



Shifting Paradigm of War:

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**Shifting Paradigm of War:
HYBRID WARFARE**

Editors

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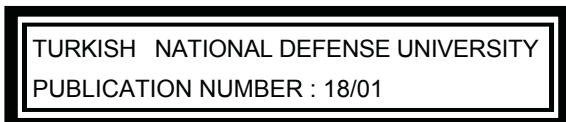
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PREFACE

What remains missing in any kind of definition generated by the changes in the levels of understanding and perception also applies to the war. However, this relative concept which is not fully defined in the literature yet, has many points of consensus transforms within the interaction in accordance with the pace of change in the international environment. Developing characteristics as well as traditional ones and which can be gained a wide range of meaning appropriate to the purpose needed, the phenomenon of war, has acquired new characteristics. In this sense, examination and analysis of art of war in a systematical integrity which has the potential of creating a link between past and future also become more important day by day.

The concept of “Hybrid Warfare”, which has been emerged thanks to today’s differentiated perceptions and by rapid technological developments of which the symmetrical means and asymmetrical means are used together, leads to the new approaches in the military thought. I believe that this publication, which being collected by academicians and experts working on military and security studies in national and international levels, will contribute to a better understanding of the subject and also will provide constructive and functional features by creating different perspectives towards the operation environment of the future.

As a result, when we prepare ourselves for the combat environment of the future, we must first define and understand the threat, then develop strategies and tactics for this threat, and finally, we must have trained personnel, combat weapons and equipment’s suitable for the implementation of these strategies and tactics. It must never be forgotten that only possible way to win wars of the future is developing a common understanding between the civilians and military from the level of individuals to the level of state within a comprehensive approach.

I would like to thank the authors of the articles and also to personnel of the Army War College who contributed a lot to publishing of “Shifting Paradigm of War: Hybrid Warfare”.

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INTRODUCTION

Globalization, technological developments and the information revolution have made the world accept an order of change which the humanity has never experienced before. This order has influenced almost everything in our conceptual-empirical lives and the concept of war has not been an exception to that. The concept of “Hybrid Warfare” emerged as a product of this change in the literature in 2007. First used by Frank Hoffman, the concept of “hybrid warfare” reflects a type of war, in which many kinds of war are being used simultaneously in a way best suiting the current circumstances. Within this scope, it is meaningless to classify wars as large/small wars or regular/irregular wars. Hoffman argues that, in the forthcoming period, the conventional forces, irregular warfare and terrorist groups and crime organizations will be present within the same operation area and time. Within this context, the most prominent feature of the hybrid warfare is the combination of irregular warfare tactics and high technology. The hybrid warfare will not remain limited only to non-state actors but, in the future; it will also be used conventionally against more powerful states by other states.

Taking its place intensively in our agenda recently and affecting the strategy documents/concepts of global and regional international organizations and of national armies, the hybrid warfare has political, legal, cultural and technological dimensions which are still being discussed. In contemplation of contributing to these discussions, this book has been prepared by compiling the articles written by experts and distinguished officers/civilians under the coordinatorship of National Defense University, Army War College. This study aims to contribute to the literature by opening new windows on conceptual level and to stimulate the audience, which is addressed, through the path it leads and through the questions it raises by these eye-opening articles. This book consists of ten articles compiled under three chapters: “Changing Character of War”, “Legal, Sociological, Cultural and Military Aspects of Hybrid Warfare and Strategic Vision”, and “Technology and Hybrid Warfare”.

Chapter One includes “Evolution of Hybrid Threats through History” by Robert Johnson, “The Mouse, the Tank and the Competitive Market: A New View of Hybrid War” by Graham Fairclough, and “How Postmodern is Hybrid Warfare? Revisiting the Modern Eurasian Military History” by Gültekin Yıldız. Titled as “Changing Character of Warfare”, this chapter explains the evolution of war, the characteristics of hybrid warfare, its history and the examples of hybrid warfare in Eurasia. Especially the examples of American Civil War and of the Hashemite’s revolts in the Ottoman Empire during the First World War, which were given by Johnson depending on the fact that the concept is not new and it survives by changing form, are especially striking. Fairclough designs a model of hybrid warfare by using the economic concepts of competitive market and technological fusion. Gültekin Yıldız examines the irregular, combined and hybrid warfare within the historical process and explains the fact that it is not something new in the Eurasian geography by giving its reasons and examples.

Chapter Two consists of “Legal Aspects of Hybrid Warfare” by Mehmet Cengiz Uzun, “Sociological Aspects of Hybrid Warfare” by David R. Segal, “Hybrid Warfare and Culture” by Afzal Ashraf, and “Command and Control” by Yavuz Türkgenci and Hançeri Sayat. Titled as “Legal, Sociological, Cultural and Military Aspects of Hybrid Warfare and Strategic Vision”, this chapter analyses the place of hybrid warfare in the international law at length, examines the sociological and cultural aspect of the subject, puts forth the main difficulties in the operational side of the hybrid warfare and provides suggestions for an effective command and control.

Chapter Three comprises of “Emerging Technologies in a Future/Hybrid Warfare Context” by Alan Shaffer, “Hybrid War and Armored Vehicles Evolution: Mobility and Survivability” by Haldun Olgun and Hakan Tekin, “Cyber Warfare in Hybrid Warfare Context” by Süleyman Anıl. Titled as “Technology and Hybrid Warfare”, this chapter provides information on NATO Science and Technology Organization and its seven working groups, and covers the technological predictions for the future, armored vehicles and cyber means in detail.

The most prominent features of the hybrid warfare are the use of new methods and tools, the blurring of the line between civilians and military personnel, and the positioning of many non-state actors alongside the states. The most basic approach forming the philosophy of the hybrid warfare is to gain advantage through unexpected movements by using all kinds of attacks and by avoiding the foreseeable behaviors. Taking these features and this approach into consideration, it is very difficult to say that hybrid warfare is a new type of war. Many articles in this book highlight this point repeatedly. At this point, it should be noted that we must not fall into the trap of forgetting the fundamental rules of the past or that of postponing the act of focusing on debating the future, while we discuss the new concepts. Here, it is appropriate to remind the following warnings: “Let’s build on what is established and known about war, and not become too distracted by what appears to be novel and ambiguous” (by Robert Johnson). “Hybrid warfare discussion should not limit our angle on modern conflict how we see the modern conflict right now or in five years’ time” (by Süleyman Anıl).

Being prepared for the danger and threats posed by the operation environment of the future requires, first and foremost, to define and to understand the environment in question. Technological developments and structural arrangements are only complementary elements besides the human factor (leaders, planners, and implementers) in this process of preparation. Investing in people, our most valuable resource is our top priority and most important task. We offer this book to be benefitted by the people in the academic and military circles with the intention of contributing to the discussion and imagining the conflict environment of today and of future.

CHAPTER ONE

CHANGING CHARACTER OF WAR

THE EVOLUTION OF HYBRID THREATS THROUGH HISTORY

Robert JOHNSON*

Hybrid Warfare is a term that has enjoyed significant currency in recent years. Its early advocates were keen to assert that the use of new technologies, new clandestine methods or the actions of new actors, operating below the thresholds that could define armed conflict, was a hybrid or blend of insurgency and conventional warfare.(Hoffman, 2009)

In many ways, however, hybrid warfare is not new. Hybrid threats, the combined or blended methods of attack, are designed using particular 'ways' to fulfill easily identifiable political 'ends', in order to force an enemy to be compliant to the will of its adversary. Such a process would be familiar to scholars of classical war theory.(Gat, 2001)

Nevertheless, advocates of hybrid war maintain that the current character of war indicates that there is an erosion and subversion of established norms and thresholds, not only involving war fighting, but also in international relations. (Johnson, 2014) These erosive elements take five forms: The first is political, such as the subversion of our political economy by means of misinformation, cyber sabotage or espionage. The second takes the form of being diplomatic, namely the attempt to break or divide allies. The third takes the form of military means, using local irregular forces, one's own troops in disguise, sabotage and assassination, proxies, brinkmanship or terrorism. The fourth is the social dimension, using media campaigns to demoralize our populations. The fifth is economic attack, using sanctions, the purchase of our assets, the buying up of resources or even interference with the prices that our consumers pay. It all sounds overwhelming and is threatening precisely because it appears to be beyond the capacity of military forces to defend against it. Indeed, the military instrument appears to be less relevant or appropriate than diplomatic, economic or political measures.

It would be tempting to tackle only the symptoms of these problems. For example, if confronted by so-called 'little green men' (regular troops of the belligerent nation disguising its soldiers by adopting the uniforms of its proxies or appearing without identification), the military preference is to confront and fight those 'little green men'. At the tactical level, there may be merit in defeating and destroying these ambiguous units, but one must guard against the obvious enemy strategem of trying to draw in and adversary, goading or luring one's own forces into a situation that merely reinforces the enemy's propaganda.(Giles, 2015)

A better solution is to remain strategic. That is, to concentrate on the enemy's 'ends' and not their 'ways and means'. The purpose must be to deny the enemy the achievement of their strategic objective. This requires an understanding of the enemy's intentions, their goals and the relationship between 'means' and 'ends'.

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Historical Examples of Hybrid Warfare

There are historical precedents that can help deal with the problem of hybridity. The first illustration is the American Revolution. A series of economic protests in the 1770s turned into a political uprising despite the belated offers of political concessions by the government of the United Kingdom. Because the British thought their security was at risk, conventional forces were sent in to disarm and garrison the angry American colonists. The resistance nevertheless increased and the reinforcements that were sent from Britain could do little more than hold the ports and major cities of the country. (Murray and Mansoor, 2012) In every military encounter, the American patriots found themselves beaten by conventional British forces. So, the American revolutionaries adopted a different strategy which consisted of three parts. (Cohen, 2011)

The first was political, to convince the colonists to support the revolution and to convince the British politicians to stop the war, launched through pamphlets and word of mouth in what today we regard as the eighteenth century equivalent of 'social media'.

Second, there was a diplomatic offensive, the objective of the revolution being to acquire French backing, in order to divert the Royal Navy on which the British garrison depended to sustain its occupation and military campaign.

The third component was to wage a guerilla war, to exhaust the limited British reserves, to build a regular force of their own at the same time, and to build political institutions to shift local allegiance permanently away from the British.

The critical component of this war was, however, not the hybridity of methods, be they diplomatic, political and guerrilla warfare. It was, in fact, the strategic change, namely the moment that France entered the war against Britain in 1778. Britain was compelled to shift its resources to protect the Caribbean and the approaches to the British Isles itself. In other words, to defeat hybridity, the British should have concentrated on a political or strategic solution. The Americans understood it. The British did not, and, as a result, they lost.

Another example would be the Hashemite revolt against the Ottoman Empire during the First World War. In this example, the Arabs, who formed an important part of the Ottoman Empire, had not responded universally to the call to arms by the Caliph, the Sultan of the Turkish Empire, in 1914. (Johnson, 2016, p.176)

Despite large numbers of Arabs serving in the Ottoman Army, the Arab nationalists in Syria and in Mesopotamia actually opposed the Ottoman regime. A secret movement within the Ottoman army even began a dialogue with the British enemy. Hashemite Sherif Hussein, the Guardian of Mecca, also refused to endorse the Caliph's call to arms and, after secret talks with the British, and thinking that he was likely to be purged by the Ottoman authorities; Hussein declared independence against the empire in June 1916. The Hashemite's seized Mecca and used a form of hybrid warfare, trying to demoralize the Ottoman Army and at the

same time trying to contest the legitimacy or the authority of the Sultan's call to arms in that war. Their hybrid methods included not only recruitment of associated Arab clans but also obtaining British money and weapons, particularly heavy weapons, airpower, naval and logistical support.

The Hashemite's enlisted different Bedouin clans to give an impression of Arab unity, even though they represented only one small dynastic group. Some 15,000 were involved in the Arab revolt. But there were at least 300,000 still fighting on the side of the Ottoman Empire during the war. Indeed, Cemal Pasha, the Ottoman Governor of Syria, had some success in persuading a number of Arab groups to remain loyal to the Ottoman Empire, in Palestine, Syria, Mesopotamia and Arabia. (Johnson, 2016, p.230)

Nevertheless, the Arab revolutionaries, backed by the British, captured Aqaba by negotiating the surrender of small isolated Ottoman garrisons. The Arab Northern Army, as it later became known, relied on British military success to make further progress, particularly in Palestine. They claimed their own political victory in Damascus in October of 1918. Of course, they obtained some concessions from the British, although not the French, in that final few months of the war, and then in the peace of 1919. In other words, they achieved their strategic objectives through hybrid methods.(Rogan, 2015, p.382) The Ottoman Empire did not tackle the Hashemite's 'ends' as they were engaged in dealing with their 'ways and means'. The Sultan's government was also engaged in an existential struggle on multiple fronts and did not priorities the Hashemite Revolt.

What might we deduce from these two brief historical examples? First of all, in these cases political warfare was as important as military operations. But, it is also clear that, in both examples, unconventional methods on their own, namely hybrid methods, were not enough to secure victory. It was external allies that were critical to success in both cases. Therefore, if one were to try to combine political actions with a disinformation campaign, including denial at the state level, limited but rapid military operations, a mixture of means to overload the enemy's command and control, and to exploit the seams and divisions of society, then a truly hybrid strategy could be successful.

What we derive from this is a classic definition of hybrid war. There are many examples in history of this approach being used. But the 'ends' of these methods, that is to say, the purpose behind hybrid warfare, is always the same. Political objectives predominate. They are discernible and they can be countered by other ways and means. In other words, one can restore the balance strategically by containing or even ignoring hybrid methods and concentrating on what it is the enemy is trying to do at the strategic level.

If the British in the period 1775-1783 had focused on making political concessions and winning loyalty from the colonists, or dealt a decisive strategic blow to France, the outcome of the American Revolution could have been radically altered. Moreover, had the Ottoman

authorities been successful in persuading the Arab revolutionary factions to abandon the Allied powers, perhaps with offers of post-war independence or autonomy, another plausible counterfactual is presented.

The Nature of War

There are three domains, perhaps, in which to examine this problem: the physical, psychological and cognitive. Firstly, war is a physical activity, consisting of forces, fires and technology. One could say that war is fought by the 'tools' of men. The physical elements are the most obvious and most observable. In the First World War, the Ottoman Empire lacked the industrial capacity to wage a total war. After its initial advantage in numbers, it succumbed to the firepower and *materiel* advantages of the Allied powers.

Secondly, war is a psychological activity involving emotion, passion, belief, and spirit. War, in other words, is fought in the 'hearts' of men. The passions of war are the most difficult to counter. But, one can exploit the propensity of an enemy. One can draw them into situations. At the Battle of Hattin in 1183 for example, the Saracen forces observed the strength and propensity for taking offensive action by Western crusader armies and lured them into the desert where they could be destroyed through lack of water and lack of support. For all the ardor of the crusaders, the Saracens learned to turn the advantage of the enemy into a liability.

Thirdly, war is a 'cognitive' activity. War is fought in the 'minds' of men, where reason, communication strategies, plans, tactics and deception are all evident. Here, the first priority is to seek or discern the plan or objective of the adversary, while the method is only the second priority. The response should be to counter the objective, not to counter the method.

In case of the Hashemite revolt in 1916, Cemal Pasha, tried to counter the methods being used by the Arab rebels, particularly by enlisting other Arab clans and he enjoyed some success in offering to resolve the division between Arab and Turkish peoples. Elements of the Beni Sakr and Howeitat clans, for example, wavered in their support for the revolt. The Ottomans, although defeated in the Palestine campaign, achieved a significant victory using these counter-measures at the battle for Amman in 1918, where General Allenby was initially unable to capture the city. Nevertheless, by not addressing the strategic ends of the Arab Revolt or the British utilization of the Hashemite's in Palestine and Syria, the Ottoman authorities lost the initiative. They had no answer to the physical or cognitive elements.

The British possessed greater physical power in the American Revolution and cognitively they should have been able to offer a better economic and political package than the revolutionaries, but here they lacked the ability to appeal to the psychological drivers of the revolution. Indeed, some military officers doubted the 'means' available could have any

positive effect, namely the armed forces of Great Britain. What was needed was a comprehensive strategy involving all three elements.

The Strategic Approach

Hybrid methods are common across history. The ends and the objectives are discernible and can be challenged and countered by a variety of strategies. One should seek to avoid simply 'mirroring' an enemy and assume that one's own side must adopt hybrid systems or approaches.

One can combine successfully political, economic, information and military methods to create an understanding of the approaches used by the enemy and then to defeat them by delaying, denying, destroying, or disrupting the enemy's intent.

There are different ways of approaching hybridity. In the Changing Character of War program in Oxford, we pride ourselves on being inter-disciplinary. Historians would choose a historical approach, as this article indicates, but academics from different disciplines offer alternatives. A scholar from a law department might emphasize a legal solution. A scholar of mathematics could illustrate an approach based on complexity theory. A scholar of evolutionary biology might argue that the enemy actors who adapt the fastest are more likely to survive and these are the ones that we really need to concentrate the effort on. The difference in each approach reminds us to take a critical view of what we think are 'established ideas' in warfare. Hybrid warfare techniques cause a great deal of concern in part because we do not fully understand what we are dealing with. Critical thinking can help to tackle the problem.

By way of some historical deductions, there are several strategic options available. One can counter some hybrid methods by deterrence, reassurance to partners and by instilling confidence in those that one wishes to influence. One would need to establish the 'red lines', of course, and be clear in diplomacy in order to expose the enemy's propagandists, their contradictions, and their hypocrisy. Correspondingly, one should not be averse to discrediting enemy activities in international institutions like the United Nations.

One can use physical measures to disrupt and deter. One may seek alternative strategies by changing the axis of one's approach and deflect the enemy's line of operation. If for example, Daesh thinks it needs to focus on destabilizing Iraq, it would be very interesting to consider how to restabilize Syria behind them in their rear. One could use the enemy's strength determine the weight of their effort, and hence the fulcrum or pivot of his efforts, and then tilt or tip the balance, not necessarily by aggression, but defeating or disrupting their methods.

In conclusion, history offers some assurance that while warfare is indeed changing in character - it always does - its nature reassuringly stays the same. There will always be moments when infantrymen and armored forces will have to close with and destroy the

enemy and hold ground. There will always be a requirement for air forces to interdict or lift friendly forces into the war zone, where maritime forces would be compelled to engage in some short and sharp maritime operations. But one can use the unchanging nature of war to one's advantage in understanding and countering current threats. Let's build on what is established and known about war, and not become too distracted by what appears to be novel and ambiguous. The nature of war is physical, psychological and cognitive. Each of the three elements can be considered in combination.

The 'means' and the 'ends' of hybrid warfare can be discerned and have not changed very much throughout history. It is true that the 'ways' are the critical component here. But they also consist of the three domains: the physical, the cognitive, and the psychological. If we break down the problem into its component parts, we will better understand the apparent 'complexity' we face.

Yet, above all, we should note that countering strategies against hybrid warfare are more often successful than not when they address the 'ends' rather than tackling the 'ways' and 'means'. A strategic approach therefore offers a solution to the problem of hybrid war.

References

Cohen, Eliot, (2011). *Conquered Into Liberty: Two Centuries of Battles Along the Great Warpath That Made the American Way of War*, Free Press.

Gat, Azar, (2001). *A History of Military Thought: From the Enlightenment to the Cold War* Oxford: Oxford University Press.

Giles, Keir, (2015). 'Russia's Hybrid warfare: A Success in Propaganda', *Arbeitspapier Sicherheitspolitik*, 1 (2015), <https://www.baks.bund.de> (Accessed 2016).

Hoffman, Frank G., (2009). 'Hybrid Warfare and Challenges', *Joint Forces Quarterly*, 52, (1st quarter 2009); for counter-measures at the tactical and operational level, see US Army Special Command, *Counter-Unconventional Warfare* (white paper) (24 September 2014); for a critic, see Nadia Schadlow, 'The Problem with Hybrid Warfare', *War on the Rocks* (2015) <http://warontherocks/2015/04/the-problem-with-hybrid-warfare/> (Accessed 2016).

Johnson, Dave, (2015). 'Russia's Approach to Conflict: Implications for Nato's Deterrence and Defence', Research paper 111, Research Division, NATO Defence College, Rome (April 2015); *contra* Sven Bishop, 'Hybrid Hysteria', Egmont Institute Security Policy Brief, 64, (June 2015).

Johnson, Rob, (2016). *The Great War and the Middle East: A Strategic Study*, Oxford: Oxford University Press.

Murray Williamson and Mansoor Peter, (eds), (2012). *Hybrid Warfare: Fighting Complex Opponents From The Ancient World To The Present*, Cambridge: Cambridge University press.

Rogan, Eugene, (2015). *The Fall of the Ottomans*, New York: Basic Books.

THE MOUSE, THE TANK AND THE COMPETITIVE MARKET: A NEW VIEW OF HYBRID WAR

Graham FAIRCLOUGH*

“A blend of the lethality of state conflict with the fanatical and protracted fervor of irregular warfare.” Hoffman Conflict in the 21st Century

Since Hoffman first established the term hybrid war to describe the form of conflict that he observed to be emerging after the Cold War, a considerable quantity of literature has been written on the subject (Hoffman, 2007). Interest in the concept shows no sign of abating, particularly given the recent events in the Ukraine and Syria where the term is frequently used to describe those conflicts that are taking place (Cordesman, 2015; Horybho, 2015; Thiele & Thiele, 2015). As with much of the literature written on military issues, while these publications provide a high degree of description on what is occurring they frequently fail to provide insight into the underlying forces that shape the character of the conflict being discussed. A consequence of this failure is that an incomplete understanding of the concept of hybrid war persists. This paper seeks to remedy part of this failing in the literature by presenting a model of hybrid war that is focused upon the impact of one of these forces, that of technology. This will inform a holistic understanding of hybrid war, complementing the insight that is provided by the existing descriptive literature. Central to the approach being applied are the concepts of Emergence, Convergence and Transvergence. The paper will demonstrate, through the construction of the model that these concepts are the key drivers in understanding the impact of technology on the conduct of hybrid warfare.

In establishing the model, the paper will view hybrid war through the prism of it being a competitive market. One in which participating actors do not seek market dominance but rather the achievement of political dominance in the pursuit of their strategic intent. Within this construct, actors increasingly seek to achieve their goals through the application of a second concept taken from the discipline of economics: Technological fusion. The paper will assert that this concept underpins the form of hybrid war currently being observed and reflects the emerging influence in conflict of what has been described as being a 4th Industrial Revolution (Schwab, 2015). The application of the model in the provision of new insights into the understanding of hybrid war will also be discussed. Given the operational focus of this paper, only a limited discussion will take place concerning the character of hybrid warfare. This being confined to that being necessary to establish a sufficient level of context in which the model can be developed. Future areas of research through which the model can be further operationalized to provide an assessment tool for analysts are discussed. This paper is not attempting to provide a doctrinal theory of hybrid war rather to

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present a fresh prism through which it can be considered by military theorists and political decision makers.

Hybrid War

Hoffman originally defined hybrid war as being the incorporation of a, “range of different modes of warfare including conventional capabilities, irregular tactics and formations, terrorist acts including indiscriminate violence and coercion and criminal disorder” (Hoffman, 2007). He later expanded this definition to reflect hybrid war as being, “sophisticated campaigns that combine low-level conventional and special operations; offensive cyber and space actions; and psychological operations that use social and traditional media to influence popular perception and international opinion” (International Institute of Strategic Studies 2015). In 2013, McCulloch et al., in adopting a strategic perspective, viewed it as being, “a combination of conventional and unconventional organizations, equipment, and techniques in a unique environment designed to achieve synergistic strategic effects” (McCulloch & Johnson, 2013). Two years later NATO, in trying to contextualize the events occurring in Ukraine presented it as being, “the use of asymmetrical tactics to probe for and exploit weaknesses via nonmilitary means (such as political, informational, and economic intimidation and manipulation) and are backed by the threat of conventional and unconventional military means. Recently Calha has observed that the tactics can, “be scaled and tailored fit to the particular situation” (Calha, 2015).

This perspective of hybrid war establishes an environment that is complex, rapidly changing and non-linear in character. One in which a considerable number of actors, each seeking their own desired end states are present. Some may be state actors, or actors who are operating as state proxies while others may represent criminal elements or sections of society that view themselves as being disenfranchised from the existing political system. Increasingly non-state actors are empowered through the advent of new technologies that provide the means to deliver effects that were previously the preserve of the state. A consequence of decreasing barriers of entry to such capabilities. Capabilities that reach across the spectrum of the conventional to the non-conventional. This new technology allows actors to be engaged in the conflict to operate in an adaptive and flexible manner in response to the events that are occurring directly within and which influence their operational environment. Underpinning this ‘spectrum of empowerment’ is the ability to weaponized data and information through the exploitation of the virtual domain of cyberspace.

The central theme running through this new form of warfare, as Hoffman himself notes, is the blurring of the boundaries that have traditionally existed within previous forms of conflict (Hoffman, 2007). Blurring that can be seen as taking place between those involved in the conduct of a hybrid conflict: Regular and irregular forces; terrorists, criminals and other, non-aligned actors that see an opportunity to achieve their own goals. Furthermore, there is

a blurring between the means of war reflected in the use of conventional and unconventional capabilities and the integration of kinetic and non-kinetic effects within a single battle space. Finally, technology is blurring the domains of the physical and the psychological and the physical and the virtual. It is the nature and the extent of this blurring of boundaries that mark out the character of hybrid war as being different from the recent, similar manifestations of conflict described as 4th Generation and Compound Warfare (Hoffman, 2007; McCulloh & Johnson, 2013).

The Competitive Market

To simplify the complexity of hybrid war the economic model of the competitive market provides a useful analogy. A competitive market is one in which a large number of producers (actors) compete with each other to achieve market dominance with the intent of maximizing their profit. In such a market no single producer, or group of producers can dictate how the market operates. (Economics Online 2016). A similar situation can be seen to exist in hybrid war where many actors engage in completion, through the mechanism of conflict in order to gain political dominance within the intent of fulfilling their desired, political goals. Within an environment that increasingly no one actor is able to dominate with certainty. The application of this analogy allows the use of a further economic concept, that of technological fusion to be applied directly to hybrid war as a means to describe its functionality. A comparison of the two environments is shown in Table 1.

