However, the more actors involved, the more coordination is needed to achieve benefits. First, situations in which security, development and governance policies undermine each other can be balanced. Second, better use can be made of the – still scarce – resources. Third, synergies can be created through bringing together different stakeholders (state and non-state) in a particular policy field or network.

There is no doubt that to maintain a resilient community and social coherence in Austria and in the European Union, a stable periphery is of utmost importance. Therefore, peace operations of the Austrian Armed Forces within the framework of UN, EU, NATO-PfP and OSZE will continue to be an indispensable tool for Austria's security policy, but preconditions have changed.

To conclude, the research for this paper is focusing on the impacts of mixed migration flows (1) on structures, defence management and role of the Austrian Armed Forces, (2) for other relevant Whole of Nation-Actors in Austria, (3) on Austria's Coordination and Change Management for external engagement, and (4) on the implications for managing the root causes of migration in countries of origin of migrants. By abstracting the findings from the respective conceptual, governmental, non-governmental, cultural and systemic levels, the aim is to shed some light on future centres of gravity, niches, limitations and options for armed forces and other relevant actors in Austria under the highlighted new circumstances and resource requirements for security and development policies.

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How Critical Success Factors Can Support Performance Measurement In Defence Material Projects

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Keywords: critical success factors, performance measurement, project, defence.

Purpose

This abstract focuses on the use of critical success factors in defence material projects. Abstract aims to identify what performance measuring is and how it could be used to support performance measuring in material projects in Finnish Defence Forces.

Research questions/methodology/approach

Main research question is «How critical success factors can support performance measurement in defence material projects?». Secondary research questions are 1) What are the critical success factors in defence material projects 2) How critical success factors can be used for measuring performance? 3) How to increase material project success?

Performance measurement is determined based on review of the literature. Empirical data on the subject is collected by conducting interviews.

Theory and background

The performance measurement has become increasingly into general consideration. This has happened because public sector organisations are under pressure to increase efficiency.

The pioneer of the performance measuring theory (Management by Objectives) have been Peter Drucker who wrote *Practice of Management* (1954). Since then, several performance measurement systems have been developed such as, the Balanced Scorecard (Kaplan and Norton, 1996), the Navigator (Edvisson and Malone 1997), the Performance Pyramid (Lynch and Cross, 1991), the Performance Prism (Neely, 2002) and the SAKE (Rantanen, 2001).

The focus of performance measurement can have both organizational and individual perspectives. In the past years, there has been a growing body of literature that demonstrates a positive linkage between organisational performance and human capital.

Findings

The main result of the study shows that critical success factors in defence material projects are people of project, open environment and good atmosphere, sufficient resources, efficient use of resources, realistic and clear objective, successful definition of demands, detailed and updated plans.

The most important contribution from the critical success factors is that the organization can name the issues, which are important for the business and company strategy. Only a few factors should be considered as a critical success factors. Then it is possible that the performance can be really raised. The other management input is that selecting and choosing critical success factors allows to create a performance managements system, which can be used directly as a management tool.

The performance of projects can be measured with several different performance measurement tools. When planning implementation of a performance measurement tool, it is important that it meets the principles of

balanced measurement. Good and balanced performance measuring system can increase project success.

Conclusions and recommendations

Finnish Defence Forces are suggested to start new study, which objective is to create a performance measurement system for the defence material projects.

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S-shaped Growth Curves in Capability Modeling

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Keywords: System Capability, Probabilistic Modeling, Logistic function, Gompertz function

Capability areas level and system capability level probabilistic modeling methods are extended with the use of analytical S-shaped growth curves. We illustrate how the derived results, i.e. system capabilities and derivatives of system capabilities, can be used to discover different characteristics and trends from capabilities areas level data.

The two most commonly used S-shaped growth curves are logistic and Gompertz curves. These growth curves have applications in many fields of technology and science: ecology, statistics and machine learning, medicine, chemistry, physics, linguistics, and economics and sociology (https://en.wikipedia.org/wiki/Logistic_function, https://en.wikipedia.org/wiki/Gompertz_function). These analytical functions enable mathematical investigation of different characteristics of processes which have a specific S-shaped form. The S-shaped functions describe many kinds of growth phenomena, typically slow at the beginning and also slow at the end of processes, because of some resource factors limiting the growth process. In this article we examine some applications for technology forecasting and capability modeling. Our case studies show that growth curves are very flexible, with different parameter values, and can be used for investigating derived quantities and for various other modeling purposes.

Forecasting by extrapolation is often used to forecast the future of the time series. In this paper we use the growth curves to model questionnaire data

where capabilities for 1, 10, and 20 years have been evaluated. In this case we have three unknown parameters and three time points. A consequence is that both the logistic and Gompertz curves give very similar results for interpolation and extrapolation for 1 – 30 years.

In addition to interpolation and extrapolation purposes, the analytic growth curves can be used for analysis of systems and capabilities. For example, additional systems or procedures can be added to a system of systems by using the analytical formulas for existing systems and using numerical or, again, fitted analytical formulas for new systems. Also, calculations for disposal of systems can be conducted more easily. In this paper, we use the growth curves to calculate analytical results for system capabilities and their derivatives. System capabilities are separate capabilities of systems, whereas high level capability values describe all the effects of systems use in a specific scenario and environment. System capabilities can be used to isolate the system itself from other factors.

The outline of this paper is as follows. First we present the mathematical background of the logistic and Gompertz growth curves and how the parameters can be determined in a case where data is available at three points enabling the use of the basic second order polynomial formula. We provide numerical results from a questionnaire data for calculating system capability values and their derivatives. The results are for three capability areas, three scenarios (Suojanen, et al., 2015), and two systems together with the combined use of the two systems. Finally we have same interpretations of the results where graphical system capability curves and their derivatives are used both for making conclusions and for visualization.

Defence Acquisition and its role in Military Education

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Science and Military Education

According to Niiniluoto (1984) science is an ambiguous term that can refer to: science as an institution (such as universities), scientific research activity or the research process, scientific body-of knowledge i.e. generally accepted results in the scientific community at a particular moment; and the scientific method as a critical and intersubjective method for accepting beliefs. In terms of education, the body-of-knowledge meaning of science is clearly the most relevant one. Nonaka (1994) maintains that there are explicit knowledge than can be can be codified and transmitted e.g. through language and tacit, knowledge that is deeply rooted in action and is hard to formalise or communicate. Between tacit knowledge and scientific body-of-knowledge lies a practical, day-to-day knowledge that can be explicated but is not acquired by a scientific process and not part of scientific body-of-knowledge.

In contrast to civilian universities, military universities educate only for one organisation. In a civilian business school, one cannot educate students for the needs of any particular firm's purchasing process while defence acquisition can meaningfully take as a starting point the current defence force acquisition process. However, that process is not in all detail research-based, indeed, there are as many slightly different processes across the countries that are every now and then changed.

The law of the Finnish National Defence University (2008/1121) defines as its educational task as «teach military science that is based on research and best practice» while the law on civilian universities (2009/558) only mentions research-based education. The Finnish law recognizes clearly both education-

based on scientific body-of-knowledge and practical knowledge for the needs of Finnish Defence Forces.

Defence Acquisition

The Defence Acquisition University (2009) glossary defines acquisition as «*The conceptualization, initiation, design, development, test, contracting, production, deployment, logistics support (LS), modification, and disposal of weapons and other systems, supplies, or services (including construction) to satisfy DoD needs, intended for use in, or in support of, military missions* ». This definition consists of the life-cycle phases (a) of not only weapons (b) but also other items that are used in military missions (c). In essence, this definition is concerned with the life-cycle of purchases for the military. An Australian Defence Procurement Review (Kinnaird, et al. 2003) abides by the definition above but uses the term «procurement», a practice that Cochrane (2010) accepts recognizes but condemns as erroneous. First, (c) implies that defence acquisition is defined by a specific military use and is a subset of more generic acquisition. Second, (b) begs the question: is every purchase made for the armed forces within the scope of (b), or only investment items that go through all phases, like the design and development.? Third, acquisition, in addition to purchasing, involves a life-cycle view (a).