Competitive Market: To achieve market dominance through competition	Hybrid War: To achieve political dominance through conflict
The market contains multiple competitors	Multiple actors compete in hybrid war
Resources are used where they are most needed and where they are most effective in order to achieve the aim	All capabilities available to the actors are mobilized in order to achieve the desired aim
Companies respond in an adaptive and flexible manner based upon the action of their competitors	Actors respond in an adaptive and flexible manner based upon the actions of their adversaries
Competitive dominance is driven by technology development	Advantage is gained increasingly through the development and application of technology
Exploitation of the information domain is critical	Exploitation of the information domain is critical
Competition occurs from the local to the global	Conflict occurs across multiple domains

Table-1: A Comparison of the Competitive Market and the Hybrid War Environments

Technology

This paper defines technology as, “The purposeful application of information in the design, production, and utilization of goods and services and in the organization of human activities” (Business Dictionary, 2015). In this definition technology is not seen purely as an object that has been constructed to fulfil a specific purpose such as a car or a smart phone. Rather it assumes a holistic approach that encompasses the initial ideas behind the need for the object, through its design, construction, how it is used and the impact that it has upon human activity and behavior. Applied in the context of hybrid war this definition reflects Kello’s observation that, “It is not technology that proves to be battle winning, it is the understanding of what it can do and how it is enshrined in doctrine that provides advantage”. (Kello, 2013). Adoption of this perspective of technology is important for three reasons. Firstly, it recognizes that technology is not something that is divorced from the human actor but exists as a response to their needs and demands. Secondly, that the existence of technology influences and changes the behavior of the human actor in regard to how their need is satisfied. Finally, these changes in behavior produce a transformation in the nature and character of society. Development of the Internet has fundamentally transformed the way individuals socialize or shop for example (Heibroner, 1967; McNeill, 2015; Toffler, 1981; Van Creveld, 2010). This process of transformation is increasingly observed in the conduct of hybrid war where the development of advanced information systems and their interaction with additive manufacturing (3D printing) is changing the character of conflict in ways that reach far beyond the kinetic impact of the weapon systems that result from these new methods of production.

The use of a technological perspective through which to construct the functional model of hybrid war reflects the adoption of a technologically determinist philosophical position to the understanding of the concept. The technology employed within a hybrid war is seen to act as an agent of social change that influences the behavior and intents of the actors involved. This is a deliberate choice. Justification being based upon three factors. The first of these is that war, and in particular hybrid war, can be observed as representing a form of a political and social activity in which individuals, organizations and states engage directly. As Clausewitz reflects war is, “...the intercourse of governments and individuals...the continuation of political intercourse with the addition of other means (Clausewitz, 1976)”. The second factor centers upon Floridi’s assertion when considering the impact of computers and information systems on individuals, those humans have now become dependent upon the digital technology of the 21st Century across all aspects of their activity (Floridi, 2014). Certainly, this is the case in respect of war where increasingly machines are used in place of human beings to deliver effect (Coker, 2015). The third factor, a consequence of the previous

one, is that this dependency drives a continuous search by actors for new forms of technology that can be used to gain an advantage.

Fumio Kodama, a Japanese business analyst uses the ideas contained within the construct of technological fusion to explain how businesses must operate in a highly competitive market that is driven by rapid technological change in order to achieve market dominance (Kodama, 1992). Market dominance being seen to occur when a business possess significant power to behave in a manner that is independent, “of its competitors, customers and consumers” (Doyle, 2002). As Table 1 illustrates, dominance has to be achieved in a complex market environment containing multiple actors each of whom possess the capacity to act with agility and flexibility in response to events in the pursuit of their goals. In such an environment, Kodama makes it clear that businesses must continuously innovate and evolve in order to mitigate both known and unknown threats that challenge their market position. The two key resources necessary for enabling these activities are technology and information (Kodama, 1992).

Kodama considers the critical process by which this innovation and evolution can occur as being technological fusion. A concept that he defines as, “...nonlinear, complementary and cooperative. It blends incremental technological improvements from several previously separate fields of technology to create products that revolutionize markets” (Kodama, 1992). A process in which the action of combining two or more technologies together produces a solution that is greater than the sum of each of the original parts. The successful achievement of this action requires a cultural element. The adoption of an approach that requires an acceptance that existing boundaries will need to be blurred or broken in order for success to be achieved. In the market environment these include boundaries between different forms of technology, between traditional competitors and between different markets. It is only through such action that the requirements of nonlinearity, complementarity and cooperation can be met. Kodama quotes the development of liquid crystal displays through the fusion of electronic, crystal and optics technology in a consortium led by Sharp and Sony’s purchase of a major film studio as part of their long-term strategy of building a total entertainment business around the synergy of audio and video hardware and software as examples of this culture in action (Kodama, 1992). Recent examples of technological fusion, that have seen the breaking of traditional boundaries include the bio-printing of human tissue through the combination of medical technology and 3D printing and the production of self-cleaning glass through the integration of glass manufacturing and nanotechnology (Organovo, 2016; Pilkington & Glass 2016). As Kodama suggests, the result of the application of technological fusion is the development of hybrid technology (Kodama, 1992).

Industrial Revolutions and Conflict

The impact of previous industrial revolutions on conflict can be illustrated by consideration of the evolution of weapons production and delivery. The 1st Industrial Revolution, the use of water and steam to enable mechanical production provided the means to combine different materials in the production process. Leading to such advances as rifled infantry weapons, which could be produced in greater quantities and with greater reliability than had previously been possible by hand. War became increasingly sustainable and lethality increased as was illustrated in the Crimean War (1853-1856). The 2nd Industrial Revolution saw the use of electrical power within the manufacturing process. Resulting in the ability to mass-produce items and to enable the development of ever more powerful means of destruction. Whole armies could now be equipped rapidly with an increasing variety of weapon systems at significant scale. Weapons systems that was capable of delivering effect over ever increasing areas and from greater distance. This is demonstrated to no greater effect than by the role played by artillery throughout the First World War (1914-1918). The 3rd industrial revolution, the application of the use of electronics and information technology led to the production process becoming automated. Further increasing the speed at which the instruments of war could be produced while greatly changing their use and operation. War itself became increasingly automated, with the effects being delivered from greater distance and with increasing precision. A form of warfare seen in its infancy in the 1991 Gulf War and which came of age in the 2003 invasion of Iraq.

4th Industrial Revolution

The 4th industrial revolution is defined by one of its leading advocates, Klaus Schwab as being the, “fusion of technology that results in the convergence of the lines between the physical the virtual and the biological spaces” (Schwab, 2015). It is an industrial revolution in which technology no longer recognizes the barriers that have previously existed between the physical domain, the recently constructed virtual domain and that of the biological world. The confluence of the fledgling technologies of this revolution including Artificial Intelligence (AI), robotics, nanotechnology and materials science across the three domains are producing odak’s ‘hybrid solutions’.

Schwab differentiates this 4th industrial revolution through the identification of three defining features. Firstly, the breadth and depth of its impact. An impact that is resulting in previously unimagined paradigm shifts occurring across all areas of human activity: The economy, business, societal and the individual. For Schwab these changes not only impact far more than those experienced in previous industrial revolutions upon, “...the “what” and the “how” of doing things but much more significantly in the “who” we are (Schwab, 2015). This impact is fueled by a world in which new technology, “... begets newer and ever more

capable technology.” Technology itself has become a driver for its own further development (Schwab, 2016).

The second feature is the velocity with which the transformations being brought about by the 4th revolution are occurring. Transformations that are taking place at an exponential rate rather than in the linear manner experienced in the past. Where previously the impact of an emergent technology may have taken many years to achieve wide, significant influence this period can now only take months. Compare the 101 years between the invention of the internal combustion engine powered automobile in 1807 by de Rivaz and Ford’s production of the Model T to the 2 years taken by Apple’s iPod in the period 2001 - 2003 to change the way that individuals listen and interacted with their music collections to the speed at which computer ‘apps’ now achieve influence time as witnessed by the impact of Facebook on our social interaction (Cava, 2014, Kahney, 2016, Wikipedia, 2016a; Wikipedia, 2016b).

Schwab’s third factor is the transformation of “entire systems” occurring across and within states, organizations, industries and society (Schwab, 2016). Entire business processes are changing through the innovation of such technologies as 3D printing, the emergence of flat organizational structures and the demise of the traditional boundaries between the consumer and the supplier as is the case with AirBnB and Uber. In the political arena the impact of this factor can be observed in the Changing nature by which populations engage with their Governments. In the UK individuals can undertake such diverse tasks at signing a petition against an unpopular piece of legislation to registering their car (United Kingdom Government, 2016).

This context of the 4th industrial revolution is important for the functional model of hybrid war that is being proposed. In that the model seeks to reflect the combination of the emergence of new technologies, the speed with which this is occurring and the increasingly shared empowerment that these technological developments provide to an expanding range of actors. For Kasperson the 4th Industrial Revolution is, “creating the massive democratization of the capacity to inflict mass damage”. Historically, to inflict large scale damage has required capabilities and resources only held by the state, this increasingly may not be the case (Kasperson, 2015). This ‘democratization of capacity’ may prove to be, alongside the blurring of the traditional boundaries, an equally defining feature of modern hybrid war.

A Model of Hybrid War: Emergence, Convergence and Transvergence

Three core concepts can be identified as being present within each of the constructs discussed in the preceding paragraphs: the competitive market perspective of hybrid war, technological fusion and the 4th Industrial Revolution. These are Emergence, Convergence and Transvergence. As a logical consequence of this shared heritage these three concepts are used to construct the model of hybrid war proposed by this paper. Within the model these

concepts will be reflected as distinct elements of a single process that creates momentum within a hybrid conflict. It is through the investigation of this process that the model allows understanding and insight to be gained into hybrid conflict.

Prior to constructing the model, definition of each of these concepts is necessary in order to establish the context of how they are to be used. Emergence is defined as both the positive and the negative impact experienced by actors present in an operational environment as a consequence of the appearance of new technology. The impact drives a reaction by the actor through their perception of technology as representing a potential advantage or a possible threat that they must consider in the pursuit of their goal. Emergence reflects the recognition that there is a new factor that must be incorporated into the actor's operational analysis. Convergence is the activity that occurs as the actor responds to the new technology, by internalizing it within their own operational design, prior to their deployment of the capability to gain advantage or their production of a counter-measures to it. The act of Convergence precipitates a move within the operational environment once more towards a state of equilibrium. Equilibrium in the context of the new technology having become a 'normalized' feature of the operating environment. Transvergence is the process that re-establishes, a state of equilibrium, within the operating environment. The technology that arose through Emergence has established a new technological base line. Within the model this equilibrium remains a constant until another new technology surfaces.

The starting state for the application of these concepts to hybrid reflects the existence of an operational environment at equilibrium. One in which no actor possesses a technology that provides them with a distinct advantage. With the emergence of new technology actors within the operational space seek to find ways in which it can be employed to their advantage. Or to identify the means to mitigate any threat that they might perceive it to pose them. The consequence of these actions is to cause a state of disequilibrium to occur, perhaps being reflected on the ground by an actor undertaking an offensive in order to capitalize on a perceived technological advantage that they have gained. Concurrently, those actors disadvantaged by the technology inject increasing resources into finding a way to decreasing the impact of the threat that they consider now to be present. This two-pronged momentum: the exploitation of the advantage and the search for mitigation continues until the effect delivered by the new technology no longer causes a destabilizing effect on the operating environment. The advantage offered by the new technology need not be in the form of a weapon system. It might also arise out of developments in other technological areas. The creation of a new set of alliances enabled through the establishment of a new communications network or the discovery of a new means to conduct information operations through cyberspace are two examples.

Emergence represents the start point of the model. It acts as the source of technological momentum that is injected into the hybrid war through the development of technology. As it occurs, those actors possessing a technological advantage seek to maximize their opportunities while those at a disadvantage work to lessen the threats to their position. These actions increase the initial momentum emerging from a specific technological development and the intensity of the conflict. At the tactical level these activities may be reflected in the occupation of new territory or the suffering of defeat by an opponent. At the strategic level these activities might drive the creation of new coalitions and the dissolution of existing ones. As solutions emerge these are rapidly employed to decrease any advantage that an adversary might have gained. Further increase in the momentum of the conflict occurs as actors seek to maximize their gains or minimize their losses.

It is at this point that Convergence begins. Initially, the phase consists of the rapid “sharing” of the new technology amongst actors on the battlefield. A consequence of the interconnected, data rich, data accessible nature of the 21st Century operating domain. Resulting from these actions, the character of the conflict moves towards a new state of stability. This second movement occurring at the point where the advantage previously gained by an actor starts to decrease as other actors engaged in the conflict develop and deploy suitable means of mitigation. This stage of the model continues until any advantage achieved through the technology is reduced to a level where it ceases to be operationally significant. A point at which a technological state of equilibrium exists. Like Emergence, Convergence inputs momentum into the model. As solutions are deployed engagement between actors intensifies as the tactical advantage/disadvantage imbalance decreases. Attempts are made to consolidate the gains that have been achieved or to regain situations that have been lost.

It is at this point that the final phase of the model, Transvergence occurs. As the effects generated by Convergence lead to a state of equilibrium in the conflict in which no one actor possess a significant technological advantage. a further rebalancing or strategic realignment occurs. At this phase of the model the new technologies, that provided a level of advantage have now become fully incorporated into the character of the continuing hybrid conflict. A new norm of hybrid war is created. As with Emergence and Convergence, Transvergence provides the model with momentum. It does this by the reshaping of the ‘global’ environment in which the hybrid war is occurring as all actors acquire the new technology or the means to mitigate it. It is at this point that the model restarts its cycle. While Emergence and Convergence both influence events most significantly at the tactical and operational levels the impact of Transvergence is strategic in nature. This transference, from the tactical and operational perspective of the model to the strategic fits within the boundary-less character of hybrid war. Reflecting the reality of recent hybrid conflicts in that the traditional boundaries

between these levels of operation continuously become blurred. The technology driven model of hybrid war as described in the preceding paragraphs is illustrated in Figure 1.

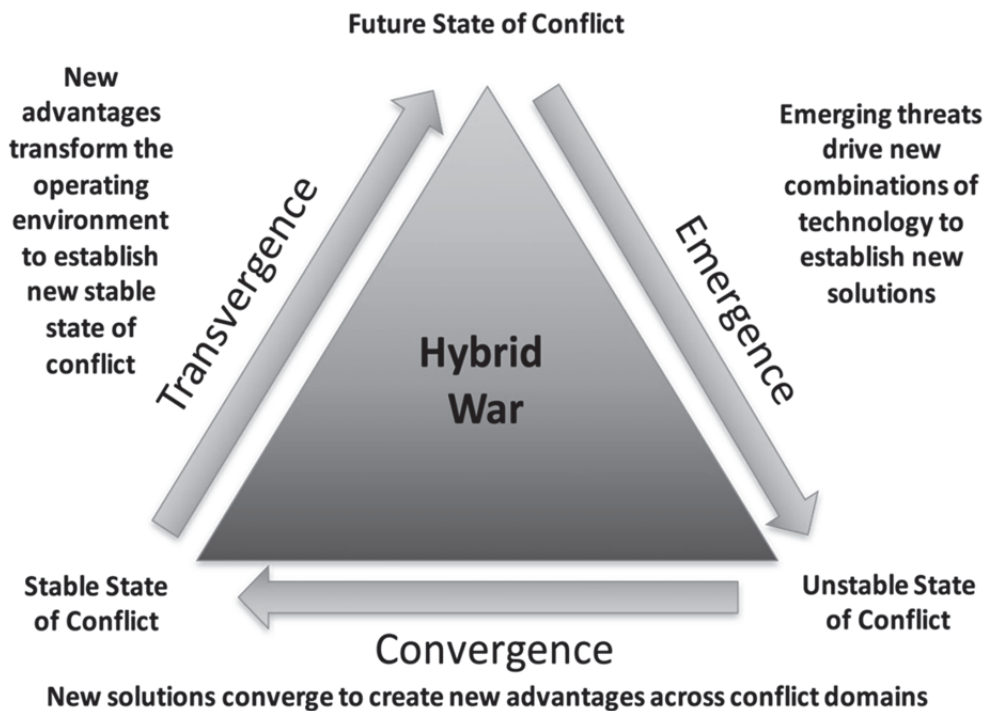


Figure-1: A Functional Model of Hybrid War

Discussion

The operation of the model should not be seen as a constant, linear process. Nor should it be viewed as one that is focused upon either a specific strategic or tactical view of hybrid war. Depending upon the demands of the decision maker it is intended to provide insight and understanding across a spectrum running through both perspectives. At each level, consideration of the actions of the actors involved within a hybrid war, the tactics that they adopt and their use of technology can be encompassed within the model to provide a strategic or tactical assessment of an adversary's intent. Through the identification of this intent there exists the opportunity to consider and select appropriate, future options. As an example, recognition that an adversary is focused upon the adoption of cyber technology above physical weapon systems for example, might suggest that they possess the intent to operate largely in the cyber domain. Seeking to achieve their goal through the delivery of effect against Critical National Infrastructure (Volz, 2016). From such a deduction the decision maker is now in a position from which an informed choice can be made in regard to future actions and the allocation of strategic and tactical resources and assets.

The proposed model contributes uniquely to the understanding of the concept of hybrid war in four areas. The first, and the one of most importance, is to provide an explanation of the impact of technological development upon the conduct of hybrid war. Identifying how technology provides momentum and direction for those actors who are involved in such a

conflict. Utilization of this model in combination with the traditional descriptive approach taken in consideration of hybrid war increases the holistic understanding of the concept. It achieves this by its consideration of the matter through a technological prism. Noting that new and emerging technology fulfils a central role in hybrid conflicts (International Institute of Strategic Studies 2015, McCulloh & Johnson, 2013). The second contribution made by the model is the understanding that is gained through the ability to break down the conduct of hybrid war into the three distinct phases: Emergence; Convergence and Transvergence. This ability to simplify the concept of hybrid war is important as it removes a degree of complexity from its consideration.

A third contribution that the model provides is a means to gain insight into the relative strength or position of specific actors in relation to one another through the application of a technological perspective on their respective activities. Is one actor continuing to operate in an emergent technological state while engaging with an adversary(s) who has moved to the later Convergence phase of the model. A final contribution is the role that the model can play as a means to assess the overall state of a hybrid campaign. In this instance the assessment being made is not constructed through the traditional approach based upon the observation of events that are occurring on the ground. Rather, it is created through the interpretation of where an actor is, as seen from their application of technology and the effects that they deliver through it. Individually or collectively not one of these contributions will provide the 'silver bullet' to the understanding of hybrid war that decision makers and participants at all levels desire. The contribution that they do make is to offer an additional perspective through which it can be understood.

Conclusion

This paper has presented a functional model of hybrid war through a technological perspective. A perspective from which, it is suggested, can be drawn insight and understanding into the dynamics of this evolving form of conflict. To do so, it borrows two constructs from the discipline of economics, the competitive market and technological fusion. Building upon these, the concepts of Emergence, Convergence and Transvergence are used to produce a three-phase model of hybrid war. The model provides two important contributions to the study of this form of conflict that are not possible through the application of a purely descriptive approach. The first of these is the generation, when applied in conjunction with the traditional descriptive approach, of a considerably richer, holistic picture of hybrid war. A perspective that is not solely based upon events on the ground. The second contribution is the presentation of hybrid war in a form that allows it to be seen as a process in a manner that is different from usual winning and losing model. It is suggested that this contribution offers a view of the concept that permits the decision maker to consider it in terms of a series of progressive technological states. Thus allowing judgements to be made

concerning the relative nature of the relationships that exists between the actors involved in a hybrid war and how these change in response to events. Thus bringing an important, evolutionary dimension to the assessment of conflict (Coker, 2015).

Work is required across a number of streams to move the model from its conceptual nature as presented in this paper to one that can be applied by decision makers. The principal challenge concerns the identification of the appropriate means to collect and analyses the necessary data sets, that can be used to locate an actor within the model. One solution might be to adopt the methodologies and models used within the literature of technological adoption in particular the Technological Acceptance Model (Chuttur, 2013; Comin & Mestieri, 2013; Godoe & Johansen, 2016). A second solution may be to consider work undertaken in the area of weapons proliferation, a discipline primarily concerned with nuclear weapons but one where increasing focus is being placed on the armament of cyberspace (Cohen & Rotbart, 2013; Monterio & Debs, 2014). A second area where work is necessary concerns the relationships that exist between each of the constructs used to build the model and in particular surrounding the points at which they meet. Does a clear 'crossover' point exist or is it a gradual transition from one state to another. A final work stream concerns the mechanics of how the functional model and the descriptive depiction of hybrid war merge together in order to produce the intended holistic picture. Can the merger be visualized in a manner that provides both the detail provided through description and the sense of momentum and change that it is suggested can be obtained from the functional model?

Many writers on the future of warfare assess that hybrid war as conceptualized in this paper will be the defining form of conflict of the 21st Century (McCulloh & Johnson, 2013; Calha, 2015; McAllister, 2015; Sheldon, 2014). If this is the case, then the provision of tools that provide the greatest level of understanding of such events to analysts and decision makers will become increasingly important. The model proposed in this paper represents one approach to achieving this goal. An approach that reflects the character of hybrid war and the complex, technologically driven environment in which it will occur.

References

Business Dictionary. (2015). What is technology: definition and meaning. BusinessDictionary.com, pp.1–2. Available at: <http://www.businessdictionary.com/definition/technology.html> [Accessed March 13, 2016].

Cadwalladr, C. (2016). Airbnb: the travel revolution in our spare rooms. *The Guardian*, pp.1–5. Available at: <http://www.theguardian.com/travel/2013/sep/16/airbnb-travel-revolution> [Accessed April 1, 2016].

Calha, J.M. (2015). *Hybrid Warfare: NATO's New Strategic Challenge?*

Cava, della, M. (2014). How Facebook changed our lives. *USA Today*, pp.1–3. Available at: <http://www.usatoday.com/story/tech/2014/02/02b/facebook-turns-10-culturalimpact/5063979/> [Accessed April 1, 2016].

Chuttur, M. (2013). Overview of the Technology Acceptance Model: Origins, Developments and Future Directions. *All Sprouts Content*, pp.1–24.

Clausewitz, von, C. (1976). *On War*. M.E. Howard & P.Paret, eds. Princeton Univ. Press.

Cohen, D. & Rotbart, A. (2013). The Proliferation of Weapons in Cyberspace. *Military and Strategic Affairs*, 5(1), pp.59–80.

Coker, C. (2015). *Future War*, John Wiley & Sons.

Comin, D. & Mestieri, M. (2013). Technology Diffusion: Measurement, Causes and Consequences. In P. Aghion & S. Durlauf, eds. *Handbook of Economic Growth*. pp.565-623.

Cordesman, A.H. (2015). *Russia in Syria: Hybrid Political Warfare*. Center For Strategic International Studies, pp.1–3. Available at: https://csis.org/files/publication/150922_Cordesman_Russia_Syria_Hybrid_Political_Warfare.pdf [Accessed March 31, 2016].

Doyle, C. (2002). Market Definition and Dominance. In *ITU Competition Policy Workshop*. pp.1–24. *Economics Online*. (2016). *Competitive markets*.

Economics Online, pp.1–9. Available at: http://www.economicsonline.co.uk/Competitive_markets/Competitive_markets.html [Accessed March 31, 2016].

Floridi, L. (2014). *The 4th Revolution*, Oxford University Press.

Godoe, P. & Johansen, S. (2016). Understanding adoption of new technologies: Technology readiness and technology acceptance as an integrated concept. *Journal of European Psychology Students*, 3(1), pp.38–52.

Heibroner, R.L. (1967). Do Machines Make History? *Technology and Culture*, 8(3), pp.335–345. Available at: <http://www.jstor.org/stable/3101719>.

Hoffman, F.G. (2007). *Conflict in the 21 Century*, Potomac Institute for Policy Studies.

Horybho, A. (2015). *Hybrid Wars: The Indirect Adaptive Approach to Regime Change*, International Institute of Strategic Studies. (2015). *The Military Balance 2015*, 2015 ed.

Kahney, L. (2016). An illustrated history of the iPod and its massive impact. *CultofMac*, pp.1–172. Available at: <http://www.cultofmac.com/124565/an-illustrated-history-of-the-ipodand-its-massive-impact-ipod-10th-anniversary/> [Accessed April 1, 2016].

Kasperson, A. (2015). The dark side of the Fourth Industrial Revolution – and how to avoid it. pp.1–8. Available at: <http://www.weforum.org/agenda/2015/11/the-dark-side-of-the-digital-revolution-and-how-to-avoid-it> [Accessed March 2, 2016].

Kodama, F. (1992). Technology Fusion and the New R&D. *Harvard Business Review*, (July-August 1992), pp.1–19.

Kello, L. (2013). The Meaning of the Cyber Revolution: Perils to Theory and Statecraft. *International Security*, 2013. Vol 38 (2), pp.7 -40.

McAllister, N. (2015). Bruce Schneier: 'We're in early years of a cyber arms race'. *The Register*, pp.1-4.

McCulloh, T. & Johnson, R. (2013). Hybrid Warfare, ISOU Report, 13-4, August 2013.

McNeill, W.H. (2015). Men, Machines and War. In *Men, Machines and War*. pp.1-12.

Monterio, N.P. & Debs, A. (2014). The Strategic Logic of Nuclear Proliferation. *International Security*, 39(2), pp.7-51.

Organovo. (2016). bioprinted human tissue. Organovo, pp.1-2. Available at: <http://organovo.com/science-technology/bioprinted-human-tissue/> [Accessed 29.3.2016].

Pilkington Glass. (2016). Self-cleaning Glass. Pilkington.com, pp.1-3. Available at: <https://www.pilkington.com/en-gb/uk/householders/types-of-glass/self-cleaning-glass> [Accessed March 29, 2016].

Pullen, J.P. (2016). Everything You Need to Know About Uber. *Time*, pp.1-3. Available at: <http://time.com/3556741/uber/> [Accessed April 1, 2016].

Schwab, K. (2015). The Fourth Industrial Revolution. *Foreign Affairs*, pp.1-277.

Schwab, K. (2016). The Fourth Industrial Revolution, World Economic Forum.

Sheldon, J.B. (2014). Geopolitics and Cyber Power. *American Foreign Policy Interests: The Journal of the National Committee on American Foreign Policy*, 36(5), pp.286-293.