The acquisition process only begins if a materiel solution is required (Brown, 2010); even then, other DOTMLPF areas must also be taken into account in order to field a military capability. From a military capability viewpoint, the defence acquisition process is just one part of developing military capabilities, which in turn flow from the concept of operations and strategic guidance and, ultimately, the political level.

One way to assess the scope of a discipline and its related fields is to make a bibliometric study. For that purpose, a Scopus abstract search of articles and conference papers with the terms (defense OR defence) AND acquisition) between 2004 and 2014 was done. These terms could be present in any order in article title, keywords or abstract. Limiting to only journal articles in English language and to relevant subject areas, for example excluding biology and nursing, the result was down 290 articles. Of these, 97 could be eliminated based on the title

and a further 100 articles were eliminated because they were magazine articles. Finally, the amount of defence acquisition-related articles (abstracts actually) in Scopus database published in English after between 2004 and 2014 was 93. The total of 93 articles translates to about nine articles per year – by all accounts a small number. If one would guess an average amount of work for a published article of half a year, then the journal articles in Scopus would correspond an average yearly effort of 4,5 men or scientist. By comparison, according to DAU (2013, p. 44) the U.S. defence acquisition workforce is 151 355 people and Defense Acquisition University (DAU) staff is 722 people. Another comparison could be to Scopus hits for search terms «project management» (65,710) or even «reverse logistics» (1,639). The h-index in Scopus for the 93 articles was only 6, meaning that only six papers had six or more citations. Therefore, defence acquisition cannot be said to be a well-established academic discipline.

Table 1 shows the subject areas of the 93 articles, where there is both Scopus classification and a classification by the author to the subject areas of different business administration and engineering areas.

Table 1 Scopus subject areas. An article can have more than one subject area.

Author's classification			Scopus classification		
Main or secondary topic	Count	Percent	Subject Area	Count	Percent
Defense acquisition	26	16 %	Engineering	45	36 %
Systems engineering	22	13 %	Social Sciences	21	17 %
Operation analysis	13	8 %	Business, Management and Accounting	15	12 %
Political science	10	6 %	Computer Science	12	10 %
Software engineering	9	5 %	Decision Sciences	9	7 %
Administration	9	5 %	Economics, Econometrics and Finance	7	6 %
Product development	8	5 %	Arts and Humanities	5	4 %
Technology management	8	5 %	Environmental Science	3	2 %
Project management	6	4 %	Mathematics	3	2 %
Risk management	5	3 %	Physics and Astronomy	3	2 %
Strategic planning	5	3 %	Materials Science	1	1 %
Maintenance	4	2 %	Multidisciplinary	1	1 %
Purchasing	4	2 %			
Cost accounting	4	2 %			
Remaining 24 topics	33	20 %			

According to Scopus subject classification, 46 % of the articles belong to engineering and computer science while slightly fewer than 20 % belong to business management in together with economics and the same amount to social sciences. According to author's classification defence acquisition and systems engineering are top classes but if «something» management, administration and product development classes are combined, they together amount to 22 % being then largest. In addition to not being a well-established academic discipline, nor is defence acquisition an independent discipline but seems to be subdivision of on larger related disciplines where the contribution of engineering and especially systems engineering is very dominant and also management is clearly important. In addition to management, the social sciences also feature prominently, mainly due to the political science viewpoint.

The role of Defence Acquisition in Military Education

A key issue that determines the role of defence acquisition in military education is what role military personnel have in acquisition. While military competence is a requisite for military capability planning process, purchasing itself may to some extent be handled by civilian buyers. Military competence is also required defining the requirements. For military education of defence acquisition in Finland and in Sweden is included a one course on the subject with requirements definition emphasis at the MSc. level for a those of students that major in military technology while in Denmark there is not acquisition-related course nor a major in military technology. So in the end, even though defence acquisition is important from the defence spending viewpoint, it is not a part of most officers' education at MSc. level.

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WG 9

Military Education

Military Reality and Military Research – the Difficult Connection Seen from a Danish Perspective

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Keywords: Military research, civil research, practice, knowledge production, knowledge translation

The military educational system in Denmark faces a challenge: coupling research and practice to ensure that knowledge from practice is rooted and used in research, and that research makes a positive difference in practice.

It is not a unique challenge. On the contrary. It is seen within many professions with strong roots in practice, including civil areas such as the training of nurses, pedagogues and primary school teachers.

Within a Danish military context focus on these mechanisms has so far been limited, but changes to the training of officers – with the new accredited and, to some extent, research-based programme – have forced us to take a critical look at the system.

The aim of this presentation is first to explore how we, based on theories and experiences from other fields, can improve the connection between practice and research and second to give concrete examples of how this has been implemented in a military context at the Royal Danish Defence College.

In this connection, the discussion of Modus 2 (e.g. Gibbons 1994 *et al.*, Scott & Gibbons 2001) – a theory on knowledge production – plays a main role. The Modus 2 concept concerns a form of knowledge production that is context- and problem-oriented and cross-disciplinary. Modus 2 knowledge is driven by a wish to solve specific problems. The knowledge obtained is convincing if it manages to solve the given problem. On this problem-oriented basis, Modus 2 knowledge production is often cross-disciplinary. The research is often conducted outside traditional university environments – for example in the industry or under the auspices of the Danish Defence. There is also such a thing as ‘post-academic’ research, where other stakeholders, besides researchers, help decide what to research.

The majority of all research projects conducted at the Royal Danish Defence College as well as large parts of practice-related military research in general are practice-oriented and focus on concrete problems to be solved. One can therefore argue that main aspects of the theory are useful in a military, practice-related reality. This presentation will compare some of the relevant theories used in the civil world, which may be translatable to a military context.

Furthermore, it will discuss how the task of coupling research and practice can be addressed more specifically and offer concrete examples of how the Royal Danish Defence College has managed to couple research projects, practice and education.

In addition, it will briefly touch on the possible schism between military research and civil research. The two often represent different starting points, focal points, traditions and practitioners, and thus also have different bases

for being integrated in and interacting with military practice, but can we really distinguish between military research and civil research?

The effort to couple research and practice in the Danish Defence is well underway and, to some extent, based on experiences, theories and methods from the civil world, which in itself is a subject for discussion.

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Complexity Strategy – Furthering Military Research and Education

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Bridging science and art, strategy is a core discipline in Military Studies. One of the greatest challenges to strategy is how to understand and handle complexity. The contemporary security context in which militaries engage is complex, just as militaries themselves constitute and represent complex actors. How to handle these different aspects of complexity should be at the forefront of the strategic agenda. Today complexity is widely acknowledged but poorly understood. There is hardly a strategic document out there that does not explicitly point to complexities in the contemporary security arena; however, very few make a concerted effort to explain let alone address that complexity. Gaskarth (2015) is among the few, who argue that complexity can and should be understood. Regular patterns can be identified, explained and predicted. That is the foundation for complexity strategy. This in turn, will enable militaries to better handle the contemporary complexity challenge.

The proposed paper first contextualises and then conceptualises complexity in Military Sciences. The strategic challenge, it identifies, is how to navigate in a complex security environment, where the armed forces have a series of diverse yet interconnected objectives to meet with limited resources. It goes on to suggest that contemporary complexity requires an inter-disciplinary strategic approach that bridges the art and science of Military Studies. Likewise, we should not strive for a single strategy identifying ends, means and ways for every single security challenge. For as Clausewitz (2010) reminds us: we must be concerned with realities not mere abstractions. In other words, strategy must reflect reality. As contemporary security challenges are interconnected, so must be our strategies. Moreover, strategy cannot only

respond in the short-term to ad-hoc events, if and when they occur, but must provide longer-term focus for the future. Thus, the challenge for today's strategists is to carefully consider past, present and future complexity in strategic analysis, so as to avoid making 'the right decision for circumstances that are about to become history' (Bower and Christensen, 1995: 53). This is not to undermine the importance of military history or the strategic classics, but rather to stress their importance for strategic foresight.

To this end, the Institute for Strategy at the Royal Danish Defence College is currently developing a new research agenda and teaching portfolio. This will encompass – in the first instance – a module for our Masters in Military Studies and a simultaneous research project upon which this will be based. Peers from the International Society for Military Sciences are invited to join an informal network of scholars and practitioners working with issues related to 'Strategy and Complexity'. The purpose of this undertaking is to further both research and teaching; to better understand and manage complexity in contemporary strategic study and practice; and ultimately, to ensure that our contribution to knowledge meaningfully prepares the armed forces to think and act strategically in a complex future.

Culture: An Elusive but Inescapable Concept – Teaching at RMC, Canada

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This presentation will assess contrasting claims and methods on the place of culture or more specifically the importance of understanding the human terrain in strategic and security analyses. To this end, we take a selective look at the post 9 – 11 literature and the curricular developments in RMCC (Canada) in relation to the lessons drawn from various security missions in different regions -- especially the Middle East and North Africa. I suggest that a better grasp of the necessity of cultural interpretation should be sought at the junction point between Western/NATO experiences and the fine edge research on those lessons derived therefrom. Indeed, the necessity of this dialogue between theory and praxis persists considering challenges such as cultural intelligence, the meaning and role of the «strategic lieutenant» in the context of Revolution in Military Affairs, emerging trends in NATO-Canada security operations and comprehensive approaches to defence and security.

Exemplary texts, exemplary officers? Using life writing in EL2 military education

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Keywords: military education; English; EL2; character; life writing; interdisciplinary; genre

This paper explores the use in military education of ‘life writing’ by soldiers, currently serving or retired, and works of fiction based on the soldier author’s personal experience of warfare. It focuses specifically on the use of these genres in teaching English as a second language (EL2), but also on how they are used to encourage, in the English classroom, officer cadets to reflect on topics from subjects taught by other military sciences. ‘Life writing’ is here used as an umbrella term which includes, but is not limited to, genres such as memoir and autobiography. The paper discusses life writing and fictional representations of war by authors with military experience as these genres are currently employed in the teaching of English at the Norwegian Military Academy and identifies potential avenues and strategies for their further use. By placing the focus on the genres and modes by which ideas of ‘character’ and (the history of) the profession is communicated to, by, and about the military profession, this paper examines how the subject of English contributes to the content and development of officer education.

Textual sources that describe personal experiences of war have broad application potential and are widely used by researchers from various disciplines as sources of information about the military, both for the insight these geopolitical documents provide and because they are readily available. They are also, as mentioned, used in military education as gateways for reflecting on the history of the profession, and on leadership, character, and military identity. Moreover, life writing by members of the armed forces construct and reproduce, and mediate to the public particular images and

understandings of the military and armed conflict, and these genres have a wide public appeal (the twenty-four memoirs by military personnel published in the UK between 2007 and 2012 alone have a market value of £5 million) (Woodward and Jenkins 2012b). In addition they perform an existential practice, as they constitute soldierly subjectivity as a coherent self. For these reasons, attention to the textuality and materiality of the documents and how they sustain practices of military self-representation is crucial for members of the military; the English classroom is an ideal setting for raising awareness of such practices amongst the readers of these texts, for example, through use of genre pedagogy and its attention to the social contexts of texts and its use of scaffolding techniques to focus students' attention on structures of language.

Furthermore, while there is a plethora of studies on military life writing from the twentieth century, and a growing amount of research on works published after the turn of the millennium, there are as yet only indications about the profile of the soldier authors producing these documents, and there is a dearth of readership data (Kleinreesink; Woodward and Jenkins 2012); recognising that subjectivity is produced through discourse (Allington and Benwell), a classroom focus on the reading experience of various types of life writing can contribute to understanding of how these genres are read by members of the military and thereby also to focus their further use in the military language classroom.

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Outsiders Inside: How Contracted Civilian Instructors From A Local University Understand Their Role As Military Educators

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Keywords: Military Education, Contractors, Civil-Military Relations

Kelly C. Jordan defines military science as «a systemized body of knowledge regarding and relating to the theory, application, and employment of military units and weapons in land warfare ... encompassing issues related to the follow areas: military leadership, military organization military training and education military history military ethics military doctrine military tactics, operations, and strategy military geography and military technology and equipment.»

In this rapidly evolving security environment, the military's ability to effectively carry out its mission is contingent on the expedient acquisition of relevant knowledge in this wide spectrum of areas. As the Call for Papers puts it, there is a need to «describe, understand and explain how science can contribute to prepare military units and their soldiers for the life and tasks of conducting military operations.» Some military professionals acquire this knowledge in the course of their work, or by independently keeping abreast of the latest developments by reading and contributing to military journals. As my colleague Henrik Paulsson points out in his proposal, the Internet has now also emerged as a dynamic platform to increase self-directed learning, and teaching, of this knowledge.

This year's International Society of Military Society's conference theme «Military Sciences – The Backbone to Military Educational Institutions,» however, rightfully emphasises the link between the military sciences and the military

schoolhouse. Professional Military Education (PME) institutions are key hubs in the knowledge acquisition process. Most military professionals still learn about the military sciences in academic courses at PME Institutions. There they are typically taught by full-time civilian or military faculty employed by the defence establishment. These instructors are the main conduits of the military sciences to the military professional.

There, however, exists only a small body of research on how these instructors perceive their role in educating military professionals. In particular, how do civilian academic instructors, ostensibly from a different «world» as classical civil-military relations posits, see their role as educators of military students? How do they function as «outsiders» in the traditionally close-knit world of «insider» brothers(and sisters)-in-arms? The only monograph which addresses the intersection of civilian academia and military education, *Military Culture and Education*, a collection of articles by US PME instructors on their experiences teaching in military schoolhouses, suggests civilian academics teaching military students is at best challenging and at worst a head-on culture clash. It appears there is a gap between civilian academics and the military in attitudes towards military education in the US PME ecosystem. Unsurprisingly, this reflects an ongoing debate on the value of academic military education there.

If civilians who work full-time in the military already face difficulties, what more civilian academic instructors who only enter the military «world» occasionally as guests? Not all states adopt an «in-house» approach to PME. Some small state militaries, for example, the Singapore Armed Forces (SAF), outsource the academic military education of its career soldiers to civilian contractors as this is a more cost-efficient way of providing it. A largely conscript and reservist-based force, career personnel form less than 10% of the SAF's total strength. As such, rather than incur large capital and manpower costs by recruiting their own academic faculty to provide academic instruction to its career personnel, the core of the SAF's leadership, as is typical in other advanced militaries, the SAF contracts the teaching of all academic components in its professional military education to civilian providers, namely local civilian universities.

This short study seeks to explore how academic instructors from a local university contracted to teach military officers understand their role as

instructors. The principle lecturers of three undergraduate courses in military studies, military leadership and military technology run by the local university will be surveyed on their experience providing PME. It builds on existing literature on the perceived «civil-military gap» in military education by looking at the experience of small states like Singapore. Additionally, as outsourcing becomes an increasingly attractive solution to filling non-critical, non-operational military jobs because of its perceived cost-effectiveness, this study also hopes to expand the discussion from just focusing solely on the experience of civilian instructors who work full-time in the military to also include contractors who are temporarily parachuted into a military environment when classes are taught, but exit once they end.

The Royal Military Academy of Sandhurst: Educating Young British Officers in an ‘Age of Uncertainty’

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Keywords: Military Education; Strategic Lieutenant; Blended Learning; Royal Military Academy Sandhurst; UK Strategic Culture

The UK has been one of NATO’s most devoted member states for decades, and is still one of only few European states to meet the Alliance’s requirement to spend 2% of GDP on defence. Its dedication to NATO has been demonstrated not only by involvement in operations such as Kosovo, Libya, and Afghanistan, but also more recently by support for deployments in Eastern Europe and the Baltic States. Despite some inevitable post-Brexit transformations, the UK’s loyalty to NATO is unlikely to wane. In fact, the UK has been advised to err on the side of caution in substituting a potential European void with blind support for American foreign and security policy (Chalmers, 2017).