Thiele, R.D. & Thiele, R.D. (2015). Crisis in Ukraine – The Emergence of Hybrid Warfare. Institute for Strategic, Political, Security and Economic Consultancy, (347), pp.1-13.

Toffler, A. (1981). *The Third Wave*, Pan.

United Kingdom Government. (2016). Welcome to Gov.UK. Gov.uk, pp.1-5. Available at: <https://www.gov.uk/> [Accessed April 1, 2016].

Van Creveld, M. (2010). *Technology and War*, Simon and Schuster.

Volz, D. (2016). U.S. government concludes cyber attack caused Ukraine power outage. *Reuters*, pp.1-5. Available at: <http://www.reuters.com/article/us-ukraine-cybersecurity-idUSKCN0VY30K> [Accessed April 1, 2016].

Wikipedia. (2016a). François Isaac de Rivaz. Wikipedia, pp.1-3. Available at: https://en.wikipedia.org/wiki/François_Isaac_de_Rivaz [Accessed April 1, 2016a].

Wikipedia. (2016b). Henry Ford. Wikipedia, pp.1-38. Available at: https://en.wikipedia.org/wiki/Henry_Ford [Accessed April 1, 2016b].

HOW POSTMODERN IS HYBRID WARFARE?: REVISITING THE MODERN EURASIAN MILITARY HISTORY

GültekinYILDIZ *

‘To disunite the unified, to unite the disunited, is the life of the nature.’

Johann Wolfgang von Goethe (Schwarzer, 2006, p. 38)

If we want to talk about hybrid warfare, I think, we should have an understanding of a continuous dialectics of unity and duality between two or more forms of war. The concept of hybrid war pre-supposes the existence of at least two different ways of fighting. The normal and mainstream way of conflict is defined then as “conventional” or “regular” warfare, which is fought between state armies on open fronts since XVIIth century. At that time, we see European states having started to form standing and disciplined armies suitable to high intensity combat procedures and operations on open terrain. However, early modern and modern Western armies are also known to manage adapting themselves more or less to other combat environments and conditions in and outside of the Continent. So we cannot say that XVIIIth and XIXth century regular armies have only conducted regular warfare.

The question at that point is then to define who the regular is and who the irregular. Could we differ between armies from non-state armed groups as pure representatives of either regular or irregular forms of warfare? At that point, I argue that we should also be skeptical in the use of the term “asymmetrical warfare” to describe the recent armed acts of contemporary non-state actors including urban and rural terrorist groups and insurgents. I think that the so called asymmetrical attitude towards warfare is not the property of only the irregular part of the war. Indeed, asymmetry should be conceived as the ground and cause of any political and military success. As a historical phenomenon we generally observe asymmetric warfare in the form of a confrontation between a regular army and an irregular armed group. However, we should also notice that asymmetry in warfare occurred in most cases if one combatant sides is remarkably weaker than the other. Naturally, the weak tends and ought to be more innovative in doctrine, organization and equipment development, and consequently then in the hybridization of war. However, military history teaches us that even regular armies have the capability to adapt themselves to the weaker/ irregular enemy’s way of war by hybridizing the fight as far as they could.

If this is the case, we should ask the question again: Who is then the irregular? It was the invention of mass citizen army in France at the end of XVIIIth century, which generated in Spain, Germany and Holland new practices of warfare, which we know from the historical definitions in German, French, English and Spanish as Volkskrieg or Partisanenkrieg, Guerre des Partisan, Small Wars, Kleiner Krieg, Guerilla, Petite Guerre. All these concepts were

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used to describe different ways of combat conducted on European continent by invaded countries against the regular mass army of France (Hahlweg, 1968, p. 25-31). But we also know that in all these cases, invaded states managed in time to form their centralist governmental structures and turn their local irregular militias into regular armies in Napoélonic terms. On the other hand, the invader, namely the Revolutionary French regular army did learn to function as a counter-insurgency force in and out of its homeland (Hahlweg, 1968, p.32-65).

It is not surprising therefore, that irregular warfare was not conceived in XIXth century as a way of fighting peculiar to a special culture, religion or sociological unit. In fact, since the Napoléonic Wars a certain asymmetrical competition between empires and their opponents functioned as a continuous mutual learning process. In this historical context, regulars have learned from irregulars and irregulars from regulars, or strong from weak and weak from strong. As the first example of the compound warfare in modern age, one can easily refer to the North America and later United States, where French and Indian Wars were fought in the mid-XVIIIth century by regular forces, colonial militias and native irregulars (Murray, 2012, pp.72-103). From that date on, we see military actors who have been changing their way of warfare without any formal and traditional hesitation in regard to the conditions of combat environment.

What allows us then to label an armed conflict as hybrid or compound war? Hybrid war is generally defined as the simultaneous use of regular or main force and doctrine side by side with irregular or guerilla force and doctrine against an enemy. Recent literature accepts hybrid warfare as a historical phenomenon which existed even in earlier ages of human history. At that point, I agree with Frank G. Hoffman (2009) who argues that ‘till recently what we have in world military history were examples of “compound war”, but not of “hybrid war”’. One may call the compound war as “proto-hybrid war”, but hybridity is something more than the compound use of irregular and regular tactics, doctrines and personnel under the umbrella of a military organization. Until recently, neither state armies nor non-state armed groups had actually the capability to create such a fusion, such a mixed structure of organization and doctrine what we can call hybrid warfare or hybrid army or hybrid armed group.

We have enough examples of compound warfare in world military history. Before and after 1789, empires all around the world confronted native and local resistance during their horizontal and vertical expansion. Looking at the XIXth century counterinsurgency operations, one could easily argue that many of them were not conducted against ideological terrorist groups, but more against civil insurgents who opposed governmental demands such as new taxes and/or conscription.

In the domain of regular warfare, mutual learning, as mentioned above, functioned or functions in the form of speaking the same language in different vernaculars. This works as the “imitation of success” as John Lynn (1996) proposes. Throughout the XIXth and XXth centuries the development of the modern regular mass army was realized through these imitation and mutual learning processes. However, in the domain of compound warfare, mutual learning functions and functioned throughout history in a different way, such as an interpretative translation of each other’s language into the other.

Total technological war conducted by the use of strategic bombing in WWII had another form than the total holy war declared by ISIS or by al-Qaida using terrorist instruments on various metropolises of the globe. But, the mindset in both cases to fight everywhere and every time against everybody without a civil-military distinction could be deemed as being related with the concept of modern total war. Strategies, tactics, formations, weapons, and any other component of warfare on different levels are translated from the adversary’s language into the own.

Coming back to the history of compound and hybrid warfare on the Eurasian soil, one should first notice that the region in question is historically a vast land of empires including the Ottoman Empire, the predecessor of modern Turkish Republic and recently it is the scene of intensive hybrid or compound warfare. From a military point of view, Eurasia presents a difficult combat environment to regular forces. Geography does not change, and determines in fact the type of warfare conducted on a terrain full with mountains, deserts, and steps.

From a political point of view, Eurasia is indeed not a region where you can easily establish nation-states and centralized state administrations. Till the invention of post-WWI nation-states, Eurasia had always been governed by imperial bodies such as Persian, Roman, Byzantine, Ottoman and Russian Empires. As this political situation is not a coincidence, relatively frequent use of compound and hybrid warfare is a military necessity which has been and is still dictated by local geographical, demographic, political, and anthropological conditions throughout the centuries. As the region was mainly populated by rural and nomadic people, Eurasian empires always had compound land forces containing regular soldiers and tribal auxiliaries in the form of mercenaries or part-time volunteers side by-side, even after the invention of conscription and mass army.

In this regard, Ottoman army was not an exception. Ottoman land forces had always a compound character throughout the centuries till the end of the Great War (Yıldız, 2013; Beşikçi, 2013). Specially in the long XIXth century, namely in the age of political and military centralization, Ottoman political and military elite conducted a rather defensive counterinsurgency strategy on the contrary to the contemporary Russian offensive covert operation initiative in the Balkans, in order to manage all the ethnic, sectarian, religious and

political insurgencies all around the Empire. The centers of gravity of Ottoman counter-insurgency operations were today's Albania, Bosnia and Herzegovina, Macedonia, East Anatolia, Northern and Southern Iraq, Mount Lebanon, West Libya, and Sub-Syrian Arabian Peninsula. What Ottomans experienced at that geography is later shared by other imperial and super powers which aimed and still aim to invade or govern some of the territories mentioned above (Yıldız, 2012).

Ottoman government always employed tribal auxiliaries in her army counter-insurgency operations. Albanian tribal warriors, for example, have often been present in the operations in in the mid-XIXth century Syria or in Mount Lebanon (Yıldız, 2012; Reid, 2000, p. 133-137). In conventional wars against Russia, Ottoman army contained a certain amount of Circassian refugees and tribal auxiliaries from East Anatolia who served Ottoman army as scouts and skirmishers (Beşikçi, 2016).

The employment of volunteer or hired irregular units had in fact its economic and tactical advantages for the Ottoman army on the short run, but one should notice that violent acts of these groups against the civilian population who resides the combat environment caused socio-political and international legal problems afterwards. If you hire irregulars or use proxies in your fight against local insurgents, you may not be surprised to confront greater local chaos in the long run. Ottoman irregular bands, which were known as Bashibozuks in XIXth century, were known to obey only their own chiefs but not the commissioned army officers and to use violence against their local and native adversaries. A similar situation is still valid for today's proxy armed groups in Iraq, Syria, and Afghanistan.

As mentioned above, other overseas empires and states which intervened in Eurasian politics in the last two centuries from North Africa to Afghanistan and from Crimea to Lebanon, had similar experiences in Eurasia. During her imperial expansion, British Empire raised also specialized troops from local populations, especially from India, but also from her other colonies to reduce financial and human costs of the Empire (Stanley, 2015). Today, US Armed Forces continues to execute hybrid war operations against ISIS by using local ethnic and sectarian militias as a local auxiliary force in addition to its combined arms capabilities of air and land forces.

On the strategic level, the first example of a hybrid assault in Eurasia was probably the initiative developed by German diplomats and intelligence agents together with the general staff on the eve of the WWI. The German diplomat and intelligence analyst Max von Oppenheim, designed a strategic plan to revolutionize the Muslim populations of Russian, British and French Eurasian colonies. This plan worked under the Great Jihad announced by the Ottoman Caliphate against the Entente Powers with a certain tactical success (Kreutzer, 2012).

The hybrid war which Russia is claimed to conduct today in Crimea, as the Western observers call it, seems to be as an updated version of XIXth century Russian overt and covert operations in the Balkans. Then, Tsarist Russian governments tried to provoke native Slavic population as insurgents against Ottoman Empire. It would be not false, I think, to call Russia as an “anxious power” in XIXth century, a non-European candidate for being a global superpower with a relatively weaker economic infrastructure than its rivals. After the end of the Cold War, we observe a similar situation in the case of post-Soviet Russian Federation political elite, who have the desire and the anxiety to restore their country’s image as a “exsuper-power”. This anxious will to power urges Moscow to apply to every instrument of war, a situation which we perceive as the Russian way of hybrid warfare.

If hybrid warfare matters, the question is then who and what generates hybridization of military affairs? In this regard, we are used to look first at the weaker parts of the globalized combat environment, but there is also the other side of the coin. Especially after the WWII, the increasing democratization in Western countries caused a growing public sentiment against human and material losses in wars. Under the influence of the public vote, the decision-makers of developed countries looked for ways of avoiding human and material losses in armed conflicts. Besides the deterrence of nuclear weapons urged the super powers which have this capability to avoid any direct and grand scale conventional armed conflict against each other. First the invention and then the proliferation of nuclear weapons made this political choice a strategical necessity and the consequent situation of war avoidance opened the door to limited and small proxy wars (Virilio, 1997, pp. 57-60).

These developments in the Western world have contributed to the spread of facts such as proxy wars and hybridization of warfare in Eurasia and in other regions from the mid-XXth century on. The Western intellectual and moral crisis at the turn of the XXth century, which is known as the *fin de siècle* nihilism, is replaced in the recent global post-modern climate by reactionary ideologies such as Salafism and Jihadism in the Eurasian lands. From a philosophical point of view, European nihilism of the late XIXth-early XXth centuries and Eurasian Salafism of the late XXth and early XXIth centuries could be taken together into consideration as intellectual-psychological sources of destructive terroristic acts in Europe a century before and now on different regions of the globe.

Contemporary belligerent discourses with intense religious and cultural references and their fanatical adherents are often deemed to be related with the historical cultural legacy of the Eurasian region. It is a factual knowledge that jihad, as a religious concept and sociopolitical practice, has its place in Eurasian history. However, one should note that postmodern globalized armed groups which proclaim Jihad or Holy War, do not represent this historical legacy. Their discursive references for their current acts seem at first glance to be a continuation of the cultural historical legacy, but their political and military practices are

novel which belong to this age. They hybridize the war as the weak part, but they are no more innocent authentic insurgents confronting the strong.

Proliferation of weapons and explosives is also not a novel thing. We know that the control of the proliferation of firearms has been a problem for legitimate states from XVIth century on (Tilly, 2000, p. 69). But it is a fact of course that in recent time improvised explosive devices ensure terrorist groups more capabilities than before. As far as the past experience is concerned, it seems that neither nation-states nor global super powers could easily control the proliferation of such weapons. Different than the previous two centuries, non-state armed actors do not primarily aim today to seize lands for state-construction. Instead, they would like to be a shareholder in global politics by controlling some strategic locations such as pipeline routes.

The current picture is in fact different than the XIXth century, when political violence was an instrument for empires or nation-state candidates for state-construction (Tilly, 1985). In addition to new technological capabilities such as improvised explosive devices, internet and social media offer terrorist groups new opportunities for recruitment. Although political violence is not a new thing for the Eurasian region, globalized terrorist activities and urban guerrillas present us new and innovative forms of warfare and assault. According to the concept of total war modern states of late XIXth and XXth centuries are known to use violence against civilians and soldiers without any distinction. Similarly, non-state armed groups did exist in the same age to conduct terrorist methods in pursuit of their political aims. However, it is an innovation for world political and military history that local non-state actors think and act globally as an unexpected by-product of revolution in communicative affairs. The current situation could easily be described as “the state of going to extremes” in Clausewitzian terms (Virilio, 1997, pp. 53-54). Thus the armed conflicts overrun the conventional limits of war and are hybridized by all parts to make the combat unpredictable for the other. As post-modern “jihadist” groups deny the human death referring to religious metaphysics, they try to de-politicize war and go beyond politics with their terrorist acts. Virilio (1997) prefers to describe this new state of things in armed conflicts as “meta-political war”. A parallel situation could be observed by the absorption of the technology by developed countries through the extraordinary improvements in their military industry which creates a state of “complete release”, again in Virilio’s terms (Virilio, 1997, p. 54). In this post-modern practice of hybrid war, politics is losing its role as arbiter of armed conflicts and war becomes an act without any political aim for both the states and non-state actors.

At the new combat environment of hybrid war, success could not be ensured by partial and temporal changes in the equipment, organization and doctrine of armed forces. Similarly, we have not easy solutions to confront the new types of assaults by global terrorist groups, such as increasing the human resources of special troops or making get more air power

operations. In addition, all states ought to be careful by employing proxies in the field to avoid human or material losses or legal risks. Modern Eurasian military history teaches us that the employment of foreign or local irregulars by regional states and global superpowers in on rough Eurasian geography as operational proxies will remain as short-run tactical moves containing political and juristic risks.

To overcome regional conflicts and ensure sustainable peace and prosperity, we need to analyze the causes of hybridization of war in reference to the social life and human existence of the post-modern age and form in this light a new political language. Force must be used as the last instrument of conflict resolution. In this case, however, political and military decision-makers have to be aware of the fact from a military point view, decision makers must be aware of the fact, that new organizational and doctrinal mindsets are needed in military which transcend the conventional frameworks such as 'joint services' and/or 'combined arms'.

In Milan Kundera's words, 'to live means continuous disruption of order. Passion for having order is passion for the death.' What we immediately have to learn is to live with the chaotic and unpredictable postmodern world, and hybrid warfare is nothing more than a byproduct of the post-modern human condition.

References

Beşikçi, M. (2013). Mobilizing Military Labor in the Age of Total War: Ottoman Conscription before and during World War I. In E. J. Zürcher (ed.), *Fighting for a living: A comparative history of military labour, 1500-2000*. Amsterdam: Amsterdam University Press.

Beşikçi, M. (2016). Başıbozuk Savaşçıdan "Makbul" Tebaaya: 1877-78 Osmanlı-Rus Savaşında Osmanlı Ordusunda Çerkez Muhacirler. *Hacettepe Üniversitesi Türkiyat Araştırmaları*, 23, 85-124.

Erol, M. S.- Oğuz, Ş. (2015). Hybrid warfare studies and Russia's example in Crimea. *Gazi Akademik Bakış*, 17, 261-277.

Hoffman, F.G. (2009, October). Hybrid vs. compound war. *Armed Forces Journal*. Retrieved from <http://armedforcesjournal.com/hybrid-vs-compound-war/>

Hahlweg, W. (1968). *Guerilla Krieg ohne Fronten*. Stuttgart: W. Kohlhammer.

Kon, K. (2013). *Birinci Dünya Savaşında Almanya'nın İslam stratejisi*. İstanbul: Küre Yayınları.

Kreutzer, S. *Dschihad für den deutschen Kaiser: Max von Oppenheim und die Neuordnung des Orients (1914-1918)*. Graz: Ares Verlag.

Lynn, J. A. (1996). The evolution of army style in the modern west, 800-2000. *The International History Review*, 18 (3), 505-545.

Murray, W (2012). The American Revolution: Hybrid War in America's Past. In W. Murray & P. R. Mansoor (Eds.), *Hybrid warfare: Fighting complex opponents from the ancient world to the present* (pp. 72-103). Cambridge: Cambridge University Press.

Reid, J. J. (2000). *Crisis of the Ottoman Empire: Prelude to collapse 1839-1878*. Stuttgart: Franz Steiner Verlag.

Schwarzer, Y. (2006). *Die Farbenlehre Goethes* (3rd. ed.). Witten: Ars momentum Kunstverlag.

Stanley, P. (2015). *Die in the battle do not despair: The Indians on Gallipoli, 1915*. Solihull: Helion & Company

Tilly, C. (1985). War Making and State Making as Organized Crime. In D. Rueschemeyer & T.Skocpol (Eds.), *Bringing the state back in*. Cambridge: Cambridge University Press.

Tilly, C. (2000). *Coercion, capital and European States, ad 990-1992* (10th. ed.). Cambridge MA & Oxford UK: Blackwell.

Virilio, P. & Lotringer, S. (1997). *Pure war* (M. Polizotti, Trans.). New York: Semiotext(e).

Yıldız, G. (2012). Ottoman military organization, 1800-1918. In G. Martel (Ed.), *The Encyclopedia of war* (Vol. 3, s. 1615-1623). Londra: Wiley-Blackwell.

Yıldız, G. (2013). *Kara Kuvvetleri*. In G. Yıldız (Ed.), *Osmanlı askerî tarihi, 1792-1918*. İstanbul: Timaş

CHAPTER TWO

*LEGAL, SOCIOLOGICAL, CULTURAL
AND MILITARY ASPECTS OF HYRID
WARFARE AND STRATEGIC VISION*

LEGAL ASPECTS OF HYBRID WARFARE

Mehmet Cengiz UZUN*

Introduction

The concept of “hybrid warfare” defines a recently elaborated theory based on the proposition that in relation to the changing nature of warfare in the 21st Century it is possible to observe at all levels of military consideration (strategic, operational, tactical) the establishment of previously unseen degrees of cooperation between regular armed forces, non-State armed groups, criminal organizations, subversive elements and civilian / political forces and the extensive use of non-military infra-structure, such as the cyber-space, in overall comprehensive military strategy (Hoffman, 2009, Haines, 2012, p. 23). The theory has attracted much attention due to the eruption of armed conflict in the Ukraine and has become a subject of considerable debate after an article written in 2013 by the Russian Chief of Staff, General Valery Gerasimov (Gerasimov, 2013).

According to Gerasimov’s elaboration of the new means and methods of nonlinear warfare, in the contemporary political environment the “very rules of war” has changed to an extent that “[t]he role of non-military means of achieving political and strategic goals has grown, and, in many cases, they have exceeded the power of weapons in their effectiveness”. Consequently, modern military strategy is more and more focused “in the direction of the broad use of political, economic, informational, humanitarian, and other nonmilitary measures – applied in coordination with the protest potential of the population”. This change manifests itself through the “the use of special-operations forces and internal opposition to create a permanently operating front through the entire territory of the enemy state, as well as informational actions, devices, and means that are constantly being perfected” with consequences “comparable with the consequences of any real war” (Gerasimov, 2013).

In fact, changes in the fundamental nature of war have been an ongoing process since World War II. As Colonel Liang Qiao and Colonel Xiansui Wang from the Chinese People’s Liberation Army wrote in their work on unrestricted warfare theory in 1999, “[the] war that changed the world ultimately changed war itself” (Qiao & Xianqsui, 2000, p. xx). Truly, in an environment in which inter-State war is rare warfare has shifted “from armed with comparable forces doing battle on a field to strategic confrontation between a range of combatants, not all of which are armies, and using different types of weapons, often improvised” (Smith, 2006, p. 3). However, it might still be early to speak of an absolute change in the general parameters of warfare. In this sense, it would be difficult to propose that hybrid warfare theory actually corresponds to a generally applicable military strategy.

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However, those instances which observably fit the pattern promise to pose numerous challenges in the field of international relations. Taking this fact into consideration, our brief presentation to this watershed Conference on hybrid warfare theory aims to bring two fundamental discussions to attention:

(1) In the first part, this presentation will try to establish a conceptual basis for understanding the relationship between hybrid warfare theory and international law. This is a necessary first step in order to further elaborate on possible normative measures adoptable against those means and methods which in sum constitute the manifestation of hybrid warfare strategy. It cannot be denied that the proliferation of non-conventional military conflict since World War II has already precipitated debate on the legal consequences of the changing nature of warfare under international law. However, due to the recent nature of the theory and the ambiguity surrounding it, hybrid warfare is yet to be discussed in detail within the field of international law studies.

(2) In the second part of this this presentation we hope to demonstrate that while the classic framework of international law may initially be perceived as inadequate in dealing with hybrid warfare strategy, in fact that is not the case. International law has always options for responding to rapid changes in warfare and may similarly provide answers to the challenges which derive from hybrid warfare strategy. For this reason, we will develop the argument that existing international mechanisms could provide answers in extending the reach of international regulation in order to counter the lacuna from which hybrid warfare strategy benefits the most. To elaborate on this point, the second part of our presentation will reference previous adaptations of international law to questions which arose in connection to the changing nature of warfare and will inquire on the possibility of adopting similar approaches in clarifying the legal consequences of those acts which constitute part of hybrid warfare strategy.

I

Any question on the relationship between Hybrid Warfare theory and the international legal order necessitates an initial inquiry in to the legal theory on war. This is required since, as expressed by Professor Neff: “Specific rules about the waging of war have never existed in vacuum. They have emerged from more deep-seated conceptions about the nature and role of war itself in international relations” (Neff 2005, p. 2).

International law does not present a universally binding definition of the concept of war (Dinstein 2011, p. 4). Under a Clausewitzian perspective, all wars share the same substance since they constitute “a continuation of politics by different means” (Clausewitz 2007, p. 28). All wars correspond to a physical manifestation of the collapse of the political equation governing the peaceful relations between the Parties (Butkevych, 2003, p. 204, in reference to Prof. Sorokin) and the apogee of power politics (Cassese, 2003, p. 325). In other words,

wars constitute the most complicated form of organized collective violence engaged with the aim of achieving a change in the balance governing the relations between the Parties. However, it is impossible to universally define war under law because the methods and means of how war is executed and the legal theory on understanding war in international relations have been subject to constant change. Change in warfare is related to demography, geography, history, science, resources and technology. Change in the legal theory on war, on the other hand, is intrinsically political in nature and relates to the developments in international relations (see Neff, 2005).

In any given social unit, the regulation of violence depends on the function attributed to violence therein. In other words, defining types of violence under law, identifying its legitimate uses and providing legal limits to acceptable proportions of violence in a given situation necessitates a determination on the function of violence within a body politic. Of course, this determination rests upon the interpretation of violence by those established authorities which possess legitimate power to regulate societal behavior. This is similarly observable in cases related to the use of force in international relations: The international legal theory on war has always developed in light of the function of war in international relations with specific reference to the views of those political entities which at a given moment in time proved to possess law-making power. It is for this reason that international lawyers who have inquired into the existing norms and regulations on warfare at a specific time in history have had to do so in light of the aims and purposes of war within a specific international relations paradigm governing inter-sovereign relations at that time (see Neff, 2005).

For example, before the territorial States system in Europe (Westphalian order) the function of war was determined according to its role in upholding a de-centralized European socio-political structure, bound together through feudalism and religious identity. During this period the legality of warfare was taken into consideration under the Just War theory (*bellum Justus*), which was essentially sanctioned by religious authority and which to a large extent defined war as an instrument of law enforcement. Under this theory, except for cases of self-defense, the aim of war was to allow establishing and maintaining a universal public order as designated under religion. In other words, war was a public order institution which assumed the dual function of prevention and punishment of illegal conduct. Within this understanding, and until the establishment of the Westphalian paradigm, war was considered legitimate if used according to criteria adopted and developed within the confines of religious natural law theory (i.e. just cause, legitimate authority, right intention) (see, Russell, 1975; Uzun, 2014).