Historically, the British strategic culture in multilateral military operations has not only placed high value on close civil-military relations and unified command structures, operational flexibility, strong adherence to LOAC principles and an intelligence-led approach to distinguish combatants from non-combatants, but also on legitimacy and public support for operational involvement (Egnell and Ucko 2016). However, with mixed performances in Afghanistan and Iraq, the British Army has faced criticism, and public support has dwindled as a consequence. In addition, the UK’s position as a trustworthy partner in the war on terror has limited its strategic and operational prospects (Finlan, 2013).

Thus far, the challenges of the international security environment have not brought about any fundamental changes in the culture of the British Army, which remains remarkably fragmented across regiments, held together by

an officer corps, all commissioned from the Royal Military Academy of Sandhurst (Finlan, 2013).

Established in 1947, the Royal Military Academy Sandhurst (RMAS) was the result of a merger between the Royal Military Academy and a Royal Military College. RMAS still represents the hub of British Army Officer education and training today, and since its formation, the British officer training and education programme has witnessed a range of reform efforts. At the core of these reforms we find the continuous debates about the balancing act not only between academic education and military training, but also between budgetary, operational, and strategic realities (Downes, 1992). For decades, the art of compromising has been at the core of decisions to reform the Sandhurst programme, which has resulted in a rather unique approach of blended learning, where military training and academic education are integrated in a yearlong physically and intellectually demanding course.

This paper takes Sandhurst to the post-Afghanistan reality of cutting costs and balancing commitments (Chalmers, 2011) and demonstrates how the Sandhurst programme – and in particular the academic component – has been reshaped over recent years. The majority of the British Officer Cadets – rather uniquely for a military academy – have already completed an undergraduate degree prior to arriving at Sandhurst. This provides the Academy with a highly diverse group in terms of knowledge, interests and background; it offers the flexibility that the Army so badly needs in the contemporary security environment. All Officer Cadets follow an educational programme delivered by three academic departments; the Departments of Communications and Applied Behavioural Science, Defence and International Affairs, and Wars Studies. However, since 2015, the Academy also offers a parallel postgraduate certificate course in Conflict and Leadership Studies for students with a relevant undergraduate degree. The distinctiveness of the Sandhurst approach will be pertinent throughout this paper.

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Supervision as a method to develop and understand young army officer's practice – Getting closer to the backbone of the profession by development and alignment

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Keywords: Group supervision, action learning, leadership development, and development based learning

Do we train our young officers in what they actually need? What do young officers in the Danish army struggle with these days? How do military academies follow up on the effect of the training?

The responsibility and assignments young officers have today has changed quite a lot. Missions, budget cuts and rationalizations have changed the everyday life for the officer into a «new normal». Nevertheless, how do they cope with this «new normal»? What characterizes the changes that our organization and the world is undergoing in a young officer's perspective?

The educational system in the Danish Defense has also undergone huge changes in the last 10 years. New public management structures and rationalizations have forced training and educational institutions to explore and to find «the backbone» of the Army's profession.

The research started because there was a need to minimize the disjuncture between the Army practice and the Army educational system. The presenter will introduce his methods and findings in order to investigate the backbone of our profession and thereby to create the best possible training and education.

The research project was conducted as an action research project. The presenter has followed graduates from the Royal Danish Army Officers' College in two different infantry regiments over a period of one year. With the goal of understanding these young officers challenges, assignments, responsibility and working methods in order to;

1. Develop these young officer's competences to lead and command.
2. Improve the Royal Danish Army Officers Academy's ability to educate future cadets, thereby helping them become great leaders.
3. Priming the cadets for the first year after school.

The main method used to understand and develop the groups of young officers was inspired by the action research and group supervision tradition. Each group met four times for a three-hour session with an experienced group facilitator.

The presenter will show and give examples of the successful program that has led to numerous changes and improvements in the training and education. The results of the project have been used to design the Diploma in Military Studies at The Royal Danish Military Academy and is used during the education to prime the cadets for their post-education Army service. The program has left a big footprint in the leadership development program and the competences provided there.

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Defence Education Enhancement Programme (DEEP) in Ukraine: The Limits of NATO's Education Programme

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Keywords: Ukraine; NATO; Defence education Enhancement Programme (DEEP); Professional military education (PME)

The DEEP is a NATO initiative dating back ten years. It aims at fostering intellectual operability and officer professional military education (PME) to render NATO Partners and potential members capable of joining forces with NATO nations if need be, and to develop the practices and methods to ensure their own security. The Ukraine portion of the programme is the most significant. Administered by NATO and the Partnership for Peace Consortium, overseen by strong American and Polish interests, it is a manifestation of what the Alliance can do as a measure of assistance and reassurance to Ukraine. The DEEP is a tool to demonstrate NATO's credibility and deterrence potential outside of Art. 5. This article speaks of the absorption challenges created by the multiplicity of events, and argues that the objective of creating self-sufficient and interoperable forces is impeded by the current conflict in the Donbas.

The role of Game Theory in Military Education

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Keywords: Game Theory, Military Education, Case Study

Game theory studies situations in which your payoff depends not only on your own choices but on the choices of others. It reveals how decision-makers interact and helps us to understand military, economic, social, political, international relations and biological Phenomena or systems. It provides a mathematical formulation for modeling these systems and generating solutions in competitive or conflicting situations.

The essential parts of a game are: *players*, *actions*, *payoffs* (payoff function), and *information about the actions or/and payoffs* (they could be known or not). These are collectively known as the rules of the game, and the modeler's objective is to describe a situation in terms of the rules of a game so as to explain what will happen in every situation (which will happen at the time that the game starts). Trying to maximize their payoffs, the players will devise plans known as strategies that choose actions depending on the information that they have. The basic rationality principle of game theory states that *each player acts to optimally accomplish his/her individual goal, taking into account that the others play in the same manner.*

In this talk the necessity of Game Theory in Military Education will be presented. Military officers, who are aware of game theory techniques, are capable of conducting military operations and estimating the situations. The talk consists of two parts: in the first part basic ideas of game theory will be provided and in the second part examples studied in Hellenic Army

Academy are given. At the same time we will present the methods of Game Theory that could approach military operations, international affairs etc.

More precisely, the following case studies will be presented:

1. The task of optimally assigning military ordinance to enemy targets, usually called Weapon Target Assignment (WTA) problem --- The formulation of the Weapon Target Allocation problem considers a situation in which two or more teams of military units are involved, and when units in each team are simultaneously targeting units in the remaining teams in such a manner as to optimize some objective function. The objective function represents a measure of destruction of the targets, or other measures such as the cost of each weapon, may also be considered.
2. The task of air force operations against ground forces. In this case attacks on time critical targets, with emphasis on suppression of enemy air defenses interdiction, and anti-theater ballistic missile missions are modeled and analyzed. This combat is considered as a two-player game in which each player is free to choose from different strategies. Game theory provides the tools to calculate and evaluate optimal and suboptimal strategies for the players.
3. Find the potential strategies on Air-Land Combat Operations which is based on Lanchester's Combat Law as a differential game. The serious issue is how to use and distribute combined strategies when offensive and defensive positions are taken in air and army forces on both sides
4. The modelling of the Battle of Bismarck Sea (World War II) as a two-person zero-sum game. The strategies of the enemies, the optimal solution are presented in comparison to what really happened.
5. The modelling of Cuban Missile Crisis --- The Cuban missile crisis began on 14 October, 1962 when an American U-2 spy plane discovered Soviet Union was attempting to install intermediate-range nuclear-outfitted ballistic missiles in Cuba. All the possible strategies of the players (two governments) are examined and the optimal solution (strategy) to this problem is found.

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The STANAG 6001 based e-learning materials for hybrid English learning: Reading proficiency, critical thinking and self-management in Japanese cadets

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Keywords: STANAG 6001, e-learning, reading proficiency, critical thinking and self-management

This study presents the effects of the STANAG 6001 based hybrid English learning on reading proficiency, critical thinking and self-management in Japanese cadets studying English as a second language (L2) at the National Defense Academy of Japan.

Introduction

To promote and foster interoperability among the North Atlantic Treaty Organization (NATO) and partner countries, the NATO has developed descriptors of Standardization Agreements of language proficiency as STANAG 6001 to define the general English proficiency (non-military specific) of military personnel. According to the STANAG 6001 with respect to its vision of the Bureau for International Language Cooperation (BILC), the NATO partner nations have responsibility to develop their own national language learning curriculum and materials based on STANAG 6001, considering their own governmental policy, educational system and cultural background. Based on the STANAG 6001, many nations have developed their own national language learning curriculum and materials, and integrated learning of traditional face-to-face teaching and web-based learning has also been developed.

A combination of traditional face-to-face teaching and alternative web-based self-learning in a single teaching and learning environment have been called blended learning (BL). The BL has been adopted in various levels of professional education, including English for specific purposes (ESL). For example, Sung et al. (2008), who examined the effects of blended learning in comparison to face-to-face lectures, found that students who studied in blended learning exhibited significantly higher levels of professional knowledge and satisfaction with comprehensiveness in blended learning programs, while no significant differences in self-efficacy were discovered between students in blended learning and the ones who only studied in face-to-face classroom situations.

More recently, synonymous to BL, many studies in language teaching and learning have focused on hybrid learning (HL) (Klimova and Kacetl, 2015). According to Bärenfänger (2005), the HL is not merely a combination of traditional face-to-face instruction and alternative web-based learning, but it provides more in-depth individual and flexible learning, which includes self-directed learning activities in addition to BL. According to Shams (2013), the hybrid English learning has positive impact on vocabulary learning and autonomy in language learning.

Although previous studies in language learning have shown the positive effect of HL, further research is needed to investigate how hybrid English learning adopts the STANAG 6001 based language learning for Japanese cadets. Thus, to measure the effect of the hybrid English learning on STANAG in Japanese cadets, this study was designed to examine the impact of hybrid learning on English reading proficiency, higher-order thinking and self-management in Japanese cadets. Particularly, the goal of the hybrid English learning in this study was set to improve reading proficiency and critical thinking, which were equivalent to the STANAG 6001 level 2.

Method

Participants and materials

The participants were Japanese cadets (N=120) studying at the National Defense Academy of Japan. Language learning materials used in this study

were developed specifically for Japanese cadets based on the STANAG 6001 and the Language Standard Assessment Seminar (LSAS) by the BILC, at George C. Marshall European Center for Security Studies in Germany.

Procedure

To conduct this research, first needs analysis with questionnaire survey was performed. Second, in order to measure the current reading proficiency level, higher-order thinking level and self-management, participants were asked to complete an English reading test and questionnaire.

Next, the model of hybrid English learning curriculum and the sample of e-learning materials including progress and achievement tests were developed. After that, as a pilot study, sample of the STANAG simulated reading materials and tests (level 1, 2 and 3) were developed to test the validity and reliability.

All participants are studying reading English in both traditional face-to-face lectures and alternative e-learning as self-study. The textbook used in face-to-face lecture (i.e. 'Campaign', 2006a and 2006b) and e-learning materials developed in this studies were both equivalent to STANAG 6001 level 2 and 3. Although all participants were required to attend face-to-face lectures every week, each student were able to decide how many hours they study reading with e-learning materials outside the lecture. To assess the progress of English reading proficiency, higher-order thinking and self-management through the hybrid learning, the progress tests and questionnaire survey were conducted. The further progress test and achievement test will be conducted in the following academic term.

Analysis

The collected data was analyzed statistically with SPSS 24.0 and AMOS 24.0. First, to examine if there was significant difference in critical-thinking and self-management across the cadets with different academic achievements in reading, t-test across the cadets was performed. Next, the correlations across reading proficiency, critical thinking and self-management were examined. Last, the analysis of structural equation modeling (SEM) was performed to

explore the impact of hybrid English learning on developing the reading proficiency, critical thinking and self-management in Japanese cadets.

Results and Discussion

At the 9th Conference of International Society for Military Sciences, the detail of results including statistical data and further discussion of effect of hybrid English learning on reading proficiency, critical thinking, and self-management will be presented. The pedagogical implications will be suggested to develop further hybrid language learning for military in NATO nations.

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Educating Strategic Lieutenants as Security Professionals

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Strategic lieutenants are a state's investment in security. The traditional pattern of early career specialization, mid-career integration, and senior officer generalization does not optimize junior officer preparation for a career in security, which has never been about fighting and winning wars for the majority of the world's forces (notwithstanding professional ideology). This chapter describes global patterns of officer education, and contrasts these with global patterns of officer employment. Based on a wide sampling of curricula, we can assert that pre-commission and subaltern education is dominated by technical and specialized education, across military, paramilitary, and police organizations. A similarly wide sample of security operations illustrates that war-fighting has little relevance to human-security, national security, and international security for most of the world's security forces. There is therefore a global knowledge gap in the preparation of security professionals. The education of strategic lieutenants – junior officers prepared to think strategically about the nature and management of security problems beginning early in their careers – should begin with this gap. Tools of legitimation code theory (specialization planes and semantic waves) help to describe the ways in which different forms of knowledge are excluded from military education, exacerbating the gap in essential knowledge at each level of career development in most countries. Addressing the knowledge gap should begin by filtering big-power inputs, and conducting collaborative experiments to generate and share useful knowledge for the majority of countries. The framework for transmitting this knowledge might be a common curriculum (content, context, and pedagogy) that prepares young officers to think critically about political, economic, and social relations in order to achieve human and national security in a collaborative international environment. The example of EMILYO initiatives are extrapolated for other communities. Experiential learning, cross-cultural understanding, gender balance, and early international experiences are essential elements in teaching the strategic lieutenant.

Roundtable debate on Sharing and Comparing Professional Military Education Curricula: Context, Content, Andragogy

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This #ISMS17 panel will be part of an online, asynchronous, and continuous discussion amongst faculty of higher educational institutions charged with professional military education.

A curriculum includes the context within which teaching and learning occur, the content of the material delivered, and the pedagogy or andragogy used. Military academies, staff colleges, and defence universities form a unique peer group amongst institutions of higher learning, and have important incentives to share and compare curricula, but also constraints on the ways in which they do so. The aim of continuing discussion is to enable individual faculty members to access, share, and compare relevant curricula at other institutions, with the aim of improving the quality of the education they provide, particularly in the fields of military and security sciences.

The proposed panel at ISMS 2017 will highlight samples of shared content and provide a forum to discuss questions about access, constraints, and utility for sharing and comparing professional military education curriculum, at entry, mid-career, and senior officer level.

The panel will consist of:

1. Annemarie Peen Rodt, Invitation to collaborate on strategy and complexity
2. Kjetil Enstad, Report on Teaching Culture in Military Academies

3. Anders McD Sookermany, Invitation to collaborate on a Handbook of Military Sciences
4. David Last, Invitation to discuss development of an international Doctorate of Military Sciences
5. David Last, Invitation to collaborate on an annual digest of military sciences
6. Jens Ringsmose, Scandinavian Journal of Military Studies
7. Mrs Frédérique Jacquemin, Senior Programme manager NATO DEEP

Learn to Learn Scientifically

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It is needed 8 – 10 years to cultivate a professional military leader with a sound character. On the other hand, soldier may be ready for efficient and effective fight after only three to six months of training. Therefore, philosophy of the education must be shifted towards the military leaders. Theoretically, teaching function must be liberalized and individual student-oriented. Practically, it is hard to achieve that due to a many organizational and prescribed requirements burden on lecturers. Within military educational institutions rules daily routine and competitiveness does not exist anymore. Educational challenge is not strictly defined and nobody cares to find the motif to be useful or beneficial. Longer and more demanding task of creating competent and trustworthy leader requires application of science in an intelligent organization. How to create a world-class intelligent military organization? Officials working in military educational institutions have to think about that constantly. In order to be relevant and prepared for the unknown future military officers need to learn how to foresee or perceive.