The well-known narrative on the history of international law resides on the *Jus Gentium* teachings of Hugo Grotius (Grotius, 2005). However, the contemporary legal theory on war is connected to developments from the 18th Century thereon. It is thus period of the formation of the nation State that witnessed European socio-political order evolve towards a purely

State centric international relations paradigm, excluding all forms of non-State entities (such as peoples, minorities, individuals, corporations, feudal and religious authorities, etc.) from international law theory (see, Cassese, 2012, p. 54). This process progressed in conjunction with the industrial revolution and was accompanied by the centralization of governmental functions, including the military function which put an end in Europe to the age of civil wars. Consequently, with the abolition of feudalism and the eradication of private wars in Europe, international legal theory on war became limited to the State versus State model, namely “international wars” (Schmitt, 2006, pp. 140-144). Parallel to Weber’s sociological definition of Statehood (Weber 1958, p.77), the international war model considered warfare as a political instrument under the strict monopoly of States (Schmitt, 2006, pp. 152 ff.). Thus, international legal theory on war developed norms and principles applicable to warfare as long as it took place between States or, in certain circumstances, against entities resembling States (de facto States). All other instances of armed conflict involving non-State entities, including civil wars, were not considered to correspond to a war in the legal sense (Neff 2005, pp. 250 ff.) and were declared to remain a matter strictly within the domestic jurisdiction of the relevant State. Such situations constituted a matter for consideration under international law only if they were internationalized by the acts of the international community, either through intervention or by recognition of belligerency extended to those non-State entities involved (Wehberg, 1938, p. 9; Green, 2000, p. 317; Samuels, 2007, p.18).

Modern international law established with the adoption of the UN Charter continues to be State-centric. It is generally accepted that international law is created by States for States (Cassese, 2008, pp.111-112). As such, the legal thought on war has not radically changed. The laws on the use of force, as elaborated under the UN Charter, are declared to be limited to inter-State wars (Dinstein, 2014, pp. 5-6). Moreover, as underlined by Professor Cassese, while the laws of armed conflict include norms and principles applicable in “non-international armed conflicts”, the scope of this normative framework remains to be narrow and its application can be characterized as troublesome at best (Cassese, 2008, p. 111).

The classic legal theory of war has recently been subject to criticism due to the proliferation of internal armed conflicts. The necessity to update legal thought on war has been openly expressed in various academic circles. It cannot be denied that most contemporary armed conflicts arise within the international borders of a single State and / or take place essentially between State armed forces and non-State armed groups (which are generally designated as terrorist organizations at the national level). Armed conflict datasets point to the fact that even in cases which involve foreign States, in the majority of examples, the initial phases of armed violence tend to start out as an internal armed conflict situation (Themnér, 2013; Sarkess, 2010). Consequently, it is widely acknowledged that in contemporary international relations international wars and inter-State armed conflict

situations constitute the exception rather than the norm (Creveld, 2000, p. 355; Newman & Derouen, 2014, p. 1; Watkin, 2012, p. 6). However, while the means, methods and theatre of warfare has changed, we believe it is still early to talk of a definitive paradigm shift in the legal reality of war to the extent that the function of war in international relations needs to be re-assessed:

(1) States continue to possess a large monopoly of violence within their respective territories and hold tightly on to the main instruments of warfare (army, navy, and air force). Consequently, even in cases involving irregular elements or non-State actors, conventional instruments of war are never far away. In his presentation to the First Panel of the Conference on Russian perspectives to the changing nature of warfare Dr. Monaghan provided a specific reference to this last point during his analysis of Russian action in Ukraine and Syria. Dr. Monaghan exposed the state of general mobilization in Russia and reminded us the widespread use of conventional military strategies, tactics and instruments (such as the use of cruise missile attacks from the Caspian).

(2) The UN Charter system was designed to protect the inter-States system and prevent international wars (Sur 2012, p.117). This was a priority due to the destruction caused by the two world wars and the invention of nuclear weapons. This has already been underlined by Dr. Gültekin Yıldız. It cannot be denied that nuclear technology has established a balance of world political order – a balance which from a philosophical point of view is sometimes called the balance of nuclear terror (Baudrillard, 1994, p. 33). Any international war between industrialized States bears the risk of disturbing this balance and igniting a process of global nuclear conflict of unforeseen proportions. From this perspective, the current laws on the use of force elaborated within UN framework constitute a projection on the necessity to protect the current balance of powers. On the brighter side, for the first time in history this framework has enabled us to speak of international wars as exceptional (Creveld, 2000, p.355). Accordingly, albeit all the defects of the current paradigm, the fact that global conflict has been avoided since World War II deserves special consideration. In summary, under the inter-States system and in light of the risks involved with nuclear warfare, it would be challenging to consider a radical paradigm shift in the function of war within international relations.

On the other hand, the reality that occurrence of armed conflict is autonomous from our capacity to prevent inter-State wars cannot be denied. While the military and socio-political status-quo achieved through the balance of nuclear terror has made conventional inter-State warfare less likely, armed conflict has been transferred to the domain of what is considered the intra-State, the inter-communal or the intra-social (Väyrynen, 1998, p. 7). There is ample evidence to suggest that this transfer has never been independent from the core parameters governing modern international relations. It is widely known that both during the Cold War

and afterwards, many non-State armed groups active in armed conflict situations either act as proxies to foreign Powers or, to some degree, act in parallel to the foreign policy interests of foreign Powers (Mumford 2013; Hughes 2012). This phenomenon has unfortunately aligned conventional military strategy in inter-State competition with that which is considered as “non-conventional”, “non-linear” or “irregular”.

The use of non-conventional, non-linear or irregular elements in warfare strategy is not a new (see. Muray & Mansoor, 2012). Parties to an armed conflict have always had to adapt to the necessities of war and have applied conventional and non-conventional elements in conjunction, depending on the circumstances at hand. What makes modern instances of armed conflict challenging in contrast to previous examples is not the use of irregular warfare, but the systematic elaboration and inclusion of non-military institutions and instruments into general military strategy. Hybrid warfare, in the sense of calculation of all non-conventional and non-military means available to the Party under a general comprehensive military strategy, can be considered as the theoretical expression of this development. It is specifically at this point that Gerasimov’s findings proves to be enlightening:

“In the 21st Century we have seen a tendency toward blurring the lines between the states of war and peace. Wars are no longer declared and, having begun, proceed according to an unfamiliar template [...] [A] perfectly thriving state can, in a matter of months and even days, be transformed into an arena of fierce armed conflict, become a victim of foreign intervention, and sink into a morass of chaos, humanitarian catastrophe, and civil war. [...] Political warfare is the employment of all the means at a nation’s command, short of war, to achieve its national objectives. They range from such overt actions as political alliances, economic measures, and “white” propaganda to such covert operations as support of “friendly” foreign elements, “black” psychological warfare and even encouragement of underground resistance in hostile states [...]” (Gerasimov, 2013)

The first phrase of the quotation corresponds to a proposition which deserves specific consideration at this point, because the “blurring of lines between states of war and peace” underlines an implicit relationship between hybrid warfare theory and the development of the international legal order. We must not forget that before the 20th Century, the equally sovereign absolute States of Europe had established an international order based on the protection of multi-polarity in international relations, known as the balance of powers. The international law of this epoch was construed on the theory of express consent of States and was considered to constitute a non-hierarchic instrument of coordination and cooperation between States in analogy to Roman private law. Consequently, and in lack of any claim of universality, the international law of this period did not include a clear reference to the common interests of the international community as whole. From this perspective, this “old”

international law did not constitute a law of public order in international relations and, thus, recognized the right of all States to use violence in their bilateral and multilateral relations. This is why war was inherently considered legal and legitimate in nearly all instances, regardless whether it was engaged for the survival of the State or initiated as a self-help instrument (Neff, 2005 pp. 161 ff.). Similarly, it was due to this fact that classic international law was designated as the law of war and peace – according to Grotius defined to two legal states that recognized no third option (*inter pacem et bellum nihil est medium*) (Grotius, 2005, pp. 134, 1595).

With the adoption of the UN Charter modern international law has distanced itself from this narrative. In light of the destruction caused by the two world wars, modern international law is legitimated by the ideal of protecting the common interests of the international community and international peace and security through the rule of law. Consequently, international law can no longer be defined strictly as a law of coordination and cooperation between States, but also includes guarantees for the peaceful co-existence of States (prohibition on the use of force, non-intervention principle, no-harm principle). Moreover, modern international law proposes models for global governance. It is in this context that under modern legal theory on international law “the consent of States” doctrine does not constitute the sole justification put forward concerning the legitimacy of the international legal order. To the contrary, modern legal theory aims to achieve sustainable peace in international relations through the respect for law and peaceful resolution of disputes and, additionally, praises the existence of *de jure* and *de facto* mechanisms of hierarchic governance, both at the institutional (i.e. UN Security Council) and normative level (i.e. *jus cogens* norms). In this sense, modern legal theory on international law has distanced itself from private law analogies and established itself as a public law system. It is due to this fact that, like all public law systems, modern international law necessitates some form of minimum public order within the communal relations it aspires to regulate. As a result, numerous international lawyers have come to understand the UN Charter as a constitutive document; constitutive in the sense of social-contract theory (Sur 2012, pp. 116 ff.; see Vos, 2013; O’Connell, 2008; Yasuaki, 2003).

Truly, under the UN Charter system members of the international community have promised to refrain from violent instruments of self-help in their bilateral and multilateral relations (Art. 2/4) and have pledged to resolve their disputes through legitimate peaceful means (Art. 2/3, Art. 33). Moreover, the Charter has established and has recognized different forms of collective security instruments which in theory could satisfy the policing function necessary for maintaining the international rule of law (e.g. UN Security Council). Consequently, unlike its predecessor, modern international law no longer corresponds to a law of “war and peace” in international relations. To the contrary, modern international legal

theory on international law aims to mold the international legal order into a law of sustainable peace and public order. In any system of peace and public order, hostile competition between members of the constitutive community must be limited to acceptable manifestations of “non-aggressive” behavior. This is why that under modern international law the use of force is considered *ab initio* illegitimate unless initiated within the very narrow confines of law; namely in self-defense or acting under the authorization of the UN Security Council (Dör, 2015; Wood, 2013). Consequently, legal counsel has assumed a visible role in the formulation of modern military and political strategy in inter-State relations. Taking into consideration that any unilateral military action which may not be legitimized under international law risks entailing the international responsibility of the State, modern military strategy propositions are accompanied with templates for the legality of conduct. And, in almost all military conflicts since the adoption of the UN Charter States have attempted to rationalize their conduct under some form of interpretation of the law in force (e.g. anticipatory self-defense, protection of citizens, humanitarian intervention etc.)

It is at this point that hybrid warfare theory steps in. It proposes the use and abuse of international law in order to circumvent international responsibility. The legal confusion experienced during hybrid warfare is not a by-product of the strategy; it should be seen as one of its essential components. By establishing a “fog of law”, hybrid warfare strategy aims to disorient domestic and foreign observers on the facts of the situation during the initial phases of conflict, so that it becomes difficult to legally classify the situation, determine the applicable law, assess attribution of responsibility and respectively respond through appropriate legal mechanisms. As such, hybrid warfare theory rationalizes clandestine activity without raising questions on the validity of the legal order. In other words, it constitutes an attempt to evade the applicable rules, not deny them: The aggressor does not presume or claim any form of extra-legality; to the contrary, the States engaged in hybrid warfare would declare legitimacy during all phases of military activity. Such a claim would be based on either the non-regulation of the conduct in question or the non-applicability of the law in force. In any case, the State would claim non-attribution of responsibility due to the hybridity of the situation. Within this perspective, hybrid warfare theory transforms into an inevitable by-product of the legal framework governing international relations. As expressed by Professor Korhonen:

“Hybrid wars exploit the incommensurability and polymorphism that the international – legal – system partially suppresses under the rubric of sovereign statehood and partially allows by carving out limited legal spaces for nongovernmental organizations, multinational corporations, and individuals. Hybrid wars adjust their methods given this morphology of legal space and according to their concrete objectives.” (Korhonen, 2015, p. 459)

In consideration of this fact, legal response against hybrid warfare strategy requires special consideration on the legal space which has allowed its formulation. At this point we have to admit that the current literature on hybrid warfare strategy is limited and definitions of hybrid warfare vary from one author to another. However, there are observable elements which attach hybridity to conventional military strategy and which correspond to an abuse of the currently defined legal space (see Hoffman, 2009, pp. 36 ff.; Vitalii, 2015, pp. 14 ff.):

(1) The extensive use of non-conventional, irregular and non-State elements in armed conflict: The use of non-conventional, irregular and non-State elements in warfare puts into question the applicability of the laws on the use of force. Similarly, it allows evasion from attribution to de jure State organs those acts which normally would be considered an act of aggression and provides the State legal basis to circumvent liability for damages caused. In addition, in certain instances the use of non-State elements would permit the conflict to remain below certain levels, thus not satisfying those legal thresholds required for the applicability of the laws of armed conflict (Vitalii, 2015, p. 16).

(2) The use of cyberspace and communication technologies: While it has become an indispensable tool in global interaction, the regulation of the cyber-space remains outside of the monopoly of any State and is essentially under-regulated. For example, the only existing truly international regulation on the ever-growing threat of cyber-criminality is the Budapest Treaty, which was signed in 2001 and which entered into force in 2004. This instrument has had 48 ratifications and accessions until this date. Without an effective treaty framework, it is highly difficult to establish customary norms specific to the use of cyberspace and modern communications technologies in warfare situations – while concrete doctrinal propositions on the regulation of these areas has been proposed (i.e. 2013 Tallinn Manuel), there exists no established norm under the customary laws of war with specific reference to these environments.

The anonymity enjoyed within the cyber environment in conjunction with the lack of effective regulation allows the cyber-space to become a valuable asset for military strategy. States may enjoy a large extent of impunity in their cyber activity, especially by soliciting private individuals, corporations or other forms of non-State actors in the preparation, coordination, initiation and execution of wide spread computer network attacks with the intent of collecting information, corrupting information systems and causing damages to the victim States cyber-infrastructure (see Schröfl & Rajae, 2011). Such has been already evidenced in the Titan Rain attacks of 2003 and in the cyber-attacks against Estonia in 2007. In both incidents and albeit strong evidence of the origins of the attacks, it was not possible to attribute responsibility to a foreign State legal personality.

(3) The incorporation of criminality including terrorism into military strategy: The use of national and transnational criminal organizations and terrorist groups in order to support

socially disruptive forces within the victim State with the specific aim of weakening social cohesion and institutional stability constitutes one of the most debated aspects of hybrid warfare Strategy.

The regulation of criminality and terrorism remains to a large extent within the domestic jurisdictions of States. As a result, the consideration of criminality and terrorism under the laws on the use of force proves to be especially difficult. Moreover, the existing international normative framework on criminality is generally limited to transnational criminality (i.e. 2000 UN Convention against Transnational Organized Crime) and its efficacy depends on national institutions. And let's not forget that transnational crime constitutes a very lucrative sector. (According to the UN Office on Drugs and Crime, transnational organized crime continues to constitute 1.5% of global GDP).

The international regulation of terrorism, on the other hand, has always been forestalled due to the political nature of the concept. Consequently, the normative framework on terrorism remains to be saturated. Concrete normative measures and sanctions adopted by the UN Security Council remain to be focused on Al-Qaida related terrorism and the capacities of States and their willingness in the application of treaty instruments of a more general nature, such as the International Convention for the Suppression of the Financing of Terrorism of 1999, is open to debate. Consequently, domestic and transnational criminal groups, including terrorist elements for hire provide opportunities for aggressive foreign policy initiatives. Similar to the use of private entities for the commission of cyber-attacks or the use of non-State armed groups against another State, the use of criminal groups and terrorist organizations in order to de-stabilize the victim State allows avoidance of ab initio attribution of such conduct to the instigating State.

(4) The abuse of structural weaknesses: With the use of all the elements enumerated above, hybrid warfare strategy aims to simulate instances of State failure. A failing State apparatus becomes disconnected and disorganized to an extent that it proves to be ineffective or unresponsive in the determination of an imminent threat to the national security of the country and is not able to coordinate a general state of mobilization in the defense against foreign aggression. From this perspective, hybrid warfare strategy includes the exploitation of economic, demographic and political forces within the State and legitimizes the use of disruptive instruments in order to abuse societal fault lines. As expressed by Professor Korhonen, this is the reason why hybrid warfare works best against States which are already politically, legally and socially unstable - states which contain a certain level of hybridity (Korhonen, 2015).

There can be no doubt that the question of structural weaknesses of a State surpasses the domain of international law and relates to good governance and State-craft. However, international law may provide mechanisms against the abuse of non-State elements, the

cyber-space, communication technologies, criminality and terrorism. The adoption of such mechanisms would necessarily involve a re-evaluation of the current concepts and norms on attribution of illegal conduct to State entities. The question concerning how such a reevaluation could take place requires separate consideration and will constitute the subject of the second part of our presentation.

II

Under international law, legal terminology with regards to warfare has developed separately under the laws on the use of force and the laws of armed conflict:

According to the modern laws on the use of force, the legal aspects of warfare are expressed through resort to the concepts of “use of force”, “armed attack” and “aggression”, all which appear under the UN Charter. While none of these concepts find a clear definition within the Charter framework, international practice has provided certain clarifications on their content and scope (see Dör, 2015; Wood, 2013). The concept of use of force, as it appears under Art. 2(4) of the UN Charter and in light of the travaux préparatoires of the Charter, is generally accepted as strictly corresponding to military force. International lawyers recognize illegal and legal uses of force - for example, the use of force by a State in self-defense or within its own territory would constitute a legal form of use of force. The International Court of Justice, in its judgement of 1986 on the Merits in the case of Military and Paramilitary Activity in and Against Nicaragua determined that with regards to the illegality of the force, it need not amount to the level of “armed attack” or “aggression” in order to be considered as entailing international responsibility. “Armed attack”, as foreseen under Art. 51 of the UN Charter and as elaborated by the International Court of Justice, and “aggression”, as it appears under Art. 39 of the UN Charter, constitutes the gravest form of illegal use of force (Nicaragua, para. 191 ff.). Aggression, specifically, has been regulated as an international crime under the Statute of the International Criminal Court (Art. 8 bis). The legal concept of aggression has been detailed by the UN General Assembly under Resolution 3314 of 1974 on the Definition of Aggression, which today is considered as representing customary international law. According to the Resolution, aggression encompasses nearly all forms of conventional armed activity of a certain degree within or against another State which take place without its consent. Such activity includes nonconventional or indirect forms of military conduct, such as the “sending by or on behalf of a State of armed bands, groups, irregulars or mercenaries” (Art. 3/g).

The law of armed conflict, on the other hand, is applicable in cases of armed conflicts. While there is no clear stipulation on what constitutes an armed conflict (Vitalii, 2015, p. 18), a much referenced authoritative definition has been provided by the International Criminal Tribunal for the Former Yugoslavia in the Tadic case of 1995, according to which: “An armed conflict exists whenever there is a resort to armed force between States or protracted armed

violence between governmental authorities and organized armed groups or between such groups within a State” (Tadić, 1995, para. 70). In light of this definition, under the laws of armed conflict all instances of armed conflict are classified either as an “international armed conflict” or a “non-international armed conflict” (Dinstein, 2014, pp. 1 ff.). An international armed conflict, as defined under Common Art. 2 to the Geneva Conventions of 1949 involves armed hostilities between two or more sovereign States, regardless of whether a state of war has been declared or accepted. International armed conflict includes all cases of partial or total territorial occupation of a party to the conflict and under Additional Protocol I of 1977 has been expanded to include wars of national liberation. Non-international armed conflict, as considered under Common Art. 3 to the Geneva Conventions and Additional Protocol II of 1977, has no general definition under treaty law. However, there is general consensus that the concept does not encompass all forms of internal violence. Consequently, the determination of the existence of a non-international armed conflict necessitates the satisfaction of certain thresholds in order to engage the applicability of the laws of armed conflict to an internal conflict situation. To this respect, Additional Protocol II foresees a higher threshold when compared to Common Art. 3 (see Uzun, 2007).

As it can be seen from the above, the concept of hybrid warfare does not directly fit into any of the legal definitions currently resorted to in dealing with the legality of warfare under international law. This is natural since the concept of hybrid warfare is political and defines a military strategy involving numerous different measures adopted for the achievement of military and political objectives. There can be little doubt that the implementation of some form of hybrid warfare strategy against a third State with the aim of furthering national interest would correspond to the manifestation of hostile or even aggressive foreign policy vis-à-vis the targeted State. Whether such acts amount to a use of force or could be considered as aggression is problematic. The indirectness of hybrid warfare strategy and the extensive use of non-military instruments does not allow us to provide a direct answer to this question. However, many aspects of this strategy would definitely constitute an attempt at prohibited forms of intervention, in the sense of a dictatorial interference in what the International Court of Justice referred to in the judgement to the Nicaragua case of 1986 as “matters which each State is permitted, by the principle of State sovereignty, to decide freely” (Nicaragua, 1986, para. 205).

The aims and purposes of a State which resorts to hybrid warfare strategy can, thus, not be interpreted in line with the core principles governing modern international relations. Moreover, the successful execution of hybrid warfare strategy without any legal consequence at the international level would establish precedence and may amount to tacit recognition of the legitimacy of covert forms of conduct which result with consequences similar to those of aggression. In line with principle of the rules of law, the indirectness or the non-linearity of

military strategy should not constitute the basis of allowing members of the international community the right to circumvent their legal obligations towards respecting the political independence and territorial integrity of other States.

We must remark that at this point, the difficulties faced should not be considered as a structural defect of the current international legal order. Such difficulties constitute parts of a natural process. Like all legal systems, the general norm is that international law reacts. Its progress is dependent on material, moral and political developments which take place in the physical world and it can only provide answers to issues once a general agreement takes place between those powers which possess law-making authority within the system (see McDougal & Lasweel, 1959, p. 5). This is especially the case when faced with changes in warfare. Lawyers cannot pre-empt the manner in which warfare develops. They can only observe the development, concern themselves on its consequences and question the efficacy of pre-existing mechanisms in dealing with them. If the existing mechanisms are found to be ineffective, international law offers viable options of lawmaking process in order to address those aspects of the change which cannot be dealt with under the legal templates in force.

For example, a political agreement may be reached on the subject, resulting in the adoption of a new general legal framework applicable to the situation. This was the case, for example, in the inclusion of “non-international armed conflicts” into the 1949 Geneva Conventions under Common Article 3. The necessity to regulate and foresee minimum rules of conduct during civil wars was accepted only after experiencing first-hand the atrocities committed during the 1936 Spanish Civil War (Perna, 2006, pp. 41 ff.). Taking into consideration the slow-pace of treaty making processes, the international community may also adopt legal measures through existing international institutions which seem best suited to address an immediate issue. Such was the case, for example, in the adoption of UN Security Council Resolution 2178 (2014) which established a general normative framework against the proliferation “foreign terrorist fighters” (see Kraehenmann, 2014). Another method would involve the re-evaluation of existing legal regimes and the re-interpretation of legal concepts by international mechanisms in order to update legal concepts in light of contemporary circumstances. This method has been applied mostly by international judicial instances in order to provide answers to questions of law faced in pending trials. It was through this method that in the 1990’s international courts and tribunals and human rights courts were able to extend the applicability of human rights law to international and noninternational armed conflict situations (see Arnold & Quéniwet, 2008)

It is possible to provide more examples of viable options, however, it suffices to point out that in consideration of the political state of affairs and the difficulties arising from the ambiguous nature of hybrid warfare strategy, it would not be far reaching to conclude that the

adoption of any specific instrument on hybrid warfare strategy is improbable. Moreover, it is also legitimate to ask whether the adoption of general or specific legal frameworks against hybrid warfare would be effective or whether such is desirable. The ambiguity of the strategy guarantees that it could quickly adapt itself to legally binding definitions and find methods in order to exclude itself from the reach of international law.

At this point, we must not forget that what makes a military strategy adoptable is the possibility that it would be effective in attaining military and political objectives. In the field of the laws of war, the effectiveness of a specific military strategy or weapon has always had influence on the success of those rules and principles adopted with the aim of limiting its execution. For example, the Second Council of Lateran of 1139 had prohibited the use of crossbows in European conflicts, a prohibition which did not enjoy general respect in Europe. However, the prohibition of the crossbow was reinforced in England until the 16th Century, not because of any general understanding against it, but because authorities believed that peasantry would waste time with crossbows and discontinue practicing the longbow; which at that time was taught to be a more effective weapon of war (Johnson, 1981, pp. 128 ff.; Creveld, 1991, pp. 416 ff.; Jensen, 2013, p. 284). Taking this into account, any legal approach to hybrid warfare strategy, in order to counter it, must adopt measures addressing its potential effectivity.

This fact brings us back to the core elements of hybrid warfare strategy. Essentially all elements of hybrid warfare, including the use of non-State actors, cyber-space and criminality, are tools for protecting the anonymity of the perpetrating State. Hybrid warfare is engaged, to a large extent, in order to evade the establishment of a link of attribution for hostile acts and to prevent the applicability of existing legal regimes. In light of this fact, legal responses to hybrid warfare strategy must include a re-evaluation of the rules of attribution concerning the conduct of non-State actors to States. Such a re-evaluation must intend to make it more difficult for States to claim non-applicability of international law to the situations and, in arguendo, non-attribution of illegal conduct. Such a re-evaluation would not constitute a novelty in the development of international law. To the contrary, international mechanisms have had to deal with similar situations and have provided different criteria in deciding issues relative to attribution of conduct.

For example, in the Nicaragua Case of 1986, the International Court of Justice established the “effective control” criteria in order to arrive at a judgment on the attribution of acts committed by non-State. Accordingly, we consider that the acts of a non-State actor amounts to an illegal use of force attributable to a State entity, if the scale and effect of the act amounts to an armed attack and the State has directed the non-State actor or has enforced the attack (Nicaragua, 1986, para. 105-115). This doctrine has been subject to criticism, since, as evidenced in the Bosnian Genocide Case of 2007, establishing such a

strong link between the acts of a non-State actor and State entity is difficult (see Cassese, 2007). It is this high threshold which in many ways allows hybrid warfare theory to thrive.

However, since the 1990's other international instances have shown innovation in approaching problems of attribution of conduct. For example, in the Tadic Case of 1995 the International Criminal Tribunal for Former Yugoslavia established more flexible criteria in determining attribution of violations of the laws of armed conflict in order to establish the applicability of the rules and principles governing armed conflict situations. Known as the "overall control" test, the Tribunal aimed to:

"[...] prevent States from escaping international responsibility by having private individuals carry out tasks that may not or should not be performed by State officials, or by claiming that individuals actually participating in governmental authority are not classified as State organs under national legislation and therefore do not engage State responsibility." (Tadić, 1999, para. 117)

According to this perspective, the Tribunal concluded that rule of law necessitated establishment of State responsibility for the acts of non-State military or para-military units if the State in question showed some form of overall control over such entities. Overall control not only meant equipping, financing, training or providing operation support for non-State groups, but also included coordination and help provided in the general planning of military activity (Tadić, 1999, para. 131). While limited to the applicability of the laws of armed conflict, the development of the overall control criteria shows that in face of necessity, the rule of law paradigm provides international mechanisms a general instrument for the redefinition of legal concepts in order to extend the scope of legal regimes.