Authors explore ideas and techniques of creative thinking for the purpose of implementing scientific way of teaching within military academies. Fundamental idea is found in establishing an interdisciplinary network of various fields of sciences for the purpose of creating teaching methodology suited for role modeling in curriculums of military educational institutions.

Role modeling is nothing but the famous phrase *show by example*, very much used in military training. Hence, lecturers in military education institutions are to

be role model of military leader. Secondly, they must apply scientifically-based educational theories. Then, they need to figure out audience's capabilities and expectations. As psychologist Howard Gardner stated in his *Theory of Multiple Intelligences*, «*Individualize your teaching as much as possible. Instead of 'one size fits all,' learn as much as you can about each student, and teach each person in ways that they find comfortable and learn effectively*» (Gardner 2011). For example, *interpersonal intelligence* must be highly valued within military community because it determines the ability of person to work with a group in many different positions or operational and tactical missions.

Gardner also came out with a theory of 5 minds for the future leaders: (1) The Disciplined Mind – mastery of major school of thought and at least one professional art, (2) The Synthesizing Mind – ability to integrate different ideas into a coherent whole, (3) The Creating Mind – capacity to uncover and clarify new problems and phenomena, (4) The Respectful Mind – appreciation for differences among human beings, and (5) The Ethical Mind – fulfillment of worker's and citizen's responsibilities (Gardner 2009). These capacities perfectly fit to military leader mind and military educational system officials have to notice that. After all, it may be used as a template for choosing the right leaders.

Professional military education institutions recognize Military History as an excellent field to study and learn for whatever military branch. But spirit of the times in history is usually overlooked. So, beside political science, many other sciences have to be consulted within military history curriculum. It should be military psychology and pedagogy, sociology, economy, leadership and communication and so on. Therefore, building on a lecture plan, military historian must decide what other fields of sciences integrate in the lecture. On that way, working interdisciplinary, lecturer develops officer's intuitive side of mind.

Science can play a meaningful role in military education only through meticulously prepared and applied scientific approach to teaching. Therefore, the most critical question is not *what to teach* but *how to teach*. Lecturers have to be key figures in advocating implementation of scientific methods of teaching within military education institutions. Various interactive student-oriented methods of instructions must be scientifically approved. The Scientific Method generally consists of six steps: (1) Define the problem, (2) Review information sources and literature, (3) Come up with hypothesis, (4) Do research in order

to test the hypothesis, (5) Determine and state the conclusion, and (6) Verify the conclusion (Van Otten, Leszczynski 2006).

Now, we can move to the general question *what to teach*. First, lecturer has to direct officers toward sound character, and that means to point out military traits, prudence and truth. Here, lecturer may start with Socratic philosophy emphasizing bad tendency toward wealth, satisfactions, and honor-seeking habits. The right character is the most important feature of a leader in an intelligent organization. Second priority is about particular science and subject-matter experts deliver a lectures needed for officer's career. Consequently, educational system must provide military application for the purpose of the military operational functions. When a military leader possesses necessary capabilities and skills he will also know how to perceive and react on many future challenges.

To summarize conceptually, future professional military educational system must be based on four pillars: (1) Ethical Standards, (2) Scientific Method of Teaching, (3) Subject-Matter Expert Lectures, and (4) Military Application. The end product of this system of education is to be military leader capable to think not only analytically but also intuitively, as needed.

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Back to the Future: ‘Deployable Deterrence’ – How to train the «Strategic Lieutenant» in an uncertain environment

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After Russia’s invasion of Ukraine and subsequent annexation of Crimea in 2014, Norway, Sweden and Finland have scrambled to increase defence expenditures and revive some of the old, and, some thought, long gone, virtues of classical deterrence of a symmetric opponent. Sweden has reintroduced conscription and redeployed military personnel to the island of Gotland in the Baltic Sea. Norway has invited the US Marine Corps to put up a rotational (but permanent) presence in Northern Norway close to the Russian border. And Finland has increased its reservist based conscription force from a wartime strength of 230.000 to 280.000 and in 2015 sent out an «extraordinary letter» preparing Finland’s up to 900.000 reservists of what to do in a «crisis situation». Denmark however, has been slow to adapt to the alleged new geopolitical realities. Officially due to defence procurement reasons – Denmark’s defence spending is agreed upon in broad based political agreements every 5 year, and the next agreement is due to be signed at the end of 2017. In reality, however, most of the Danish foreign- and security establishment still do not see a Russian military threat towards Danish soil – but only a threat toward the Baltic countries, which Denmark shall take part in deterring – and do not want to replace Denmark’s hard fought position as a «super Atlanticist» country with a globally deployable expeditionary force to be used for political gain whenever and wherever the US decides, in return for US protection and supposed influence in Washington. Thus, at present, and most likely also after the new defence agreement, Denmark’s

defence forces are being asked to do both: To be an expeditionary force equipped and trained for global deployment – by for example engaging in counterinsurgency operations and capacity building in operation Inherent Resolve in Iraq and Syria. As well as to prepare for ‘deployable deterrence’ of a symmetric opponent (Russia) in Estonia under British command in NATO’s Very High Readiness Joint Task Force (VJTF).

But is it really possible for a country with the size of Denmark, and with its very limited defence budget, to do both without risking its overall durability? And if the Danish politicians decide that their military is to do both, how do you train your officer’s corps to be able to bridge both the demands for 1) COIN, civic work and capacity building in a failing state in the greater Middle East with all its sectarian violence, religious divisions and endemic corruption, as well 2) engaging in classic deterrence against a modern, symmetric opponent, being deployed in an albeit friendly but still rather foreign country like Estonia with its possible «honeytraps», hybrid warfare and cyber threats?

The article proceeds in four sections: 1) Firstly, it will discuss how the design of the Danish officer’s education during the Cold war, with its focus on territorial defence, reflected what strategical competences in the officer’s corps was imagined necessary at the time. 2) Secondly, it moves on to present the great changes to the Danish officers education during the 1990’s and 2000’s due to Denmark’s increased focus on expeditionary forces and the new role of the «Strategic Lieutenant» in a multinational environment. 3) The article will discuss what could be termed «core competences» of a combined expeditionary and deployable deterrence army, where the officer’s corps should be able to do both with the same equipment and crew. Is it possible to pinpoint key components in strategical thinking that makes this possible? The article will conclude with reflections on how ongoing discussions on needed competences in the officer’s corps contribute to the correspondence between the states priorities and the education provided

New Ways of Innovation: The irrelevance of military journals in the internet age

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Keywords: military innovation, military journals, internet outlets

How has the advent of the internet shifted military debates on adaptation and innovation? How can small states take advantage of these changes? The internet offers many possibilities, but also challenges. There are many military journals which discuss innovation, ranging from those run by military institutions, such as *Air & Space Power Journal* and *Parameters*, to privately run such as *Proceedings*, and non-military academic journals, such as the *Journal of Strategic Studies*. Regardless of publisher, they require high academic quality, significant length, and peer-review: all time consuming aspects. To develop an idea from conception, to the writing, to finally publishing and distribution can take several months as best – and that is presuming that it will be read in the first place. Research shows that military officers rarely read single articles, and much less do so regularly. Even more problematic, the officers surveyed were active Command and Staff College and War College students. Mahnken and FitzSimonds even suggest that journals are poorly suited for dissemination of ideas within the officer corps. Adaptation and innovation needs debates and discussions to succeed and develop ideas, and those interested in the subject will go where the debate is. Thus, if journals are not suitable for these discussions because of complexity and the lack of readership, what alternatives are there? Both Adam Grissom and Stuart Griffin have stressed the importance of looking at bottom-up military innovation, and the same holds true for academic military writing, where there has evolved a bottom-up ecosystem. Early debates on tanks in the 1920s were conducted in journals, as was the Soviet discussion of the ‘military technological revolution’ in the 1970s and 80s, however modern officers look elsewhere. From the refuge of *Small Wars Journal* during the

Iraq War and the birth of the COIN ‘movement’, to newer outlets such as blogs and the Defence Entrepreneurs Forum (DEFx), military officers have found alternative outlets to discuss and share ideas. With this in mind, how then can small states learn and adapt their existing structures to encourage debates on innovation that previously were conducted in journals? I argue, through the use of a case study on Australia, that it is possible to blend journals with official online forums, in addition to sanctioning and even cooperating with private initiatives. This enables utilizing the benefits of longer journal articles, while encouraging continuous debate with shorter articles. In addition, the Australian embrace of the DEFx has led to innovative suggestions and solutions from all ranks are able to be heard, understood, and implemented in a short period of time.

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From Grade Centric Learning to Self-Directed Learning

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Keywords: Student centric learning, self-directed learning, assessment.

Modern university pedagogy suggests that lecture's role is changing from a knowledge distribution sessions towards support meetings for learning. Teachers often consider problematic to accomplish or control self-direction because it should originate from the individual learner. Some kind of agreement is needed to be established and fostered.

The National Defence University (NDU) trains officers for the Finnish Defence Forces (FDF) and the Border Guard. This paper presents NDU's practices to enhance practices in science and technology education.

At the BA-level cadets gain tertiary qualifications and the fundamental skills and knowledge needed to undertake commissioned officer roles in the Army, Navy, Air Force, and Frontier Guard. The three-year bachelor courses cover military strategy and tactics, military technologies, and military history. Academic studies are combined with leadership, communication, and military training. After master level professional and further academic studies are offered by the university.

With basic scientific education and selected technology-related courses, technology is an essential part of the general curriculum in cadets' basic studies. Military technology is one of the choices at the major level studies. Generally learning aims for all science and technology related courses may be expressed as: 1) refreshing previous knowledge from school or previous studies, 2) understand and use relevant expressions to formulated problems/solutions, 3) gaining new scientific knowledge, 4) understanding how technology utilizes scientific results, and 5) gaining the ability to manage practical exercises within the working environment.

At NDU in common Science, Technology, Engineering, and Mathematics (STEM) studies, students has common courses for preplanned timing in each semester. The curricula at NDU define most of the courses in such a way that external ready-made material has only limited use. A well-prepared course ends to an assessment that reflects those concepts and skills that the lecturer has emphasized either in lectures or in the learning management systems (LMS). When the learner takes his responsibility for learning, then instructor's effectiveness is not defined on the basis of what he or she does as a teacher but rather on what his or her students are able to do.

Teaching for learning

In a military context, all technology-related courses include multiple learning objectives, some of which can be considered as tacit knowledge, and as such they are largely unmeasurable. It is not enough that students have heterogeneous background in mathematical education as well as personal skills combined with attitudes towards different disciplines. More over continuous development in science and technology are often claimed to produce a knowledge explosion. Likewise, modern trends for university educations has established demands to improve people's personal ability to learn scientific knowledge, to obtain new information, and to resolve real-world problems are widely expressed. It is not enough that officers receive up-to-date professional knowledge; they must have the ability to react and apply knowledge and skills in totally new situations and unfamiliar environments.

Because cadets' formal level of knowledge and personal interests vary, the requirements in common courses are set appropriately for non-physics or non-mathematics majors. According to the curricula and the semester plan, only compact and tightly scheduled science and technology courses are feasible. Therefore refreshing knowledge can be achieved without personal interest and utilization of own time. A relatively limited lecturing frame is use to present essential topics and introducing presence of (reading) material and homework in the LMS. Most homework is done in guided small groups led by peers.

For active students this approach promotes constructivist student-centered methodology. It helps students to develop their skills in the discipline as well as their capabilities as team members. Such skills are useful to learn, not only to pass the course but also for the future profession.

In technology-rich courses teaching points out concepts and principles that are applicable to any device and will be relevant to the profession. This is done so that in practice oriented professional courses may utilize this knowledge constructive way.

Research problem

As a university institute, NDU measures student learning and gives grading. For any short science course a standard so-called general examination from disciplines introductory course is suitable to test knowledge level. But are we teaching for test or educating for learning?

In the technology courses learning goals can too specific and partly skill related. Therefore good assessment must be combination of multiple tests and may still be inadequate to measure all of the five long term aims proposed for technology related courses.

To find a feasible solution, selected tools for course planning, way of giving out courses, and finally making assessment are presented. Observations, educational interventions and other evaluation practice are presented. Selected literature finding are opened for further discussion.

Methodology

Action research is designed to bridge the gap between research and practice. It supports educators in seeking out ways in which they may systematize their problem setting and take further steps towards solutions, thus enhancing the quality of education. Kemmis and McTaggart propose that action research forms a spiral of process stages in which the process may not be as neat

as the spiral of self-contained cycles of planning, acting, observing, and reflecting suggests. Due to continuous renovation or society lead demands for curriculum, NDU's education has also non research based interventions. Therefore the cycle nature in development exists, but a detailed presentation is not so useful to present. Observations, immediate feedback, examination material, and student feedback has been utilized to understand educational interventions effects on learning.

Measuring – assessment

Learners often claim that they can too many things and they did not learn anything or they were not happy with the teaching and therefore did not ... Or they say it was great (and simple or easy)...A good assessment may include tools to know each student real learning curve. Assessment in a larger learning group is both time-consuming and resource-intensive. Due to personal differences in STEM-related skills among cadets only general grading in science related disciplines is achieved. True skill-related learning is hard to measure so selected things or practices are observed, and in most cases only brief feedback is given. At the master most of the courses are so technology oriented and most of the students are so ambitious to get a good record that other data must be utilized. Student feedback shows single (individual) but many written testimony for self-directed learning. They include statements like *«model was so shortly presented that it was necessary to study the material by myself to gain the knowledge and skill to...»*.

Conclusions

Teachers must create a tool that support students' individual learning. Further innovative ways are needed to encourage students' willingness to use their foundational knowledge to perform complex tasks either in class or under realistic conditions.

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Strategic Lieutenants at the Norwegian Military Academy

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Keywords: Professional Military Education, International Relations, strategic culture

This paper explores how the Norwegian Military Academy (NMA) has adapted its PME to meet the requirements of changing security contexts. During the Cold War NMA's task was to enable commissioned junior army officers to operate at the lowest tactical level in a territorial defence force of more than 200,000 troops, whose primary focus was on deterring a Soviet military intervention and defeating it, if deterrence failed. Each junior officer specialised in a designated task demanding largely military skills in the field of leadership and tactics. Some 20 years further in their career prosperous officers would complete a two-year Staff College education before being promoted to positions at the operational level.

In 2016, Norway's major military operation took place in Northern Iraq supporting NATO's effort to defeat ISIL. The Norwegian contingent consisted of 60 troops led by a NMA-commissioned major that had not yet attended Staff College. His tasks involved far more than military skills. It primarily involved adjusting the mission to the political context of the operation locally and in Norway, liaising with a myriad of actors (the operational HQ in Norway, allies, other military and civilian actors, state and non-state actors, etc.), and communicating in the media. In short, the contingent commander had to be strategic-minded and to operate in a civil-military theatre. Such expectations to young Norwegian army officers are not unique. Rather they have become the norm in almost every NATO-led operation for the past two decades — from Bosnia, Afghanistan, Iraq, Libya, and to the Baltics.

Hence, the NMA has aimed to develop strategic-minded lieutenants that can achieve mission objectives in a context that is highly influenced by civilian

actors. In addition to the traditional task of managing violence (Huntington 1964) on military targets, junior officers are also trained to cooperate with civilian counterparts for example by strengthening the officer corps' communicative, socio-political and other civilian skills (Janowitz 1964). Moreover, whereas an instrumental understanding of competence sufficed for junior officers during the Cold War – in blunt terms to destroy given military targets – contemporary mission command requires additional competence. Junior officers are faced with multiple objectives of both a military and a civilian nature. To strike a good balance between these when giving orders to their soldiers, junior officers arguably need what Aristotle referred to as practical wisdom (Schön 1987, Kinsella & Pitman 2012).