A similar approach was adopted recently by the European Court on Human Rights in cases concerning the separatist territorial unit of Trans-Dniester in Moldova. Here in deciding on matters related to the attribution of responsibility to Russia for the violations of the European Convention on Human Rights, the Court established previously non-existing concepts. For example, in the Ilaşcu Case of 2004 the Court concluded that vis-à-vis Russia's obligations, the jurisdictional reach of the European Convention on Human Rights extended to the acts committed by the separatist territorial unit (Ilaşcu, 2004, para. 376-394). According to the Court Russia bore responsibility, initially due to the active participation of the 14th Army during the separatist conflict and furthermore, after a cease-fire had taken effect, due to Russia's role in the continuing factual situation. The Court arrived at the conclusion that the separatist territorial unit could not exist without the military, political and economic support of Russia. Consequently, it concluded that the separatist regime remained under the "effective authority", or at the very least under the "decisive influence" of Russia. In the Courts view, as a result of this link, acts committed by members of the separatist territorial unit in violation of the Convention were to be construed as attributable to Russia

(Ilaşcu, para. 392). The concept of “decisive influence” has further been used by the Court in its decisions relating to Trans-Dniester (e.g. Catan Case, 2012).

It is not our intention to determine which existing criteria is best fit in assessing issues relating to the attribution of conduct in hybrid warfare situations or to propose a new one. Instead, we want to demonstrate the existence of different criteria, applicable to different situations. It is the fact that these criteria have essentially been developed through international mechanisms is sufficient to argue that international law could respond to those elements of hybrid warfare strategy which make it effective by establishing an argument based on the non-attribution of acts committed by non-State actors. For the sake of speculation, for example, in re-interpreting the legal space international mechanisms could attribute human rights violations committed by non-State actors during an internal armed conflict situation to foreign State entities if a logical link can be established on the States decisive influence over the conduct of the non-State actor in question. Moreover, in theory, the same criteria could be evaluated, in theory, in order to establish attribution of illegal conduct for the acts of criminal groups acting within the territory of the victim State or private individuals engaged in cyber-criminality from abroad in order to further the foreign policy interests of a State.

In any case, whether existing criteria are to be re-evaluated with the aim of extending the reach of international law to hybrid warfare scenarios or new mechanisms adept at dealing with such situations are to be adopted depends on political considerations. Legal response to hybrid warfare under international law can only take shape, whether under treaty law or under institutional frameworks, if there is sufficient agreement within the international community that the threat needs to be dealt with through international law. States continue to create international law for States. As such, it is up to States to decide whether or not it is important for international law to cover the change in the nature of warfare. Consequently, legal response to hybrid warfare under international law depends on the necessity to respond. In other words, it would be possible to foresee legal developments in response to hybrid warfare strategy only once it becomes evident that current examples are no longer exceptional and that beyond the realm of theory, hybrid warfare strategy constitutes a true threat to the future of international peace and security. This brings us to our concluding remarks on the structural limits of international law, especially concerning the hybrid warfare threat:

Conclusion: Structural Limits

Hybrid warfare theory is not a simple expression of a specific development in the means and methods of warfare. Hybrid warfare theory, as a military strategy, underlines an important aspect of the contemporary political framework of international relations. As expressed by Professor Korhonen, it is due to this specific framework that “[i]nstead of

focusing exclusively on achieving military victory, [States] seek to gain control and subjugate the enemy through political, economic, informational, humanitarian and other measures” (Korhonen, 2015, s.459). There can be no doubt that international law has had a role in the triggering of novel military strategies such as hybrid warfare theory. By establishing a world public order based on the rule of law in international relations, it has also motivated political and military considerations to align with legal considerations (moreover, law itself has become an instrument of hostile competition between States, or “lawfare”). Consequently, any response devised in order to bring changes in warfare under the regulation of law can only be effective if it takes into account those aspects of international law which have been an impetus for the change.

In any case, international law may not provide all the answers sought for once faced with the implementation of hybrid warfare strategy. First of all, hybrid warfare strategy is related with the hybridization of the nation-State model. As professed by Professor Korhonen in his article on hybrid warfare, warfare is hybrid because both the victim and aggressor State have become hybrid to a certain degree (Korhonen, 2015). To this respect, hybrid warfare theory touches sensitive questions of philosophical and political nature involving the future of the State. While considerations on combatting State failure do find voice in the field of international law studies, the future of the State is beyond the scope of the discipline. Secondly, international law itself has structural limitations which prevent it from responding adequately to certain issues which affect international peace and security. These limits are defined by the body-politic, namely the international community, which breathes life into international law. While modern international law resides on the core principle of sovereign equality before law, there is an irrefutable relationship between international law and the political realities of international relations which requires us to admit that at least in de facto terms we live in a world which permits *primus inter pares*. Without recognition of this fact it becomes impossible to explain those instances in which international law does not or cannot act. Taking this into consideration, legal response against the implementation of hybrid warfare strategy under existing collective security mechanisms such as the UN Security Council stalls once this strategy has been engaged by a veto-power holding member State. From this point on, the question revolves back to the old riddle: “*Quis custodiet ipsos custodes?*”. The answer to that question, unfortunately, does not reside in legal science.

References

Arnold, R. & Quénivet, N. N. R. (Eds.). (2008). *International Humanitarian Law and Human Rights Law*. Leiden: Martinus Nijhoff Publishers.

Baudrillard, J. (1994). *Simulacra and Simulation*. Ann Arbor: Michigan University Press.

Butkevych, O. "History of Ancient International Law: Challenges and Prospects", *Journal of the History of International Law*, V.5(2), 2003

Cassese, A. (2008). *Civil War and International Law*. In Antonio Cassese & Paola Gaeta Zappalà (Eds.), *The Human Dimension of International Law: Selected Papers of Antonio Cassese*. Oxford: Oxford University Press.

Cassese, A. (2012). *States: Rise and Decline of the Primary Subjects of International Community*. In Bardo Fassbender, Anne Peters, Simone Peter & Daniel Högger (Eds.), *The Oxford Handbook of the History of International Law*. Oxford: Oxford University Press.

Cassese, A. (2007). *The Nicaragua and Tadić Tests Revisited in Light of the ICJ Judgment on Genocide in Bosnia*. *European Journal of International Law*, 18(4).

Cassese, A. (2003). *International Law*. Oxford University Press, Oxford. Clausewitz, C. von. (2007). *On War*. Oxford: Oxford University Press.

Creveld, M. van. (2000). *Technology and War II: Postmodern War?* In Charles Townshend (Ed.), *The Oxford History of Modern War*, Oxford: Oxford University Press.

Creveld, M. van. (1991). *The Clausewitzian Universe and the Law of War*. *Journal of Contemporary History*, 26(3/4).

Dinstein, Y. (2011). *War, Aggression and Self-Defence* (5th Edition). Cambridge: Cambridge University Press.

Dörr, O. (2015). *Use of Force, Prohibition of*. In *Max Planck Encyclopedia of Public International Law*.

Gerasimov, V. (2013). *Military-Industrial Kurier*, VPK News, Feb. 27, (translation: Coalson, Robert, "Top Russian General Lays Bare Putin's Plan for Ukraine", 09/02/2014, http://www.huffingtonpost.com/robert-coalson/valery-gerasimov-putin-ukraine_b_5748480.html,%20F)

Green, L. (2000). *The Contemporary Law of Armed Conflict* (2nd Edition). Manchester: Juris Publishing-Manchester University Press.

Grotius, H. (2005). *The Rights of War and Peace*, I, II, III. In Richard Tuck (Ed.), Indianapolis: Liberty Fund.

Haines, S. (2012). *The Nature of War and the Character of Contemporary Armed Conflict*. In Elizabeth Wilmshurst (Ed.), *International Law and the Classification of Conflicts*. Oxford: Oxford University Press.

Hughes, G. (2012). *My Enemy's Enemy: Proxy Warfare in International Politics*. Eastbourne: Sussex Academic Press.

Jensen, E. T. (2013). *Future War, Future Law*. *Minnesota Journal of International Law*, 22(2).

Johnson, J. T. (1981). *The Just War in the Middle Ages*. Princeton: Princeton University Press.

Korhonen, O. (2015). *Deconstructing the Conflict in Ukraine: The Relevance of International Law to Hybrid States and Wars*. *German Law Journal*, 16(3).

Kraehenmann, S. (2014). *Foreign Fighters Under International Law*. Geneva Academy Briefing No. 7, Geneva.

- McDougal M. S. & Lasswell, H. D. (1959). The Identification and Appraisal of Diverse Systems of Public Order. *American Journal of International Law*, 53(1).
- Mumford, A. (2013). *Proxy Warfare, Polity*. Cambridge: Cambridge University Press.
- Murray, W. & Mansoor, P. R. (2012). *Hybrid Warfare: Fighting Complex Opponents from the Ancient World to the Present*. Cambridge: Cambridge University Press.
- Neff, S. C. (2005). *War and the Law of Nations: A General History*. Cambridge: CUP.
- Newman, E. & Derouen, K. (2014). Introduction. In Edward Newman & Karl Derouen (Eds.), *Routledge Handbook of Civil Wars*. New York: Routledge.
- O'Connell, M. E. (2008). *The Power and Purpose of International Law: Insights from the Theory and Practice of Enforcement*. Oxford: Oxford University Press.
- Perna, L. (2006). *The Formation of the Treaty Rules Applicable in Non-International Armed Conflicts*. Leiden: Martinus Nijhoff Publishers.
- Qiao, L. & Wang, X. (2002). *Unrestricted Warfare: China's Master Plan to Destroy America*. Panama: Pan American Publishing Company.
- Russell, F. H. (1975). *The Just War in the Middle Ages*. Cambridge: Cambridge University Press.
- Samuels, K. (2007). *Political Violence and the International Community: Developments in International Law and Policy*. Leiden: Brill.
- Sarkess, M. R. & Wayman, F. W. (2010). *Resort to War: A Date Guide to Inter-State, Extra-State, Intra-State, and Non-State Wars, 1816-2007*. Washington D.C.: CQ Press, <<http://www.correlatesofwar.org/>>
- Schmitt, C. (2006). *The Nomos of the Earth in the International Law of Jus Publicum Europaeum*. New York: Telos Pres Publishing.
- Schröfl, J., Rajaei, B. M., & Muhr, D. (2011). *Hybrid and Cyber War as Consequences of the Asymmetry: A Comprehensive Approach Answering Hybrid Actors and Activities in Cyber Space. Political, Social and Military Responses*. Bern: Peter Lang.
- Smith, R. (2006). *The Utility of Force: The Art of War in the Modern World*. London: Penguin.
- Sur, S. (2012). The Evolving Legal Aspects of War. In Julian Lindley-french & Yves Boyer (Eds.), *The Oxford Handbook of War*. Oxford: Oxford University Press.
- Themnér, L. & Wallensteen, P. (2013). Armed Conflicts, 1946-2013. *Journal of Peace Research*, 51(4).
- Uzun, M. C. (2007). Savaşın Değişen Yüzü Karşısında Uluslararası Nitelikte Olmayan Silahlı Çatışmalar. İçinde Erdoğan Teziç'e Armağan. İstanbul: Galatasaray Üniversitesi Yayınları.
- Uzun, M. C. (2014). Uluslararası Hukuk Öncesi Dönemde Jus ad Bellum. İçinde Prof. Dr. Feridun Yenisey'e Armağan, Cilt II. İstanbul: Beta.
- Väyrynen, T. (1998). *New Conflicts and Their Peaceful Resolution*. Mariehamn: the Åland Islands Peace Institute.
- Vitalii, V. (2015). Hybrid War, International Law and Eastern Ukraine. *European Political and Law Discourse*, 2(4).
- Vos, J. A. (2013). *The Function of Public International Law*. Nijkerk: Springer.
- Watkin, K. (2012). Small Wars: The Legal Challenges. In Kenneth Watkin & Andrew J. Norris (Eds.), *International Law Studies: Non-International Armed Conflicts in the Twenty First Century*, V.88.

Chapter Two: Legal, Sociological, Cultural and Military Aspects of Hybrid Warfare and Strategic Vision

Weber, M. (1958). *Politics as a Vocation*. In *Essays in Sociology*. Boston: Routledge.

Wehberg, H. (1938). *La Guerre Civile et le Droit International*. In *Collected Courses of The Hague Academy of International Law*, V.63.

Wood, M. (2013). *Use of Force, Prohibition of Threat*. In *Max Planck Encyclopedia of Public International Law*.

Yasuaki, O. (2003). *International Law In and With International Politics: The Functions of International Law in International Society*. *European Journal of International Law*, 14.

I.C.J., *Military and Paramilitary Activities in and Against Nicaragua (Nicaragua v. United States of America, Merits, Judgment, I.C.J. Reports 1986, p. 14*

ICTY, *The Prosecutor v. Dusko Tadić, IT-94-1-A, Appeals Chamber, Decision, 15 July 1999*

ICTY, *The Prosecutor v. Dusko Tadić, Decision on the Defence Motion for Interlocutory Appeal on Jurisdiction, IT-94-1-A, 2 October 1995*

ECHR, *Catan and Others v. Moldova and Russia, Grand Chamber, Judgment, App. No. 43370/04 and 18454/06, 19 October 2012*.

ECHR, *Case of Ilaşcu and Others v. Moldova and Russia, Judgment, App. No. 48787/99, 8 July 2004*.

SOCIOLOGICAL ASPECTS OF HYBRID WARFARE

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Introduction

The sociology of war generally addresses the macro-social issue of what constitutes wars and how are they fought. The more institutional field of military sociology considers macro-process such as civil-military relations, but also focuses on meso-level issues such as who serves, what roles they play, and how armed forces are organized. I will spend some time speaking about both levels of analysis, drawing occasionally on the experience of the United States of America.

Contemporary discussions of the sociology of war routinely begin with references to Carl von Clausewitz (1976), either asserting (e.g., Echevarria, 1995-1996) or disputing (e.g., van Creveld, 1995) the relevance of his theories to modern conflicts. More recently, for reasons associated with what we now call hybrid warfare, increased attention has been paid to the writings of Sun Tzu (1971). I believe in the continued applicability of Clausewitz's approach to war and the triumvirate of society, the state, and the military, but I also believe that we should depart from orthodoxy and seek new angles to apply his perspective (Strachan and Hertberg-Rothe 2007).

In particular, I believe that we must accept the Clausewitzian premise that war is an extension of politics, but I believe that we must broaden our definition of politics beyond (or below) the nation-state, and that we must include irregular forces in our definition of the military. I would like to start by offering two amendments to his theory.

One of Clausewitz's most often quoted aphorisms is that every age has its own form of warfare. I would like to amend this to say that every age has its own spectrum of military operations. The low end of the spectrum is anchored in the most primitive forms of conflict, often waged by families, clans, religious or territorial groups rather than by nations. The high end, which expands over time, today is generally waged by armed forces representing nations, and has always varied as a function of changing technology, which is an important domain in sociological analysis. This end of the spectrum potentially includes chemical, biological, and nuclear warfare. A major challenge of hybrid warfare is that although operations at the lower end of the spectrum are considered the most likely and large conventional wars very unlikely, their probability is greater than zero, and modern forces have to be prepared to operate across the whole spectrum.

One of the interesting nuances of contemporary wars is that the low end of the spectrum of conflict has also been markedly altered by changing technology. It is in no way limited to primitive weapons, but rather engages frequently in modern forms of warfare,

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including information warfare. It also repurposes unexploded conventional ordnance in the form of Improvised Explosive Devices (IEDs), with increasingly sophisticated detonation mechanisms. Second, contemporary notions of “age” must also be adjusted from Clausewitz’s nineteenth century view of “age” as relatively long historical periods to a world where the scale of time has accelerated, and social definitions of war have changed by the year, not by the generation.

One of Sun Tzu’s greatest contributions was his focus not simply on defeating an adversary’s army, but rather on defeating his strategy, using unconventional (ch’i) as well as conventional (cheng) forces. In recommending attacks on the enemy’s vulnerabilities, he advocated indirect approaches to warfare, and recognized early the tactical and strategic value of guerrilla war. The indirect approaches he espoused allowed for warfare between belligerents with markedly different conventional warfare capabilities, did not assume that the more powerful conventional force would win, and provided a foundation for what we now call asymmetric or hybrid warfare.

Changes in War or Changes in Language?

The use of language is what separates us from other species, and is fundamental to sociological analysis. Different languages signal cultural and subcultural differences as well. Within cultures, language affects our behavior. For example, whether we regard acts of terrorism as criminal acts or acts of war helps shape how we prepare for them and respond to them. Criminal acts trigger responses by law enforcement, while acts of war elicit military deployments. When the U.S.S. Cole was attacked in Yemen in October 2000, for which al Qaeda claimed responsibility, it was declared a criminal act, and although Marines were sent to secure the ship, the United States sent the FBI and NCIS to investigate, and the government of Yemen was found culpable in a civilian federal court (Segal, Hunter, Kelty, & Kestnbaum, 2004). A year later, on September 11, 2001, when al Qaeda hijacked four civilian airliners and crashed three of them into the two towers of the World Trade Center in New York and the west side of the Pentagon in Washington DC, the attacks were initially labeled criminal acts, but the Bush administration quickly called them acts of war, and launched the Global War on Terror, invading Afghanistan militarily toward the goal of deposing the Taliban, which supported al Qaeda. I believe that one of the principles of waging hybrid wars is that acts of war and criminal acts converge in the activities of the adversary, and that therefore both military forces and police forces must be used to confront them. We see trends in modern nations of a convergence of these forces as well, with militaries frequently acting more like police, e.g., in peacekeeping operations (which they tend to resist), while police forces are increasingly militarized, in terms of their technology and formations (e.g., SWAT teams). Moreover, we must recognize that what is terrorism to one culture is heroism to another. Cross-cultural understanding of those with whom we share

the battle space -both allies and adversaries- is crucial to avoid misinterpreting actions and intent.

Analyses of war during the first half of the twentieth century focused on conventional war, waged by the armed forces of nations, and exemplified by the two World Wars and the Korean War. Major nations subsequently planned and trained for major future engagements between the formally organized conventional armed forces of nations. However, in the 1970s, the Vietnam War led us to speak of “low intensity conflict” (LIC) as opposed to conventional war, as though we had no experience with guerrilla warfare. The term came to cover counter-terrorism, counter-insurgency, nation-building, and peacekeeping, among other activities. The Vietnam War covered the spectrum of conflict, from guerrilla combat and the growth of special operations to military aviation, heavy artillery, and armor. Andrew Mack (1975), writing about small wars, introduced the concept of asymmetric wars to characterize conflict between unevenly matched belligerents, but it was not embraced by the analytic community for another two decades.

In the 1980s, the concepts of the 1970s morphed into “fourth generation war,” in which the lines between soldiers and civilians and between military operations and politics became blurred. In the 1990s we spoke about “military operations other than war” (MOOTW), which referred to activities such as humanitarian missions and international peacekeeping, although “first generation peacekeeping ” (Diehl, 1993) which generally involved interposition of military forces between conflicting parties that wanted to disengage, itself evolved into more militarily robust strategic peacekeeping (Dandeker & Gow, 1997). In the 1990s, van Creveld (1991) argued for a fundamental shift in the dynamics of war that was the basis for his rejection of the relevance of Clausewitz. Kaldor (1999) coined the term “new wars” and argued that recent patterns of globalization have led to a transformation in the tactics, goals and financing of conflict; new war is characterized by a breakdown of categories and the erosion of boundaries, particularly regarding battle lines, territory, belligerents and victims, and political and ideological aims. Marine General Charles Krulack (1999) introduced the notion of a Three Block War, suggesting that in the space of three blocks, a military force might find itself engaged in peacekeeping, humanitarian missions, and counterinsurgency combat. While each of these concepts focused on a limited range of the spectrum of operations, they all recognized that military operations may occur simultaneously at more than one point in this spectrum. This was acknowledge more explicitly in the twenty-first century when we began to speak of modern wars as hybrid, potentially involving simultaneously different points in the spectrum of conflict, from counterterrorism and counterinsurgency to more conventional larger unit engagements. The basic point is that the recent term hybrid war is a truer and more descriptive term for conceiving of the way that wars have long been fought, with simultaneous engagements at multiple points on the

spectrum of conflict, and is nothing new, although modern nations have tended to prepare for the last wars and battles that they liked, which have tended to be conventional operations, and have only recently been willing to relearn the lessons of past unconventional conflicts. Indeed, accepting the “new wars” assumption of discontinuity from the past increases the likelihood that the lessons of the past will be forgotten.

In the American case, our war of national liberation from the British began with guerrilla operations outside Boston in the late eighteenth century. However, while General George Washington used unconventional operations with great success during our insurrection, he wanted his Continental Army to look as much as possible like conventional European armies (where much guerrilla warfare took place), and established an historical precedent of selectively remembering primarily the conventional battles. While the U.S. has historical experience as being an insurrection, in confronting insurrection both internally and externally, and as a conventional power, our doctrine has been influenced primarily by the latter. Older colonial powers have lessons upon which to draw from their imperial experiences, but one wonders how much they have done so. Have lessons from the Arab Revolt of the early twentieth century been captured in contemporary doctrine?

Sociological Building Blocks

The sociological analysis of any institution or social process must attend to the important domains of People and Organization. The military is a central social institution in most modern societies and war is unquestionably a social process. I will focus on these domains, expand a bit on what they mean, and apply them to the study of armed forces and war.

Population: All armed forces are composed of a variety of people who are stakeholders, whether they are directly in the battle space, using remotely operated instruments of war from afar, providing support to combatants, are the families of military personnel, or constitute the population from which the armed forces are drawn, and whose support (or at least acquiescence) is required for successful military operations in a modern democratic state. This population may also constitute the target for unconventional operations such as terrorism. Central concerns regarding the population are how homogeneous it is, and what the social definitions are of who will serve, what roles they will play, and the degree to which the military population is distinguished from the civilian population. Also of great import is understanding of the population base on which the adversary draws, and its support of that adversary.

In early human societies, the military frequently did not exist as a separate occupation. Rather, military roles were filled through the mobilization of culturally appropriate segments of the general population (most commonly young men), who took up arms and became warriors when the need arose, and returned to other pursuits such as hunting or agriculture

in times of peace. This low level division of labor has characterized recent and current conflicts as well, as reflected in the Viet Cong and al Qaeda, and requires an understanding of the culture of the enemy.

Through the nineteenth and early twentieth century, the American military-relevant population was regarded as young, heterosexual Caucasian men, and elements of the population that did not meet these criteria were excluded, segregated, limited in the units and jobs in which they could serve, and otherwise discriminated against (Segal & Kestnbaum, 2002). The major instrument for managing the military population was one of exclusion. This strategy limited the human capital—skills and knowledge—upon which the armed forces could draw. Starting with the mid-twentieth century, however, the military became more inclusive, and, like American corporations, has been learning that it is enriched by the human capital that diversity brings (Segal, Smith, Segal & Canuso, 2016). This is especially true of hybrid operations. Indeed, increasing tolerance for diversity within the force contributes to external cross-cultural understanding (Hajjar, 2010). Leadership, in turn, is important in developing both internal diversity and cross-cultural competence.

Frequently the military role has been reserved for members of the dominant population group. In the United States for example there have been restrictions on whether African-Americans could serve, in what units they could serve, what military occupations they could enter, and what military ranks they could hold. The U.S. Army became the first major social institution to integrate racially (Moskos & Butler, 1996), but that was not accomplished organizationally until the 1950s, and racial tensions persisted through the Vietnam War period. Greater acceptance of diversity within the force might have led to greater cultural sensitivity in Viet Nam.

Historically the military population has been defined in most nations in terms of gender: military service has been regarded as a male role. Western nations have seen the progressive incorporation of women into the armed forces. However, women have long been involved in unconventional military operations, e.g., in the American Revolution and Civil War, in the resistance and the OSS in World War II, in the Viet Cong, and recently as jihadist suicide bombers and combatants. In the United States gender integration has been an ongoing process, recently reflected by the opening of ground combat occupations and units formerly closed to women (Segal, Segal & Reed, 2016).

The process of gender integration initially was influenced in part by the increased participation of women at the low end of the spectrum of military operations. Following the Vietnam War, the United States increasingly participated in humanitarian and peacekeeping mission, and women demonstrated their competence and ability in these missions (Sandhoff & Segal, 2013). More recent changes in women's positions in the battle space and the spectrum of military operations were influenced by the useful contributions of military women

attached to male combat units in Iraq and Afghanistan. In these conflicts, there is no clear distinction between front and rear areas in the battle space. Women in support jobs are routinely exposed to risk.

Perhaps more importantly, a mission that requires “winning the hearts and minds” of the local population requires cultural sensitivity to gender norms and requires women soldiers be available to interact with (and sometimes search) local women. This necessitated military women going out on missions with combat units. Although policy prohibited women being “assigned to” combat units, the pragmatics of the situation resulted in women being “attached to” combat units. The reevaluation of the policy in light of the reality led to a recognition of the essential function of women in these situation, and the formal establishment of new jobs. These included Female Engagement Teams in the Army and the Marine Corps who accompanied combat units in Afghanistan and worked with local women, serving as important sources of information about the local population, and contributing to the delivery of medical and social services to them.

There are ongoing discussions of diversity in military forces. During the twenty-first century, Britain has had a debate on minority representation in their army that as Dandeker & Mason (2001) suggest, requires a reassessment of what it means to be British. In particular, in the light of contemporary operations in the Middle East, there has been concern with the role of Muslims in the British Army (Ware, 2013).

There has been a similar concern in the U.S. The events of September 11, 2001 activated stereotypes in the American population that saw Muslims as different from other groups (Sandhoff, 2013). It is difficult to know the number of Muslims in the U.S. armed forces: estimates range from 3,000 to 15,000, with about 5,000 being the most cited figure. Those who serve are fully integrated into the force and have deployed to both Iraq and Afghanistan. Some Muslim personnel perceive an increasing Islamophobia in the United States (Gibbons-Neff, 2015), reflected in part in some of the rhetoric coming out of our 2016 presidential election campaign: a sentiment that has been reinforced by the new administration’s attempt to ban people from certain Muslim countries from entering the United States. By contrast, Sandhoff’s (2013) research, based on interviews with Muslim personnel, suggested that while they saw the societal definition of Muslims as “the other” reflected in the military as well, their experiences as soldiers were generally positive, with some variation based on the degree to which their leaders supported them.

The social capital that Muslim soldiers have to contribute to military operations in the Middle East should be obvious. However, while there has long been an acknowledged shortage of Arabic linguists in the American armed services and in other federal agencies (Frank, 2009), the Defense Language Institute and the army were discharging dozens of students and speakers of Middle Eastern languages for allegedly violating the Department of

Defense “Don’t Ask Don’t Tell” policy on sexual orientation: a policy that was rescinded a decade after the Global War on Terror began, with no negative impact on military effectiveness (Belkin et al., 2013). The military’s need for cultural and linguistic resources was offset by homophobia, and resistance to diversity bore significant costs.

Organization: The model for most modern armed forces, and indeed most modern organizations, is the Prussian Army of the nineteenth century, described by the sociologist Max Weber (1947) and widely adopted by twentieth century organizations. Thus, modern armies tend to look very much like each other.

Organizations are most comfortable doing business with other organizations that look like them, even when “doing business” means waging war. Bureaucratic armies are most comfortable when their allies and adversaries are also bureaucracies. During the Cold War, the war plans of the bureaucratic forces of both NATO and Warsaw Pact countries assumed that the forces of the other side were also bureaucratic, which made their doctrine and organization understandable. The major element of ground warfare was the army division, and while divisional formations varied among nations, the basic format was similar. The success of American forces in the first Gulf War can largely be attributed to the fact that Iraq, as a former Soviet client state, fought the war on the basis of Soviet doctrine, organization, and equipment. The United States and its allies were fighting the Cold War battles for which they had trained.

The lessons of the twenty-first century have shown that this does not work across the spectrum of contemporary military operations. Large infantry and armor divisions are not very effective against terrorist or guerrilla adversaries. Small wars are largely small unit wars, where the senior leaders on the ground may be very low in rank, but have to be prepared to make decisions that literally have life and death consequences. The basic ground combat maneuver element in the U.S. Army today is the Brigade Combat Team (BCT), which organically contains the elements it needs to go to war. The division has largely become an administrative vestige. And these units have learned to operate against adversaries that are organized as social networks based on family, tribal, regional or religious ties, rather than bureaucracies (Reed & Segal, 2006). Indeed, our counter-insurgency field manual included an appendix on social network organization. Special Operations Forces such as Rangers and Seals, which during the Vietnam War gained visibility in relatively small numbers as the Green Berets, have proven their small unit effectiveness to the point where former Secretary of Defense Rumsfeld said that he wanted more of the army to be like our Special Operations Forces, although he did not like their unconventional appearance.

Conclusion

There are a few basic points that I would like to emphasize in closing. Wars that involve multiple points on the spectrum of military operations are nothing new. What has changed is the vocabulary we use to discuss them.

If we focus only on the conventional military operations of the past, we lose the lessons we should have learned at the low end of the spectrum of operations. This is costly.

Modern military forces must be prepared to function across the spectrum of military operations. As we move from more exclusive to more inclusive definitions of military personnel, the human capital that we gain from diversity enhances military effectiveness and performance. A diverse military population also increases the cultural sensitivity that is important in hybrid operations. Thinking of irregular adversaries in terms of bureaucratic models of organization is counterproductive. We should instead think in terms of social networks, which are building blocks at every point in the spectrum of military operations.

References

- Belkin, A.; Ender, M., Frank, N., Furia, S., Lucas, G. R., Packard, G., Schultz, T. S., Samuels, S. M., & Segal, D. R. (2013). Readiness and DADT Repeal: Has the New Policy of Open Service Undermined the Military? *Armed Forces & Society* 39:4 (October 2013): 587601.
- Dandeker, C. & Gow, J. (1997). The future of peace support operations. *Armed Forces & Society* 23 (3): 327-347.
- Dandeker, C. & Mason, D. (2001). The British armed services and the participation of minority ethnic communities. *The Sociological Review* 49 (2): 219-235.
- Diehl, P. (1993). *International Peacekeeping*. Baltimore: Johns Hopkins University Press.
- Echvarria, A. J. (1995-1996). War and Politics: The Revolution in Military Affairs and the Continued Relevance of Clausewitz. *Joint Forces Quarterly*.
- Frank, N. (2009). Unfriendly fire. *The New York Times*. March 18.
- Gibbons-Neff, T. (2015). For Muslims in the U.S. military, a different U.S. than the one they swore to defend. *The Washington Post*. December 9.
- Hajjar, R. (2010). A new angle on the US military's emphasis on developing crosscultural competence: Connecting in-ranks cultural diversity to cross-cultural competence. *Armed Forces & Society* 36 (2): 247-263.
- Krulak, C. C. (1999). The strategic corporal. *Marines Magazine*.
- Mack, A. J.R. (1975). Why big nations lose small wars. *World Politics* 27:2, 175-200.
- Moskos, C. C. & Butler, J. S. (1996). *All That We Can Be*. New York: Basic Books.
- Reed, B. J., & Segal, D. R. (2006). Social network analysis and the capture of Saddam Hussein. *Sociological Focus* 39 (4):251-264.
- Sandhoff, M. L. (2013). *Service, Sacrifice, and Citizenship: The Experience of Muslims Serving in the U.S. Military*. Doctoral dissertation, Department of Sociology, University of Maryland, College Park, MD. USA.
- Sandhoff, M. L. & Segal, M. W. (2013). Women in the U.S. military: The evolution of gender norms and military requirements. In David M. Kennedy, *The Modern American Military*. NY: Oxford University Press. pp. 273-294.
- Segal, D. R.; Hunter, E. L., Kelty, R., & Kesetnbaum, M. (2004). Civil-military relations in an era of bioterrorism. *Advances in Health Care Management* 4: 319-344.
- Segal, D. R. & Kestenbaum, M. (2002). Professional closure in the military labor market: A critique of pure cohesion. Pp. 439-458 in Don M. Snider and Gayle L. Watkins, eds., *The Future of the Army Profession*. New York: McGraw-Hill.
- Segal, D. R., Segal, M. W. & Reed, B. J. (2016). Diversity and citizenship in modern military organization. *Turkish Journal of Sociology*. In press.
- Segal, M. W.; Smith, D. G., Segal, D. R. & Canuso, A. A. (2016). The role of leadership and peer behaviors in the performance and well-being of women in combat. *Military Medicine* 181 (S1):28-39.
- Strachan, H. & Herberg-Rothe, A. (2007). *Clausewitz in the Twenty-First Century*. NY: Oxford University Press.
- Sun Tzu. 1971. *The Art of War*. Translated by Samuel B. Griffith. New York: Oxford University Press.
- van Creveld, M. (1991). *The Transformation of War*. NY: Free Press.

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von Clausewitz, C. (1976). *On War*. Trans and edited by Michael Howard and Peter Paret. Princeton: Princeton University Press.

Ware, V. (2013). Can you have Muslim soldiers? Diversity as a martial value. Pp.121146 in Nisha Kapoor, Krinder S. Kalra, and James Rhodes (eds.), *The State of Race*. London: Palgrave Mamillan.

Weber, M. (1947). *The Theory of Social and Economic Organization*. Glencoe IL, Free Press

HYBRID WARFARE AND CULTURE

Afzal ASHRAF*

'Hybrid warfare' is the latest label or concept for framing the apparently dramatic changes in war and conflict. The UK began to speak of the Comprehensive Approach to warfare about a decade ago, largely in response to a realization that warfare needed the commitment and resources of the whole of government rather than just the military. Foreign Ministries needed to provide a diplomatic capability that could evaluate, influence, negotiate and produce binding agreements in highly dangerous arenas of warfare such as Iraq and Afghanistan. Justice ministries needed to provide rule of law advisors, police forces needed to provide policemen as trainers. Economists, industrialists, bankers, educationalists and many others were needed to help transition a country from conflict to peace. Now the talk is of hybrid warfare, which needs all of these things and more to prevent, manage and resolve conflict.

Culture

Hybrid warfare is a new, complex and poorly defined concept. Culture is an old but equally fluid concept, made more complex by its many manifestations; in social, business, political, military and other spheres of human existence. For the purposes of this paper political and military aspects relating to culture will be considered. The premise adopted is that individuals and organizations understand things through their cultural prism. In other words, the subconscious way in which governments, militaries and people see the world, particularly security threats and political opportunities.

Three Players in the Hybrid Warfare Game

The intercultural approach to hybrid warfare between three contemporary geopolitical forces will be assessed. These are the: ~

- West, which is variously identified as NATO, the USA etc, ~
- Russians, including, to a lesser extent, China and Iran ~
- None-state actors, foremost of which are Daesh and Al Qaeda, but could include lesser groups such as the Taliban.

Three Features of Hybrid Warfare

Civilians from Passive Consumers of Violence to Active Reaction

About a hundred years ago, militaries started to target civilian populations directly. The exemplary terror destruction of Guernica by the Nazis during the Spanish Civil War in the 1930s, the firebombing of German cities by British and US Air Forces intended to break the will of the German people and the nuclear attacks on Japanese cities by the USA in order to

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speed up the end of the war in the Pacific are some examples of the blurring of political and military operations.

While the deliberate targeting of civilians by states has almost ceased, civilian casualties grow either because of a callous disregard during targeting or because of systemic and frequent mistakes during operations. The spread of international terrorism, which is believed by many to be partly caused by Western foreign policy, is another increasing cause of strife.

Civilians are no longer passively absorbing suffering or merely evacuating themselves to the nearest safe country. They know from the example of Palestinian refugees that conflicts tend rarely to be resolved for generations. They are giving up on their previous lives and flocking to the West to give themselves and their children a future; a future for which they cannot fight but for which they are willing to die.

Civilian suffering is no longer an unfortunate by-product of war. The massive flow of refugees is a major political and, some say, a security threat in its own right for Europe. The boundaries of a theatre of war are becoming increasingly elastic in terms of space, time and consequence.

Asymmetric Conflict - When non-State Actors are Empowered

Another element of Hybrid Warfare is the prominence of asymmetric conflict. Technology and the empowerment afforded to some groups inspired by a global ideology by the superpowers during the cold war has meant that it has transformed from a peripheral and supporting activity to a prominent, and sometimes primary, means of conflict.

Central to the current situation is the practice of arming non-state actors as Proxies. This has been the overt and largely covert practice of most states, but has been a particularly active part of the culture of Western foreign policy. It is perhaps not pertinent to discuss the ethics of this issue within this paper. Purely on the basis of real politic and national interest, the practice of proxy warfare with non-state actors is past is outdated. It is as acceptable and as pragmatic an element of foreign policy today as would be the practice of imperialism.

The reason is simple. Non-state actor-based asymmetric warfare has become too successful. Information technology provides even the poorest people with weapons, influence and know-how. If these are supported by weapons and money from states, they become potent forces. Most significant, however, are not their weapons or training but a dramatic shift in their worldview that they can defeat superpowers. This belief originated amongst the mujahedeen in Afghanistan and has been reinforced by the myth that insurgents defeated the USA in Iraq and Afghanistan.

This increase in capability and intent has led to an increase in threat. The threat emerges because the impact and actions of proxies can no longer be contained within the geography of their 'area of operation.' The proxy threat frequently overflows borders to

become a regional one. When mixed with revolutionary ideologies like Islamist extremism, the proxy threat becomes global, impacting major powers in the form of domestic terrorism and refugees.

Influence Operations

The cyber domain provides a pervasive and agile outlet for influence operations. These are basically an advanced form of political propaganda; an activity which became closely aligned with warfare operations during WWII. In the contemporary world, this has led to the belief that social network manipulation could result in mobilization for political change. Swarming and chaos theories are just some of the new ideas that have taken hold. Propaganda, based on Liddle Hart's concept of constructing consensus, has given way to ideas such as information dominance.

These emerging views are in vogue particularly amongst practitioners who largely originate from the media, advertising and entertainment industry. However, the claims lack critical examination. What works in Western media culture, in its consumer industry and its entertainment sector does not necessarily transfer successfully into a defensive and potentially hostile political culture. The media is an increasingly free market and so it is difficult for anyone to dominate, except possibly for brief periods. People choose which messages they believe in the same way they choose which music to download – based on their political or social culture. Cynicism over the motives of major powers is a prevalent component of political culture in the developing world. Consequently, communication operations aimed at influence have limited effect except when they are used to reinforce a recognisable political or military reality.

That is not to say that information operations are without utility merely that they are less precise and effective than many in the burgeoning information and strategic communication community sometimes claim. Certainly, there is a paucity of reliable uncontested data on the strategic effectiveness of such operations.

The targeting of civilians, the empowerment of non-state actors and the armament of cyberspace are all factors that have been used by major powers including those in the West. These have yielded short term success in the past but their increasingly negative longer-term impact is now confronting the West in terms of a new threat environment. Ethical policy arguments aside, these issues are a menace which the West can at best only contain by military force. These issues are primarily political in nature and so their eradication will have to be mainly by political and other means.

The Military's 'Can do Culture'

The response to this diverse threat has been what some Western militaries call 'Full Spectrum Operations.' That means a greater involvement of civilian instruments of power such as political policy (both national and international) and cyber and influence operations. It

needs civilian capabilities that either do not exist or are in an embryonic form. In many countries, the military is either taking on tasks that should be done by civilians or is, at least, leading the debate into how civilian and military instruments of power should work together to deliver a full spectrum approach. This means that any new ways of working are largely being influenced by a military cultural mind-set rather than being balanced by a valuable civilian input.

Non-Contingency nature of Civilian Power

One hurdle in civilian mechanisms of power being able to deliver what is required is that government organizations are culturally reactive rather than proactive. They neither have the concepts or capabilities to deal with many contingencies at home let alone a defense contingency abroad. Foreign ministries and foreign elements of intelligence services are exceptions to this, but even they tend to have a limited capability for contingency planning and crisis management in hostile or dangerous situations.

Although the concept of soft power has been around for a while and senior politicians understand the concept of unity of command, there is a cultural inability to think in terms of conflict, to act with confidence in a conflict environment and to take the lead in what we call non-kinetic aspects. Historically, the Army, Navy and Air Forces used to have separate ministries in government but they have learned the crucial importance of joint operations. They are not just joint at ministerial level, but also at the command operational level. The civilian ministries potentially involved in a full spectrum approach remain distinct. As the relationship between the DOD and State Department during the early stages of the Iraq campaign demonstrated, they sometimes find it hard to work constructively together.

The Russians have attempted to address this problem with a unified command center in Moscow and reports indicate that this system works well. The existence of a central decision making authority allows a more agile approach to a rapidly evolving situation. It further allows for continually changing initiatives to force an adversary into a reactive position by getting inside the adversary's ODA (observe, decide and act) loop.

Daesh and other terrorist organizations are essentially unitary structures, albeit often in cellular form, simultaneously focusing on all aspects of their existence. This structure encourages a culture of initiative and agility, which accounts for some of their success.

Militaries taking the lead on hybrid warfare capability development in their countries should carefully assess the wisdom of taking on responsibility for additional soft power tasks. Instead they would be better focusing on increasing their capability to conduct a broader range and greater number of hard power operations. They could, however, help the civil power to understand its greater responsibility for involvement in 'hybrid warfare.' This would require a deliberate effort to change the military's current 'can do' culture to a 'you must also do' stance towards the elements of civil power responsible for delivering hybrid warfare.

We Make Peace—Others Make War

The term 'hybrid warfare' is itself culturally objectified. It suggests that conflict exists and that the hybrid or full spectrum approach provides a means of winning it. The term and associated doctrinal culture has relatively few, if any, concepts aimed at preventing, deterring and defusing conflict, except the very existence of a hybrid capability. Indeed, the influence and economic components of hybrid warfare require a state of almost continual dominance to be effective, thereby creating a perception of perpetual competition spilling over into virtual conflict. In its attempt to deal with a new form of warfare, the hybrid warfare approach is actually introducing a new form of cold conflict.

An assessment of current Russian threat analysis indicates that it views the West as the creators and practitioners of hybrid warfare. Russian defense staff and analysts believe that hybrid warfare is a method developed to threaten and degrade Russian political power over time. They view many of the current conflicts as "proxy conflicts" waged by the West "in their near vicinity in order to destabilize their periphery." Consequently, Russia has established a unified command structure to defend against and establish a lead in hybrid warfare. The result is a virtual arms race in hybrid capability.

Much Islamist extremist insurgency propaganda has long pointed to the West's use of cultural dominance as a component of its political and military dominance. They point to the ineffective, corrupt and repressive pro-Western Muslim regimes as evidence of its success. Their effective propaganda highlights the social chaos, economic strife and thousands of civilian deaths through to redefine the West's motives for intervention in Muslim countries. One of the most powerful components is their quotation of a highly relevant Qur'anic verse:

"And when it is said to them: 'Make not mischief on the earth,' they say: 'We are only peace makers. Verily! They are the ones who make mischief, but they perceive it not.'"
[Qur'an 2:11-12]

From the West's point of view these are wars of liberation as expressed in the title of Gene Sharp's book, "From Dictatorship to Democracy: A Conceptual Framework for Liberation."

Culturally we think that we are a force for good but our adversaries see these actions as genuinely threatening. Hence there is a confusion of motives and threats between adversaries. Such confusion can lead to conflict, as it did 100 years ago. Some of the reasons why the world plunged into the horrific First World War were because "diplomacy was side-lined, moves were misinterpreted and motives were misconstrued."¹ While attempting to absorb diplomacy and foreign policy, hybrid warfare currently has few concepts which ensure moves and motives are not misunderstood by potential adversaries.

¹ Lord Robertson, Address to ICMSS 2016 at the Turkish Army War College Istanbul, Turkey, March 14, 2016

Many of these issues occurred as a lack of military and political cultural awareness and self-awareness. Sun Tzu declared that the ultimate goal is to subdue the enemy without fighting. A prerequisite is to understand the enemy. Whether winning is by fighting or not, victory is most likely achieved through understanding ourselves and knowing our enemy.

While there are many challenges involved in gaining an objective understanding of ourselves the problems of analysis and understanding is a prominent one. States usually decide on a course of action based on their national interest. As national interest is usually competitive, it is by nature selfish. Consequently, politicians tend to articulate their policies in judicial or ethical rhetoric. For example, by claiming that they are acting in self-defense or the defense of the weak or oppressed. That rhetoric justifies strategic choice rather than interests.

Take the example of Russia in Syria. Its national interest was preserving its bases in Syria. The political rhetoric used to justify its actions against rebel forces was to fight terrorists who threatened sovereignty and security of states. Their strategic choice was to support the regime forces primarily through air power.

This trinity of national interest, political rhetoric and strategic choice or political policy are the critical components of political and military analysis. Very few people are aware let alone competent in these skills. Dialogue on the basis of interest rather than on strategic choice or position is one of the fundamental principles of successful diplomatic negotiations.

Wars, however, are often started because the strategic choice of an adversary is unacceptable whereas their national interest could well have been accommodated through negotiations. Therefore success in hybrid warfare will require prioritizing political and strategic intelligence over tactical intelligence, which is where effort has traditionally been centered, so that non-kinetic solutions can be identified to avoid conflict that is costly in terms of lives.

The Competitive Culture - the Arms Race

A military culture of seeing the world as a threat rather than political opportunity, its habitual and necessary ethos of competition and the need to win, all leads to what could be called the 'Hybrid Arms Race.' As militaries try to adapt to the hybrid way of war to meet the perceived threat, by incorporating new form of weapons, capabilities or policies, they risk exhausting their nations' economic and political capital. So it is worth considering how aspects of hybrid warfare can be made unacceptable to adversaries so that militaries do not have to invest in valuable new resources.

Modernism and the Systemic or Deterministic View

The modern habit of seeing the world as a 'system' is probably the single common element that separates modern political thinking from pre-modern thinking. Marx and Engels viewed human society through the prism of an economic system that could be changed to create a superior equal society. That worldview was given the label 'Economic Determinism'. Western military doctrine and procedures are based on similar concepts of determinism.

The Russians also view the world as a system. Their analysis of the color revolutions in the Middle East and in Ukraine and Syria assumes that the revolutions and the chaos that followed them were planned and managed by the West. They believe that a "method behind the madness," exists; all part of a "unified package [which] becomes Hybrid War (Korybko, 2015)."

It is difficult for Russians to imagine that the CIA was embarrassed at not having predicted the Arab Spring. If the USA and European powers had any influence over subsequent events, it would have been by manipulating events, movements and key individuals after chaos had set in, not before. Unsurprisingly, the West has failed to deliver any outcome that could be described as favorable to itself.

Doctrine, SOP's and Systemic Thinking

The Russian General Gerasimov said every war is different but the Western systematic cultural approach to war has not adapted well to emerging contexts. This has been responsible for many of the failures in recent conflicts. One example was the central plank of the COIN strategy in Iraq, to drive a wedge between insurgents and the population. This doctrinal concept shaped the COIN strategy in Iraq until it became evident that the coalition's fight was in fact driving the insurgents closer to the population.

This and other examples underpinning recent military failures need to be pondered over to understand the systemic approach to Western military thinking before it can adapt to a new way of war. Military generals will have to become thinkers, developing bespoke doctrine for each unique conflict, based on enduring principles such as identification and maintenance of a single aim.

Conclusions

Hybrid warfare cannot be fully grasped if viewed through a military culture. It needs to be understood from a broader approach which includes a societal and civilizational approach. If Hybrid warfare is allowed to develop to consume the full spectrum of national capability, then it could become like nuclear warfare - threatening all elements of society on all sides.

One advantage today is that all major states (USA and Russia) recognize that the cost of war is too high for their societies to bear. This provides a significant opportunity for conflict prevention. The most important way to prevent conflict is to avoid the perception of threat,

especially when that threat may in reality not exist. To do that the political and military culture – worldview – of other potential adversaries needs to be understood. If the West feels threatened by notions of Russian expansionism, then it makes sense to avoid making the Russians feel the same.

The most dangerous element of hybrid warfare is the empowerment of non-state actors as proxies for great powers. They provide only temporary utility. In a globalized world they have become a medium and long term threat.

Hybrid warfare will only be effective if by using the entire capabilities of the state it reduces the chances of kinetic conflict. The danger of a hybrid warfare ‘arms race’ is real and could debilitate the nations involved. The greatest investment in a positive hybrid capability will be to develop a cultural understanding of the national interest of potential adversaries and find ways of accommodating those without weakening a nation’s own strategic position.

Challenging and calling for the limitation of hybrid warfare is not to advocate an end to warfare of any kind. Brave and capable warriors will always be needed to ensure peace between and within states. However, it must be accepted that if it is difficult to conduct operations within the laws of war for states then it is almost impossible to control the behavior of non-state actors. They need to be fought and disempowered by being shown to be failures.

The effectiveness of influence operations needs to be challenged, remembering that there is nothing more influential than actions and reality. Here the delivery of a decisive action or victory is something that will always be more influential in shaping reality than any message. Conventional war must be avoided but if it is embarked upon then it is essential that there is no doubt about who has won and who has lost. While political culture thrives on ambiguity, military culture must not allow ambiguity in its outcome. Military failure breeds threats. Victory acts as a powerful deterrence.

References

Korybko, A. (2015). *Hybrid Wars: The Indirect Adaptive Approach to Regime Change*. Moscow Peoples’ Friendship University of Russia, Moscow. Retrieved from <http://orientalreview.org/wp-content/uploads/2015/08/AK-Hybrid-Wars-updated.pdf>

COMMAND AND CONTROL

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Definition of Command and Control

The basic definition of command and control, command is the authority that a commander exercises over subordinates by virtue of rank or assignment. It is more art, than science. Based on commanders' experience, background, education; every commander has a different style of command. In short, the art of command is the exercise of authority through decision making and leadership (JP 3-0, 2011).

On the other hand, the control applies more science than art. It relies on facts, empirical methods and analysis. The science of control includes the detailed systems and procedures to improve the commander's understanding, assessment, planning and execution of missions (JP 3-0, 2011).

The command and control system all together is the arrangement of personnel, (organization) information management, procedures, equipment and facilities in order to monitor, plan, assess and execute operations.

The command and control theory can be explained with a simple model of the command and control process known as the OODA loop. The phrases of OODA loop refer to the cycle of "observe, orient, decide, and act" which was developed by military strategist and USAF Colonel John Boyd (Richards, 2012).

The one who can run the cycle faster than an opponent can "get inside" and disrupt the opponent's decision cycle to gain the situational superiority. The loop has four phases;

Observation

Observation is basically scanning the environment and gathering information from as many sources as possible. Some of the key challenges to effective observation are to know what information to monitor and how to filter it in order to get the relevant information to the decision making and planning.

Orientation

In orientation, we use the information to produce a picture of the situation. Namely, convert the data into information, such as Common Operation Picture. As we receive more information, we "erase" an old picture and then "create" a new picture again. Additionally, orientation helps to turn information into knowledge. Knowledge is the main element of making good decisions and planning. In theory, five main elements are identified which influence our orientation. These are:

- Cultural traditions,

* LTG, Turkish Armed Forces

** BG, Turkish Armed Forces

- Genetic heritage,
- The ability to analyze and synthesize,
- Previous experience level,
- New information coming in.

Orientation is the most important part of the OODA loop since it shapes the way we observe, the way we decide, and the way we act.

In order to win, we should operate at a faster tempo or rhythm than our adversaries, and get inside the adversary's loop. By creating continuously changing situation, we force our opponents to deal with outdated information, and struggle to update. Thereby we deny opponents the necessary time to orient their decision. Such activity will make us appear ambiguous (unpredictable) thereby generate confusion and disorder among our adversaries. Adversaries will be unable to generate pictures that relevant to the continuously changing problem they face. Additionally they could not find enough time to adapt their battle rhythm or procedures they are competing against. With deception the situation would get worse for the opponent.

Decision

In the third step, we consider options and select a course of action. The goal is to make better and faster choices than your opponent. The ability to predict the future can make the difference between success and failure. Time and uncertainty are two important parameters that will affect the decision process.