The paper commences by outlining changes in the Norwegian strategic culture and how NMA has adapted to it. To this end the paper proposes a few distinct, yet mutually supporting, theoretically-grounded notions to conceptualise the expanding understandings of professional military competence departing from Huntington's seminal idea that «the peculiar skill of the officer is the management of violence». The paper proceeds by outlining how such broader conceptions of professional military competence are cultivated at the NMA. This includes an example from an educational situation in a class-room, more specifically the planning and war-gaming of a Norwegian operation in Africa.

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Requirements for Military Engineering Professionals in the Context of ‘Smart Societies’

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It is not a platitude, but real: societies in the Western world are rapidly changing. Some regions are successful. They attract talented people and new businesses, and are the power houses of economic and societal development and change. This process is believed to accelerate even further, governed by a ‘feed-forward’ process: success breeds success [1]

These regions grow, densify and become ever more complex. This increasing complexity manifests itself at four fundamental levels [2]. Firstly the level of the ‘physical and tangible’ assets: infrastructures (also underground), densification, multi-functionality and multiple use. Then there is ii) an ‘invisible layer’ of digital connectedness and services, iii) the level of governance, organization and participating citizens. Finally, iv) these cities should provide certainly attractive living environments for human beings. These four fundamental aspects of ‘smart cities’ are of course intimately interconnected. Any – either physical or not – intervention in these complex environments will require high levels of expertise and knowledge in a vast domain of scientific and engineering disciplines.

These cities will also be important theatres of operation for future military officers; in our context specifically the officers of the Corps of Engineers of the Royal Netherlands Army. Their education cannot cover all possible

expert fields that may be required for successful future operations, simply because there are too many of these, and many of them yet to be identified.

For the training of future officers of the Corps of Engineers, this means that they should be acquainted with these complex operational environments already early in their academic curricula. Their training should aim at three different and again firmly connected skills. Firstly they should have a firm background in the *foundations of science and engineering*, and be able to apply these in the context of the ‘Built Environment’. They should be able to make rapid assessments of an operational situation, based on ‘incomplete’ and sometimes ‘unreliable’ information and intelligence. Moreover, they are ought to understand and apply the activity of *design* of the built environment, either as actor within such environment, but also as the militaries that are intended to install – permanent and less permanent – structures like compounds, refugee camps or infrastructures. Finally, the successful execution of these tasks, requires in depth knowledge and experience with aspects like logistics, *process* management and environmental awareness.

Thus, the education of future officers of the Dutch Corps of Engineers, has been designed along three distinct tracks: science and engineering, design and process. These three tracks offer courses, laboratory training sessions and projects, that are founded within the aims of the particular track, though always providing the context of the other two tracks. Ideally, these tracks amalgamate within the future officer as a competent, scientifically trained and environment aware professional, who can operate in complex environments and take immediate decisions based on the (minimal) information available to her or him.

As an example we provide two case studies from the science and engineering track. The first case is in the context of the course ‘Geotechnical Engineering’. In their classes, students are taught a full, technical program on geotechnology and soil mechanics. The formal knowledge is examined in a traditional exam. Next to this, the students as a team, apply the acquired knowledge to a real situation (in this case the redesign of the quay wall at the Royal Naval College, KIM, in Den Helder).

The second example is a BSc thesis project on the quantification of the required evacuation area, when a WW2 bomb has been discovered. It is self-evident

that this study combines scientific aspects of blast and blast related injury with stakeholder aspects and design (of experiment).

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Complexity and Uncertainty: Educating Strategic Thinkers for the U.S. Army

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Every spring, approximately 1,000 graduates of the United States Military Academy at West Point are commissioned as new Second Lieutenants for the U.S. Army. The Academy's faculty and staff devote countless hours to preparing cadets for this day, to ensure they have the intellectual tools, the leadership qualities, the basic military skills and physical conditioning necessary to move into critical positions as the Army's most junior commissioned officers. And while these new Second Lieutenants will spend the first eight or more years of service focused on the tactical level of warfare and the demands of small unit leadership, the Academy's core mission is to educate these future Army officers for *strategic* thinking and action. For some, this is a controversial claim. The word «strategy» is often treated as though it begins and ends at the highest levels of policy making. The president, supported by senior civilian and military advisors, develops national-level political objectives, the conceptual ways to achieve these objectives, and then mobilizes and deploys the resources necessary for executing the strategy. Approached from this perspective, young Army officers are merely the instruments of strategy. This paper challenges that view, explaining how the demand for strategic thinking at all levels in the U.S. Army shapes the academic program at West Point.

This paper has three main goals. First, it argues for a broader conception of strategic thinking and action than the one offered above, offering a way of understanding «strategic leadership» that is applicable to the education of officers before they are commissioned and that will be of value while they are serving in the junior officer ranks, as well as deep into their careers. The second goal is to explain how the West Point academic program seeks to

develop the capacity for strategic thinking in this university-age population of cadets. The third goal is to explain how the enduring problem of complexity in the operations conducted by the U.S. Army, and the uncertainty over what specific strategic problems Army officers will face in the future, are the drivers behind much of the education West Point cadets receive. While Afghanistan and Iraq have demanded that American Army officers focus on a particular set of strategic problems over the past fifteen years, educational leaders at West Point recognize that it is impossible to predict with certainty what kinds of challenges our current graduates will face over the course of their careers. Cadet education, therefore, must help them develop the ability to adapt to new and unforeseeable strategic problems that will arise in the future, a goal that is pursued through the broad liberal curriculum required of every cadet.

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The Importance of Professional Military Education (PME) in the Changing Context of War

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There have been many changes to the strategic security environment in the last two decades. Technology as well as changes in the character of the profession of arms will necessitate greater investments by militaries in Professional Military Education in order to master the changes. This presentation, would therefore focus on two aspects that are the most critical at this juncture in the field of Professional Military Education. Firstly, the subjects that militaries would need to examine in the present day and age would require change, updates and additions and secondly, that Professional Military Education now needs to be more broad-based and inclusive.

With technology fuelling rapid changes and development in the battlefield, this also implies that the military organisations from which these changes and developments are derived from must also change as the nature, conduct and character of war changes. Professional military education and training must be progressive and keep up in order to keep ahead, or at the very least abreast of these changes. With technologies such as 3D printing and social media changing the spaces and nature where battles are fought, as seen in recent wars in Crimea, as well as in Iraq and Afghanistan, so must training and education within the military establishment keep up.

Courses taught also need to go beyond the traditional military history or campaign and war studies to other subjects that are relevant to the current age, an example of which would be the role of ethics in a battlefield space that has undergone change. These subjects also need to be updated and evolve according to the trends at the time. Thus, Professional Military Education, more so than ever before, needs to be the cornerstone of a military's capabilities,

not just at formal military institutions, but also at the unit and even the individual levels.

Secondly, in recent decades, the lines between enlisted men and officers have blurred to the point where enlisted men as well as Warrant Officers are now carrying out tasks that were previously under the purview of a commissioned Officer. The increasing demands on enlisted men and warrant officers as equipment become increasingly sophisticated have also led an increase in professionalization in tasks as well as responsibilities. What this then implies is that professional military education cannot, and should not be limited to Officers alone, but must align across all ranks to even the most junior soldier, that while the scope of their learning might be different, learning must still take place in order for the intent and rationale for missions to be better understood across ranks and not just restricted to the Officer corps alone.

The presentation will thus seek to answer the two issues mentioned above: Firstly, the evolution of Professional Military Education and possible future issues it needs to address as well as the importance of the «whole of military» approach in ensuring every member of the military receives timely military education, from the enlisted men and Warrant Officers to the Commissioned Officers.



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