Action

In the last step, the decision is carried out. Once the result of the action is observed, you start all over. We usually release different kind of orders to carry out the decision. Our units should understand the orders easily and carry out it out without any problem. Following this phase of the loop will start all over again and we will monitor the results of our actions and performance. If we have to convert OODA loop to command and control process; monitor, asses, plan and execute will be the main functions of this process. It goes without saying that assessment phase will be the main element of this process as orient phase within the OODA loop.

Main Challenges of Hybrid Warfare from Command and Control Aspect

Ambiguity

It is an undeniable fact that the main characteristic of Hybrid Warfare is ambiguity. When we look at Ukrainian crisis, International Community and Ukrainian could not understand what was going on before and even at the early stages of the crisis in Ukraine. We have seen little green men, we know that they were Russian soldiers, yet it created hesitation in decision makers' mind. So uncertainty helped Russian Army to buy time to accomplish its task. When decision makers fully understand the full picture it was late.

Russians prevented Ukrainians and international community from orienting themselves and producing a meaningful picture of the current situation. As a result, decision making has been delayed. Namely, Russians succeed getting inside Ukrainian and International Community's decision cycle (Bėrzinš, 2014).

Deception

Russians have important experience on deception. As a matter of fact they developed "masked warfare" (maskirovka) concept and used deception successfully in the history (The Military Balance, 2015). For example, Soviet invasion in Afghanistan, in 1979 began with 700 Soviet troops dressed in Afghan uniforms seizing key military and administrative buildings in Kabul. They accept deception as an integral part of any warfare. During Ukraine crisis, in coordination with military domain, they also conducted deception in other domains such as political and social domains. In addition to ambiguity, deception and denial of operations also helped Russians to prevent Ukrainians and International Community orienting itself.

Different Ways/Methods

We all accept that Hybrid Warfare is not new. Yet ways/methods are new, such as cyber attacks. Therefore it would be a mistake to think that Hybrid Warfare would use the same, standard ways of execution (Thiele, 2015). Additionally, we may see different versions of the execution of Hybrid Warfare. In this respect, we have seen different applications of Hybrid Warfare in Syria, Lebanon and Iraq cases.

Interagency Approach

Military is not the only way to execute Hybrid Warfare. As a matter of fact, in addition to military; Diplomatic/Politic, Information, Economic, Financial and Legal dimensions (DIMEFIL) are also very important. In short, we have to get use to conducting operations in DIMEFIL dimensions and need to change our perceptions. This would need involvement of different agencies (Gressel, 2015).

Non-State Actors

In the age of globalization, we witness that in addition to states, non-state actors are also getting more effective (Bėrzinš, 2014). Non-state actors also use Hybrid Warfare tactics with different versions, such as Hezbollah and ISIS. This may also affect our command and control process. Yet, non-state actors' tactics and techniques are different than the one used in Ukraine (Thiele, 2015, pp.5-9).

Multiple Tactics

Conventional Forces, Special Forces and Criminal Groups usually conduct operations at the same time or with a defined time table. Each uses different tactics and techniques and their applications would not be sequential. Moreover we will see the results in different Command and Control levels, from political to tactical level (Hunter & Pernik, 2015). One

should not surprise to see that instead of conventional force; Special Forces/Criminal Groups leads the decisive operations.

Challenges with the Design of Command Structure

For a conventional operation we have four levels of command. These are political, strategic, operational and tactical command levels. While political level defines political goals, strategic level will translate these goals into military language. Operational level will deal with a particular joint operation in a Joint Area of Operation. Tactical level will only focus on a given mission in this area (Rădelescu, 2015). Obviously, first indicators and warning would be coming from tactical level. Yet having only combat information, it would be difficult for tactical level to recognize that we face a Hybrid Warfare situation. Since operational level receives more information than tactical level, it has more chance to recognize Hybrid Warfare at early stages. Usually, operational level cannot access too much necessary information from other dimensions: such as political, economic, cyber. Under these conditions, since strategic level can get necessary information not only from military structure but also from other non-military organizations or domains, strategic level have a better chance to recognize Hybrid Warfare. Nevertheless, one has to accept that strategic level would not have first-hand information as tactical level. Therefore, proper reporting and assessment procedures must be in place. Namely, there is an inverse proportionality between first-hand information and amount of information coming into tactical and strategic levels.

Recommendations for effective Command and Control in HW Environment

Orientation

In Hybrid Warfare, keeping in mind that our adversary would try to prevent us making timely decisions by creating ambiguous situations, so we need to find a way to run orientation phase of OODA loop properly. In the observation phase, we get all raw data and in the orientation phase, we try to figure out what it means to us and what we can do about it. Data is processed into information displayed in a form that is understandable to the people who use them, such as standard reports, graphics, layouts etc.

Knowledge is data which have been evaluated as to reliability, relevance, and importance. Knowledge is various pieces of processed data which have been integrated and interpreted to build a picture of the situation. For example, intelligence is a form of knowledge as compared to combat information which has not yet undergone analysis and evaluation. Likewise, intel and situation reports brought together to create an estimate of the situation represent knowledge. At this level, we are starting to get a product which can be useful for decision making (Beyazkürk & Özdemir, 2015).

Understanding means we have gained situational awareness. Understanding reveals the enemy's critical vulnerabilities. It reveals the patterns and logic of a situation. Moreover, Understanding allows us to anticipate events prior to the consequences of new or impending

developments or the effects of our actions on the enemy. We try to make understanding the basis for our decisions—although recognizing that we will rarely be able to gain full understanding.

We need knowledge or better understanding the situation. Therefore indicators and warning signs are important. We should not pay attention what has been declared but what has been done.

Keeping in mind that we would still have some uncertainties, we need to get use to making decisions without having full picture. Yet we have to keep running the cycle faster and monitoring the result of our decisions. The worst decision is better than staying indecisive. Nevertheless we need to keep monitoring as soon as starting execution. In another words, we need to understand the results of our decision and try to start another decision cycle if we need.

Learning Organization

In the battlefield, we may see new ways of application of Hybrid Warfare. Adversary may not use conventional forces with classical tasks, such as attack, defense. Instead, conventional forces may be in a supportive role and only Special Forces may conduct the decisive operations. Additionally, we may have to conduct operations on a new dimension of battlefield, such as cyber space (Gunneriusson & Bachman, 2015). So, we have to accept that battlefield is like a living organism. It will be evolving and will not have the same characteristics continuously. In other worlds, our adversary will be changing tactics and try to adapt its force to the new circumstances.

Only learning organizations may have a chance to survive and adapt themselves to those new circumstances. Yet it is not enough to become a learning organization. Additionally, you need to educate your staff and commander to be learning individuals. Commanders and staff officers must not forget that “using old solutions to solve new problems would be a big mistake.” They should create relevant solutions suitable for the particular problem.

Therefore we may conclude that we need “Warrior Scholars”. Military leaders at all levels must be warriors, but at the same time, they need to be scholars. In other words, they need to learn how to fight well and also they need to learn how to get data from the battlefield and analyze to get the knowledge in order to develop proper understanding of the battlefield. Following this process they can come up suitable solutions to adapt themselves, the organization and procedures. They should not have prejudices. On the other hand, having a system to define the lessons learned and disseminate these lessons to the subordinate units on time would be an important force multiplier. This would help to create proper solutions to the problems suitable to particular cases they faced in all dimensions (Thiele, 2015, p.10).

Mission Command

Mission command and control accepts the turbulence and uncertainty of war. Rather than increasing the level of certainty that we seek, by mission command and control we reduce the degree of certainty that we need. In such a system, the commander holds a loose rein, allowing subordinates to have significant freedom of action and requiring them to act with initiative. Discipline imposed from above is reinforced with self-discipline throughout the organization. Because it decentralizes decision making authority and grants subordinates significant freedom of action, namely initiative. By decentralizing decision making authority, mission command and control seeks to increase tempo and improve the ability to deal with fluid and disorderly situations. Moreover, with its reliance on implicit communications, mission command and control is less vulnerable to disruption of the information flow than detailed command and control.(Dempsey, 2011).

It is important to point out that initiative does not mean that subordinates are free to act without regarding the guidance from above. In fact, initiative places a special burden on subordinates, requiring that they always keep a bigger picture in mind and act in harmony with their senior's intent. The freedom to act with initiative thus implies a greater obligation to act in a disciplined and responsible way. Initiative places a greater burden on the senior as well. Delegating authority to subordinates does not mean that higher commanders will be free of ultimate responsibility. They must frame their guidance in such a way that provides subordinates sufficient understanding to act in harmony with their desires while not restricting freedom of action (Kessler, 2010). Commanders must learn to express their desires clearly and forcefully

. Usually there are five elements of any mission statement: These are Who, Why, When, Where, What. In a statement of decision, we need to add "How" to the statement. In both of the statements, "Why" will be the key, because it will be the main core of commander's intent (Pang et.al., 2014). The mission and decision statements describe the action to be taken while the intent describes the desired result of the action. In mission command, statement of the intent is the most important part of any OPOORDERS and FRAGOs. While a situation may change, making the mission outdated, the intent is more enduring and continues to guide our actions. Understanding our commander's intent allows us to exercise initiative in harmony with the commander's desires. The commander's intent should thus pull the various separate actions of the force together, establishing an underlying purpose and focus. It should provide top sight. In so doing, it should provide the logic that allows subordinates each to act according to their unique circumstances while maintaining harmony with one another and the higher commander's aim. While assigned tasks may be overcome by events, the commander's intent should allow subordinates to act with initiative even in the face of disorder and change.

Harmony among Agencies

In the context of DIMEFIL, multiple agencies with different culture need to work in harmony (Palmer, 2015). This means that we have to manage multiple OODA loops. Each loop will have its own battle rhythm, culture, procedures and also its own objectives. A superior organization should lead, oversee and establish the unity of effort among the agencies. Battle Rhythm will be the key for the harmony. Battle Rhythm is a deliberate daily cycle of command, staff, and unit activities intended to synchronize current and future operations. So Battle Rhythm of each agency should be in a harmony. This will be an important asset for defense against a Hybrid Threat. Speaking about harmony of agencies, synchronization must start early in planning. We call this process “compressive approach”. Compressive approach is the process of planning not only in militarily but also in all of DIMEFIL domains (McDonnell, 2009).

Digitalization of Battle

Information age presents us different opportunities for command and control process. Digitalization of data collection, processing and dissemination would help us to gain information superiority and to produce Common Operational Picture (COP)/Joint Operational Picture (JOP) sooner. No need to say that this ability would contribute to run OODA loop or the command and control cycle faster than the adversary (Lehaci, 2015). Obviously, one has to put necessary tools in place in order to prevent information influx, such as filters, crosschecking tools.

On the other hand, one must be careful not to use conventional warfare logic while designing a command and control system to cope with the challenges presented by HW environment. At least new approach must take account of DIMEFIL dimensions of HW and be aware the challenge to produce meaningful Situational Awareness tools which will help decision makers to make timely decisions. In this context, working on HW indicators and warning systems would be very useful. They would help staff grasp the situation early enough and ask for early decision.

Designing a proper command structure for HW

Since each operation has different characteristics, it has to have different command and control structure suitable to that particular operation. Additionally, it has to be flexible and adaptable.

Remembering military strategic level has necessary connections with non-military institutes, it will be wise to set up a suitable crisis management structure both to recognize a Hybrid Warfare and to provide effective command and control functions at this level. As a second approach we may recommend setting up a task force consists of military and nonmilitary staff at the political level.

Moreover at the tactical level; military, security and intelligence organizations should come together within a joint structure. But this structure would be security heavy. The same is valid for operational level. Yet area of responsibility and structure of relative organizations should be adjusted. These structures must be set up during the piece time and main task would be to eliminate any vulnerability that our adversary may exploit. With the commencement of Hybrid Warfare, these structures may manage HW at the provincial level and provide necessary information to operational and strategic levels. It is a must that tactical level should provide relative information for decision and planning.

In this respect, having a good knowledge development and information sharing system will be the key. Additionally, we need to have a holistic approach and be careful with any gap between command levels.

Conclusion

As a conclusion, the command and control system is the arrangement of personnel, (organization) information management, procedures, equipment and facilities essential to the commander to monitor, plan, assess and execute operations. Understanding OODA loop would help us to create better command and control structure for HW. The question is “how to run the loop faster than our adversaries?” in order to get inside their decision making cycles.

We may also conclude that ambiguity, deception, interagency approach, different ways/methods, multiple tactics, non-state actors are the main challenges of HW from the command and control perspective. Keeping in mind these characteristics in the framework of OODA loop we may point out that we need to focus our efforts to;

- Make orientation phase more effective and faster,
- Have a learning organization,
- Use mission command,
- Create harmony among agencies,
- Use information age capabilities (Digitalization of Battle Field),
- Design proper command and control structure.

References

- Bērziņš, J. (2014). Russia's New Generation Warfare in Ukraine: Implications for Latvian Defence Policy. Centre for Security and Strategic Research Policy Paper No.2. Retrieved from <http://www.naa.mil.lv/~media/NAA/AZPC/Publikacijas/PP%2002-2014.ashx>
- Beyazkürk, A. & Özdemir, O. (2015). Knowledge Refinement in Knowledge Development Process by Information Technology. Proceedings of the ICMSS 2015. Istanbul: Turkish Army War College.
- Dempsey, M. E. (2011). Mission Command. US Army Magazine, January, 43-44.
- Gressel, G. (2015). Russia's Quiet Military Revolution and What It Means for Europe. European Council on Foreign Relations, Policy Brief, 143. Retrieved from <http://www.ectr.eu>
- Gunneriusson, H. & Bachman, S. (2015). Hybrid Wars: 21st Century's New Threats to Global Peace and Security. Scientia Militaria, South African Journal of Military Studies. 43, 81-82. DOI: 10.5787/43-1-1110.
- Hunter, E. & Pernik, P. (2015). The Challenges of Hybrid Warfare. Analysis, International Center for Defence and Security, Estonia.
- Joint Doctrine Publication (JDP) 04. (2010). Understanding. Development, Concepts and Doctrine Centre. London: UK Ministry of Defence.
- Joint Publication (JP) 3-0. (2011). Joint Operations. Retrieved from: http://www.dtic.mil/doctrine/new_pubs/jp3_0.pdf
- Kessler, M. W. (2010). Coping with Uncertainty: Command and Control in Information Degraded Environments. US Naval War College Report.
- Lehaci, N. T. (2015). The Command and Control Systems in the Context of Post-Cold War Revolution of Military Affairs. International Scientific Conference "Strategies XXI" suppl. Bucharest: "Carol I" National Defence University.
- McDonnell, J. P. (2009). National Strategic Planning: Linking DIMEFIL/PMESH to a Theory of Victory. US JFSC Joint Advanced Warfighting School.
- Palmer, D. A. R. (2015). Back to the future? Russia's hybrid warfare, revolutions in military affairs, and Cold War comparisons. Research Paper, No.120. Rome: NATO Defence College Research Division.
- Pang, C. K., Hudas, G. R., Mikulski, D. G., Le, C. V., & Lewis, F. L. (2015). Command and Control for Large-Scale Hybrid Warfare Systems. Unmanned Systems, 3(1), 1-15.
- Rădelescu, M. (2015). Counter-Hybrid Warfare: Developments and Ways of Counteracting Hybrid Threats/War. Bucharest: Romanian BASARABI Academy.
- Richards, C. (2012). Boyd's OODA Loop. Retrieved from: http://www.jvminc.com/boypsrealooda_loop.pdf
- The Military Balance. (2015). Hybrid Warfare: Challenge and Response. Pp. 17-20.
- Thiele, R. D. (2015). The New Colour of War – Hybrid Warfare and Partnerships. ISPSW Strategy Series: Focus on Defense and International Security, 383.

CHAPTER THREE

TECHNOLOGY AND HYBRID WARFARE

EMERGING TECHNOLOGIES IN A FUTURE/HYBRID WARFARE CONTEXT

Alan SHAFFER*

The organization has been spectacular and the work of your staff officers has been incredible. This is a very daunting topic. Emerging technologies in a future hybrid warfare context. I want to say a couple of things. I always get nervous when people ask me to predict the technological future. Because I look at such luminaries as Thomas Watson who formed the I.B.M. Corporation. In the early 1950's Thomas Watson said "I think that there is a world market for about five computers." He got that a little wrong. In the early nineties Bill Gates, the founder of Microsoft said on the record; "Six hundred and forty kilobytes should be enough for anybody." So projecting forward becomes very difficult. And I listened to Dr. Maize's talk about directed energy. I can remember as a junior officer in the early eighties. People were sure that lasers were going to be the next thing on the battlefield and yet we do not have any operational laser systems now. So forecasting technology gets to be very murky. You heard a lot about hybrid warfare yesterday. But I contend hybrid is nothing new. Hybrid has always been there and I want to point to this in just a moment. What is new is the emergence of new tools, technologies primarily in the information domain that have muddied the battlefield. We have come into an era where there's very much compressed decision time. Commercial technologies that can be applied in a military sense are available to state and non-state actors. Most science now is multi-disciplinary. We used to think in terms of energetics for explosive content. Now we think "how do cyber and information tools interact with platforms". It becomes a very confused world.

I go to the first hybrid warrior. Sun Tzu who lived in about one thousand B.C., and if you look at those quotes. Those are pure hybrid warfare quotes; "The supreme art of war is to subdue the enemy without fighting; - If you are far from the enemy make him believe you are near; - Hence that General is skillful in attack whose opponent does not know what to defend; and he is skillful in defense whose opponent does not know what to attack. Secret operations are essential in war. Upon them the army relies and makes its every move." I contend those quotes describe exactly the intent of hybrid warfare. So I think it's very important to separate the new phrase of hybrid warfare to the old concepts of warfare. Things don't change. The tools we employ do change. So I'm going to focus not on the conventional, but I will say that one of the big takeaways from yesterday for everybody in the room should be that the so-called hybrid tools used without the ability to conventionally strike could wage conventional warfare, surveil, strike and maneuver really don't have much teeth. What is new in our cyber operations? Understanding and using social networks, the depths

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of psychological operations, information operations and indirect attacks and civil economic targets; in today's world you need both conventional and hybrid tools.

So I want to spend about three minutes, describing science and technology in NATO because this is important. I run an office that brings together scientists and officers from twenty eight nations plus a number of partner nations to think about how do we work together better? Lord Robertson said that no nation in a modern world can do everything and he's right. So, my job is to pull together the nations to work together. The foundations of science and technology in NATO came from Professor Theodore von Karlman who had this quote.

I contend now, you have to add the political element. Karlman said scientific results cannot be used efficiently by soldiers who have no understanding of them. And scientists cannot produce results for warfare without understanding operations. Modern world blends in politics. I work in the NATO Science and Technology Organization. Our job is to conduct and promote science and technology activities across all twenty eight nations; enable and influence security and defense related capability development and support decision making in NATO Headquarters. To do this, we have a network of five thousand scientists from twenty eight nations plus a number of partner nations and we manage over two hundred ongoing activities at any one time. And we manage outreach to the collective scientific communities of about five hundred thousand scientists in all the NATO nations. So the trick is how do you get people to come together to work together? I contend that NATO is the path to access for future capability developments of all the nations. We heard about this yesterday. The vast erosion of technology-based military superiority is certainly ongoing. Most nations are facing some level of fiscal austerity. The time to develop new technologies is compressed. I have different slides that I frequently use. And some slides that show that what used to take twenty years to develop now takes about five in the information technology world. Technology development is outpacing our ability to field things. Increased access to commercial technology as a tool of warfare is very important. And we have the emergence of new approaches that we're talking about over these two days. I contend that the convergence of those five factors means that it's more important now than ever to collaborate and to collaborate effectively across the NATO and partner nations. To do this we have seven panels, seven technical panels, in traditional military areas: applied vehicles, human factors and medicine, information systems technology, systems analysis, operations research. You have to understand how things come together. Systems, concepts and integration; that's all about systems engineering. Technology, if you're not engineering it in the systems sense, has very little value. And then of course sensors and modeling and simulation. This shows the growth of the collaborative program in NATO science and technology over the years. Right now we're managing one hundred and seventy five task groups. Task groups are two to three year efforts bringing together at a minimum of about ten scientists from four or more

nations to work on a specific problem. We also have symposia, workshops and other events. I'm going to go very quickly through about eight to ten quad charts. I apologize up front. I wanted to pull these directly from our archive rather than make them smaller. So, there's way too many words in any of these slides. But it shows some of the current activities that are ongoing in NATO. And these activities are available to and many of them are already joined by Turkey and other NATO nations. We have an operations research task group looking at irregular warfare and operations assessment processes and these quad charts; the upper left corner is the title, the lower left corner is objectives, don't try to read it. I would not try to read it. We will leave the slides behind. The upper right corner of the slides shows what nations are participating. But I'll say something very briefly about each of these.

This group is looking at what are the best practices for planning and preparation of individuals, training the soldier, the most important thing is training the soldier to use the new tools to recognize, adapt and be able to operate in an irregular environment. We have a case study and hybrid warfare using the Crimea annexation by Russia as the case study. You can see the number of nations participating. Most notably Ukraine is participating as a partner nation. We have a group of about twenty five operations research analysts going through the data and decomposing what irregular tools were used in the Ukraine case. Then the group is assessing how the tools were effective and where they were ineffective. Task Group's finding will be a very important thing for future military planners. This is a fast action team started in October. We were asked to start in October, it will complete by June with a report. So I think those are important operations research studies.

I now look at a couple of our activities. And these are ongoing research task groups in cyber warfare. So we heard a lot about cyber warfare. First and foremost, the most vulnerable link in any cyber system, in a computer network, he had a platform because at the end of the day all of our tanks, ships and planes are nothing more than floating or sailing or maneuvering in cyber networks. The most vulnerable part of the cyber network, it's the human interfacing with that network. If you think about it, most penetrations by certain nations come about because a human didn't do something right somewhere. So this task group is looking at human systems interactions and integration with computer networks. And how can we better protect the networks from human failures? And how can we identify more rapidly when something has gone wrong?

The next task force is one that is working in an area that Dr. Mey talked about and is I think one of the most important areas; decision making within a future framework of cyber resilience. I for one do not believe that we will be able to fully protect any cyber network in the future. Cyber networks are leaky. And if they are connected, they are vulnerable. So one of the most important research topics and we have about twenty scientists working on this is how do you operate through a cyber-attack. How do you partition the part of the network to

continue to operate through? When I was a young officer we used to talk about this in a nuclear context. How do you fight through a nuclear attack, the same question pertains to cyber? How do you operate effectively in the face of a cyber-attack, how do you identify the attack, how do you partition the attack vector, and how do you continue to deliver results?

The next task group that I want to highlight and this is a little bit different than the tasks we've had before, so I'm trying to highlight real honest to God ongoing activities. This next task group is working in the predictive analysis of adversary or cyber operations. This is a team of about ten to twelve current cyber scientists who look at known attacks and then try to develop decision trees to help military operators and network operators best predict what the next step will be. If you have a good indication of what the next step in a cyber-attack will be, you can then build in the resilience to take the steps for resilience and continue to operate, a very important mathematical study.

And the final group I want to talk about is modeling and simulation in support of cyber defense. I think this is important because right now I contend we don't understand and treat cyber as a domain. I can measure things in the air domain; I can measure things in the space domain. People don't know what to measure in the cyber domain. But going through modeling and simulation, simulating the networks, understanding what the key parameters are, will better be able to deal with cyber operations in the future. I think that's incredibly important.

I'd like to turn back now to discuss two or three topics that are ongoing in information operations. This is another new aspect people talk about when they talk about hybrid warfare. The first is a group just looking at information operations for influence. It's one thing to do psychological operations or information operations. But you need to have analysts then to take a look at what is the impact of those operations. Dr. Mey talked about this a little bit. It's not enough simply to take an action. You have to understand what the probable outcome will be by analyzing different information operations in the past, by understanding what happens will be able to refine information operations offensive in the future, and similarly be able to better defend against adversary use of information operations against the NATO forces.

Multi-level fusion of hard and soft information. I love these titles. Yesterday we heard some people talk about the internet of things. I don't like it. It's a buzz word. It is something that everybody says "the internet of things is going to change the world." But fundamentally there will be sensors everywhere that we can draw data from and understand how to take the data from different sources. We will be able to put all of this data into one centralized database and then be able to extract the meaningful information. Some people call it big data, some call it visual analytics; whatever you call it, it is incredibly important. The first step, though, is the technical underpinning of fusing data from multiple sources into a common

reference point. This is an incredibly difficult technical challenge; when we get there, you will have dramatically increased situational awareness and reduced decision cycle time for operators. And again at the end of the day, all of this technology is about what it can do to improve the commander situational awareness to make decisions in a combat operation.

The next group that I'm going to talk about very briefly is social media and information technologies for disaster and crisis response. So you can take out disaster and crisis response and put in hybrid operations or put in terrorist operations. How do you understand what's happening, how does the military commander understand what's happening in the social media, and the different technologies that are available to everybody, it could shape their area of operations. Incredibly important to understand from very weak signals, how do you deal in a social media, socially connected world?

And then finally very closely related; intelligence exploitation of social media. There is a lot of intelligence in social media. If you go to before the Paris attacks, if you go to before Arab Spring; there was a very clear signal that something was going to happen. We just didn't know how to extract that from social media. So we have a group of scientists trying to understand how to extract a very weak signal from a very noisy background. And it's really nothing more than a classic electrical engineering problem with a very low signal to noise ratio. Information for terrorist activities, information for hybrid operations is a very weak signal in a very noisy background. Can we develop tools that will identify that and allow us to operate?

That's emerging technology that could fundamentally change how we fight. I talked about our structure with our seven groups. Each of those seven groups have to bring forward each year three technology watch cards, we call them. These are technologies that, if they mature, could fundamentally change how we operate. They could change - force structure, force employment, force protection, and I've tried to distill our technology watch activity to the five areas that I think are very very important for hybrid warfare. Dr. Mey talked about these by the way in his unknown unknowns. Autonomous systems. I don't think we can stop at robotics. We have to think about autonomous systems. That's artificial intelligence, married to sensors, married to platforms. They can move and do some function. There are a lot of things we have to work out with rules of war. We talked a lot yesterday about legalities. But the simple fact of the matter is we're already using, the West is already using autonomous systems. To use autonomy in cyber to make very rapid decisions, when we launch a cruise missile; that's effectively an autonomous system. We target the cruise missile, launch it and the cruise missile goes out and finds its target autonomously and attacks. Autonomy includes elements of nano, artificial intelligence and robotics.

The second tech watch is human performance optimization, understanding how to improve human performance in all environments.

Third, human level artificial intelligence; we're not far from it.

Fourth, the world of sensor technologies is exploding. To include things like quantum sensors that will allow you to detect very very fine gravity differences. Does that matter? It matters if you're trying to find underground tunnels. It could matter if you're trying to find submarines.

And then finally, decision making big data and visual analytics. How do we make use and make decisions from all of this information.

So leave this cartoon up as I close this site I stole from my last job in United States United States, how the United States is thinking about autonomous systems. First is for operating safely and efficiently and in near future, human machine teams. When you're dealing with a hybrid situation, if you can use machines to make the operation safer for the human, you will have done well.

HYBRID WAR AND ARMORED VEHICLES EVOLUTION: MOBILITY AND SURVIVABILITY

Haldun OLGUN* - Hakan TEKIN**

Hybrid warfare emerged for the first time in early 2005 and began to be used in 2006 to define the tactics and methods used by Hezbollah in the Lebanon War. Since then, the term "hybrid" has been used most often by military experts and tacticians to describe the new battle of the new world. Hybrid warfare includes conventional and unconventional, regular and irregular (asymmetric), information technology and cyber-attacks. , it is a term that describes war in all aspects.

This study was prepared with the projection of present and future battles and conflicts will comprise of hybrid threats.

Vehicle design features related to the mobility and survivability of armored vehicles which are the main players of the battlefield are mainly shaped by the multifaceted evaluation of the threats of the hybrid battle environment. At the end, we clearly see that the historical evolution of armored vehicles evolves according to changing and evolving threats.

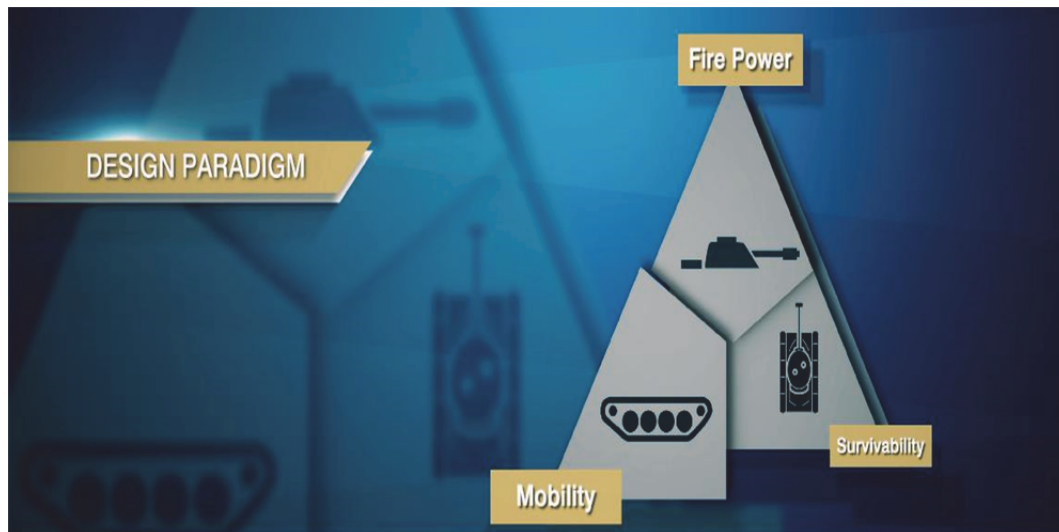


Figure-1: Design Triangle

The design of any land vehicle start with this/by using triangular design guidance. Actually, every designer has the vision of triangle in his mind while getting the concepts from the end user. While the experiences gained and lessons learned form the backbone of the concept design, on the other hand the criteria's that limit the designers and the end user who determines the requirements start to accumulate. In general, we can say that armored

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vehicle design is the art of balancing between survivability and mobility. Regarding the mobility, it can be said that this design triangle is valid both for tracked and wheeled vehicles.

While balance is being established, the necessities determined per possible threats for the vehicles are prioritized instead of abandoning a requirement to bring other requirements to realize. While some abilities stand out against determined threats and geographies, some abilities can be kept at a minimum per the threat and geography conditions in question. Budgetary and financial dimensions will also begin to influence this design triangle in stages.

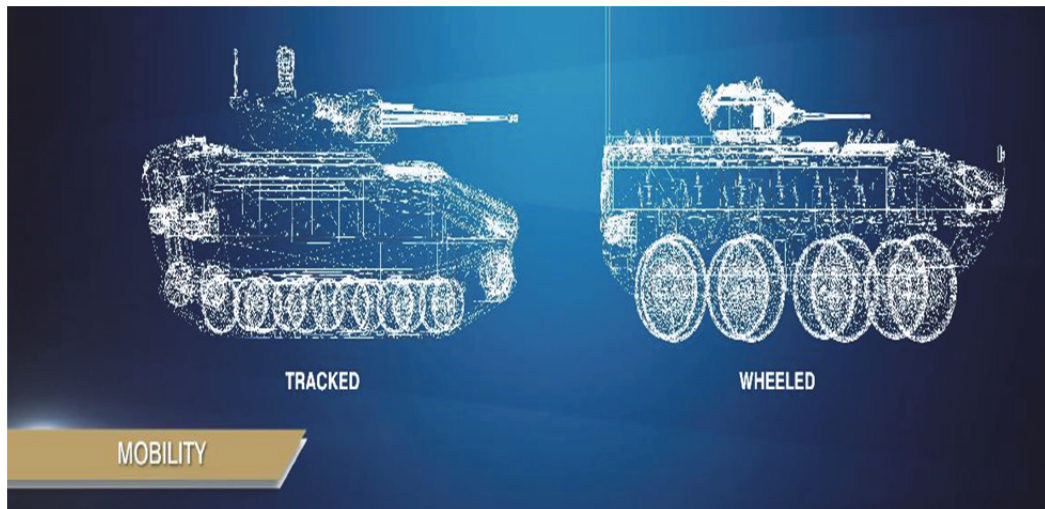


Figure-2: Wheeled and Tracked Vehicles

In Figure 3, there is a schematic illustration of what is known as the protection onion, the stages of survival from far to near in the battlefield, and the main capabilities to be gained in the design phase.

In fact, we can call this illustration as layers that have been intertwined in order that vehicles can survive and perform their expected task in the battlefield. We can sort it very simply; “Don’t be seen”, if seen then “Don’t be recognized”, if recognized then “Don’t be shot”, if shot then “Don’t be penetrated”, if penetrated then “Don’t be killed”.

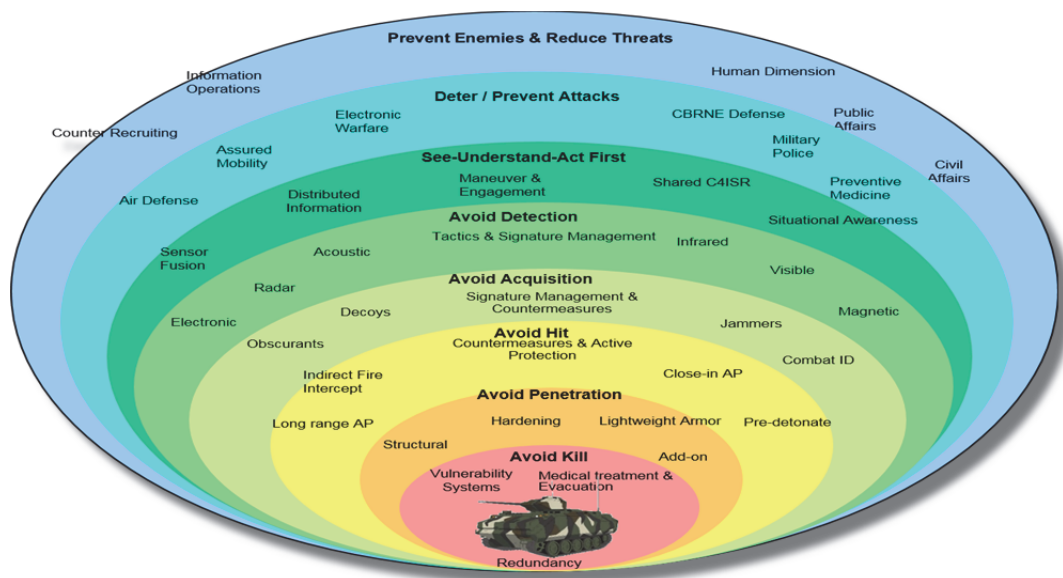


Figure-3: Protection Onion

When we combine today's threats and lessons learned from recent conflicts, it will not be too difficult to arrive at the conclusion that the classical protection concept described above cannot apply to all circumstances and conditions. So, every territory and every country has its own onion since they have their own threats. The "classification of survival" you see here varies according to the threats that each region and every armed forces in the different countries are facing. Naturally, armored vehicles to be designed for each geography and different types of combat may have different characteristics from each other. In order to be able to present the design features that armored vehicles will have in the future, the historical development of the vehicles must first be analyzed well.

As is known, the Cold War was the period of political and military tension between the forces of the east and west blocks, which began after the Second World War and ended with the fall of the Berlin Wall in the early 1990s. The term Cold was used because there was no large-scale fighting between these two powers but there were proxy wars, supported by these two sides like Korea and Vietnam. The remarkable threats were in the meantime; the missiles, the huge artillery units having massive catastrophic effects, the ballistic weapons, the sub-marines, nuclear capabilities and main battle tanks.

When we focus on the possible conventional threats on the ground, which is our main concern, the mutual threat poses itself as a direct confrontation (head-to-head) between the maneuvering units of the two blocks of land, in accordance with conventional warfare in the open areas and rural areas of Eurasia and Europe.

In the conventional wars, one of the main functions of the infantry unit was to secure the close surroundings of the Main Battle Tanks, which first emerged in 1917 and whose advanced models showed up in the WW2, against hand-held anti-tank weapons thrown by enemy elements. The tracked armored personnel carriers were seen on the battlefield at the

end of 1950s which were revolutionary at those times with their airdrop and amphibious capability with certain amount of protection. So, the leading functions of armored carriers were to carry infantry for short distances to the hot spot in the battlefield and dismount. So, they were often regarded as “Battlefield Taxi”.

The answer to NATO’s APCs from the eastern bloc was IFV which is Infantry Fighting Vehicles in 1960s. BMP-1 was Soviet amphibious tracked infantry fighting vehicle. Actually, BMP stands for IFV (Infantry Fighting Vehicle) in Russian language. So, the name was given to literature by the Soviets. The main function of this new type of armored vehicle was not only to carry the infantry to the hot point but also to provide fire support to them and also fight alongside with the main battle tanks. In response to the BMP, the following models of ZMAS such as Marder, Warrior, AFV from the west block came up.

During the cold war period, it was considered that the attack angle of threat would be primarily expected from front side and the ballistic protections of an area of approximately 120 degrees frontal arc in front of the vehicle have been increased compared to the other sides of armored vehicles. At the sides and rear of the vehicle where the threat was less likely to expect, the ballistic protection was relatively lower than the front protection in order not to increase the total combat weight.

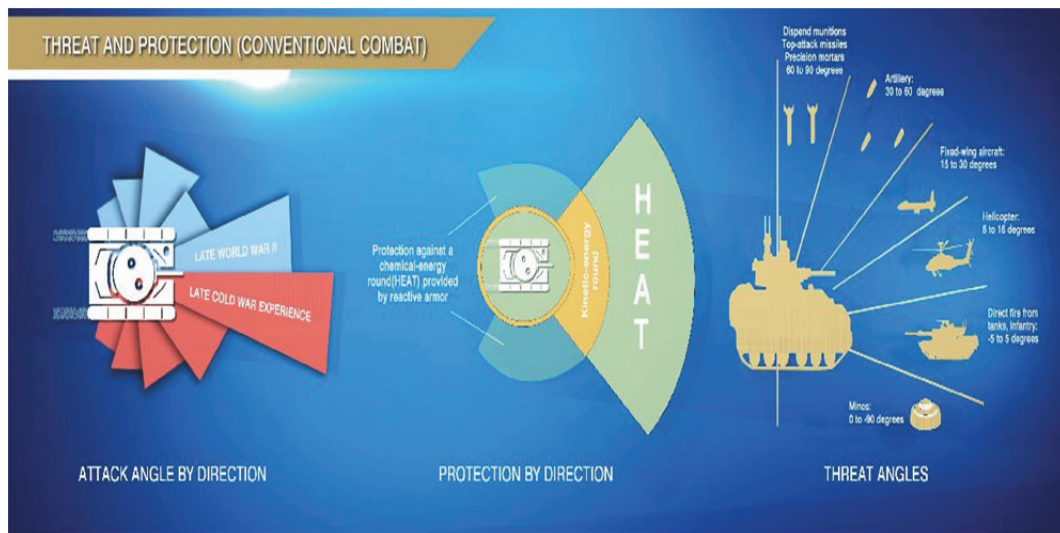


Figure-4: Threat and Protection Angles

In addition to this, 60-90 degrees for top attack ammunition and mortars, 30-60 degrees for artillery rounds, 15-30 degrees for aircrafts, 5-15 degrees for attack helicopters, -5 / +5 degrees for infantry direct fires and 0-90 degrees for anti-personnel mines protection angles were provided.

And if you consider the attack angle, here again we can see the top attack missiles, mortars, artillery, fixing aircraft and attack helicopter and direct fire from the infantry and mines and mostly the anti-personnel mines. . (Figure- 4 Threat and Protection Angles)

These were the threats and what about the IFVs concept at those times? The soldiers first had to carry an equipment about 20 kg at those times. So, the designer had to find allocated spaces in the vehicle for these combat gear. And there was limited mine or IED threats. So, the vehicles had very low or almost no mine protection and no mine protected seats. There were only seat benches for the dismounts instead of mine-protected seats per soldier. They were installed in the vehicle face to face or back to back not considering any comfort for crew. Dismounts could use fire ports from inside the vehicle and vehicles had NBC filters for the crew and for the dismounts. There were no battlefield management systems. Vehicles had very low capability first generation fire control system. Most of the vehicles did not have any night vision or stabilization for the weapon stations. NATO armored fighting vehicles had generally 20-25 mm weapon systems and their combat weights were relatively low (15-20 tons). Having this type of vehicles which had low silhouette and low combat weight, there were capability of conducting air-drop and amphibious operations.

These armored vehicles were used efficiently with this level at the operation Desert Storm and Desert Shield at the beginning of 90s by the US Army and UK. This concept proved success during engagement in open terrain.

But as the battlefield moved to cities, the situation began to change. From the beginning of the 1990s, we understand the change in threat perception in the world from the conflicts that have taken place. Threats now take place at a much lower cost than before, but in a more complex structure. With the increasing level of complexity, it becomes necessary to use more financial resources to protect the personnel and the mobility required to overcome such threats.

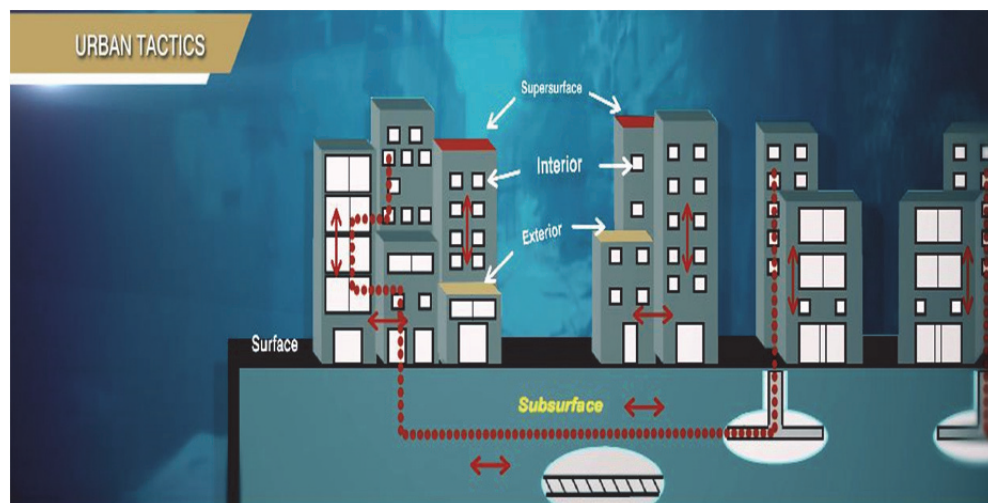


Figure-5: Urban Tactics

Today's conflicts are more complex than ever. The insurgent tactics become very important.

Terrorist tactics have started to take an important place among the armored vehicle design criteria. We focus on design parameters against these insurgency tactics. Conflicts

experienced, though painfully, give us important lessons in terms of vehicle design parameters. We need to consider the threats coming from all directions 360 degrees, the roofs of building, from the windows and IEDs, mines, booby traps, RPGs, molotov cocktails, and snipers. So, the troops might have contact with the enemy from any unpredictable angles.

Regarding the mobility, our mission is not only concentrate on the urban areas. Armored vehicles can be deployed and used in many different tasks and geographical conditions, such as tactical movement missions, convoy safety, patrol missions, OB/FOB security, law enforcement support, peace support operations and route control missions etc. We must consider all these missions while defining the mobility criteria of armored vehicles. The vehicles should be mobile to perform all these operations.

What about threats? What is the threat now? Threats continue to evolve. We spend millions of dollars to protect our vehicles against \$ 250 worth of RPG ammunition. Civilian 4x4 light tactical pick-ups are emerging as the main means of mobility for the terrorists in the area of operations. Apart from anti-tank weapons, mortar munitions, in large quantities IEDs and mines are among the major threats. Modern armored vehicles must have protection against specified threats.



Figure-6: New Threat

The term hybrid is relatively new and assertive term. Hybrid war includes both symmetrical and asymmetrical threats. The nature of battlefield hasn't changed since thousands of years. Very well-known Chinese strategist Sun Tzu said that "The worst policy is to attack cities" 2500 years ago. The hybrid warfare is the very self of warfare. It is not a different type of fight. Just the threats are evolving and changing depending on the technology implemented.

We can also see examples of asymmetric tactics in conflict in various periods of history. The First Crusade, American Revolutionary War, The Turkish Salvation War are the best examples of hybrid warfare. The Turkish Salvation War is one of the best examples of

hybrid warfare in its time, with the attrition raids imposed on the enemy by the militia forces and the struggle of regular armies against each other. We also know hybrid side of Stalingrad and Bosnian War.

Coming to the end of 90s, with presence of digital age changed the way of approach to conduct military operations. All personnel in the operational field tried to record what was going on there. So, all combat units must pay special attention to possible collateral damage and civilian rights. We are professionally aware of that we can't use our combat power unrestrained. This proportional use of force isn't acceptable. So, precision and excellence in terms of all systems and capability are gaining great importance since any violation of civilian rights and collateral damage are being recorded.

The basic formula is maximum precision and excellence and minimum collateral damage. Tactics, techniques, procedures, the training, the intelligence are very important. But at the end of day, to be able to practice all those, the user must be equipped with precise and tailored equipment. These are just samples; battlefield management systems, acoustic sensors, special equipment for the base protection, the mission robots, directed energy weapons, virtual reality ability, and rubber bullets, and etc. Although it is theoretically possible to design a vehicle that can be used against all threats in the battlefield and that performs all tasks under all circumstances, logistical sustainability does not seem possible. As a result, preferring the defined special vehicles for defined missions as much as possible turns out to be an important requirement.

Regarding the Cold War Era Infantry Fighting Vehicle concept and mission equipment inside, the function of armored fighting vehicle is to carry infantry to the hot spot in a fully protected vehicle against all type of new generation threats.

Figure- shows the new requirements and new mission equipment. AFVs are becoming increasingly heavier with changes in the battlefield, new requirements, and new mission equipment. When the infantry is dismounted from the vehicle, a certain level of comfort is required in the vehicle so that all warriors are ready to fight and in a strong condition. Shortly, infantry must be fresh and ready to fight when dismounted. The situational awareness is really important and new vehicle will be in use until maybe 2040-2050. The internal volume of the vehicles is growing steadily in order to carry the personnel and the new generation of mission equipment. The carrying load of a soldier has increased from 20 kilograms to 50 kilograms. An additional internal volume is required for this and similar loads to be transported. Mobility and firepower are also increased. The new requirements shall be defined for the new generation vehicle according to future soldier and their combat equipment.

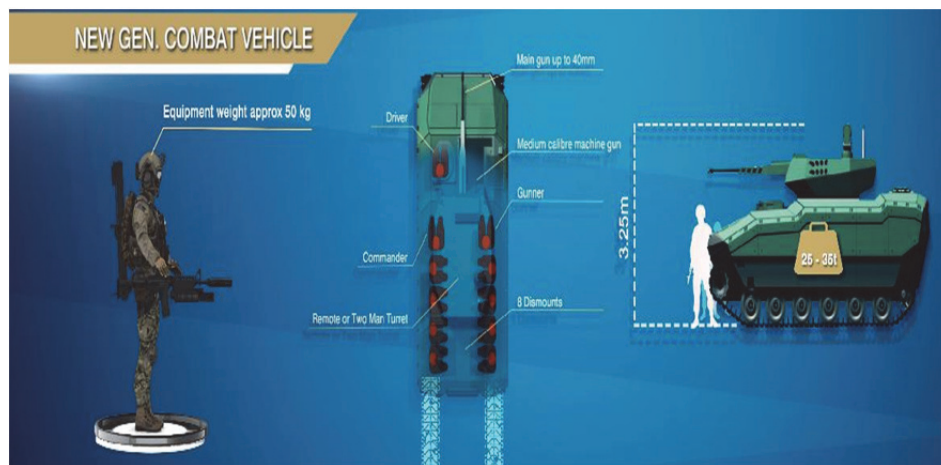


Figure-7: New Generation Combat Vehicle

Together with commander, driver and gunner the number of dismount remained the same but there was a significant amount of increase in the power to weight ratio. All these significant mission equipment is considered to be integrated inside the vehicle. And the vehicles became much heavier than before. They were between 10-20 tons in Cold War Europe and now they are between 25 and 35 tons. We focus on the infantry. Now today's infantry has more weapons and they are carrying approximately 50 kg of external load. We have to find allocated space for this load in the vehicle.

The new generation vehicles will be in inventory at least about 40 years. Therefore, we planned about 20 % growth potential for the integration of additional sub-system and upgrades up to effective mobility and the survivability of the vehicles in the future. When this is taken into account, the level of protection can be increased by using modular armor. We can call this as "Modular Survivability". And amphibious equipment also another future for next generation vehicles which are used by mechanized brigades.

Moreover, some of the developing technologies are beginning to be applied to armored vehicles. It will continue in the future. What are these emerging technologies? How we see the future?

We can consider these as soldier evolution first. The presence of mechanic skeleton systems to support infantry which can carry up to 100 kg of loads will not be surprising. The ability of integration of the soldier to the battlefield management system and the vehicle will be applied to the new generation vehicles.

In addition to these, efforts continue to be made to develop robots that carry out military logistics activities, conduct recce missions, and interfere with explosive devices in hard conditions. Researches continue to develop new generation weapon systems and RCWS's.

More power is needed for electronic systems such as variable adaptive camouflage, extra weapon systems, remotely directed energy systems, intelligence sharing systems between different platforms which will be integrated into vehicles. For this, larger power

generators and advanced power management systems are needed. We will therefore need extra space within the vehicles.

If we come to the conclusion;

- Hybrid war has existed throughout history. So hybrid warfare is the the war itself.

But threats are evolving.

- It is theoretically possible to design a vehicle capable of operating under all operational conditions, capable of operating in all terrain conditions, providing protection against all threats, but is not economically and logistically sustainable.

- Rather than designing vehicles having all the best properties, we need to design vehicles for mission.

- Designing a mobile phone or refrigerator or even a sports car is a much easier task than designing an armored car. Because the engineer who designed the armored vehicle will never be the end user of this vehicle. We need to start designing future vehicles all together with the end user from the operational field. And when we start designing and developing technology today, it will be mature and be ready to be used by end user in future.

- So, when do we start? We have to start now. Because we believe the future is now.

CYBER WARFARE IN HYBRID WARFARE CONTEXT

Süleyman ANIL*

Before defining hybrid warfare and its cyber defense aspects I would like to give information about NATO's current approach to cyber defense as an organization. NATO's first and most important policy objective on cyber defense is, as expected as an organization, the protection of its own networks. One of the less known facts about NATO, not for this audience, is that NATO runs its own command and control networks from North America to Afghanistan or from Norway to Africa wherever there are NATO troops whether it is a ship or a land deployment or a deployed headquarters. And this network always needs to be protected so that NATO can, when tasked or during daily tasks, can perform its three core tasks without any hindrance of the information infrastructures. And we have been investing a lot for this protection and centralizing - we have a centralized protection now, our technical center located in SHAPE headquarters can manage and see sensors whether they are in Afghanistan or in wherever there is a NATO place. And we recently also went through modernization for a technical upgrade of about 80 million euro of this capability and we already have also two capability packages lined up this year where we will invest more and equip and circuit more advanced cyber defense technologies and resources. NATO's second objective is always, as expected from an alliance, to assist the member nations in two principal areas; capability development and capacity building. For capability development we use, since 2013, the NATO's main tool - N.D.P.P. - NATO Defense Planning Process which has now specific cyber defense capability targets. Also since last three years we have been using, or alliance nations have been focusing on smart defense projects. Right now there are three smart defense projects active, tier 1 type of projects. The first one is on technology development, second one is on training and education and the third one is on malware information sharing. Capacity building which is about of course human resources, to train them not only at the NATO schools like in Oberammergau or Defense College in Rome or Latino school which is being relocated now to Portugal. They all have increased number of courses on cyber defense. Also our cyber college training that we started in 2009 has become the largest cyber defense specific exercise with 600 experts participating last year. I was happy to hear that Turkey, our colleagues in Ankara, will host the planning conference for 2016.

However, the most significant political position of NATO is always its deterrence capability. And in 2014 Wales summit, heads of states and governments made a public declaration stating that NATO's cyber defense goal is part of NATO's collective defense. Article 5 was specifically mentioned in the same public statement emphasizing that existing

* Former Head of NATO Cyber Defence Emerging Security Challenges Division.

international laws apply in cyber space. That puts the frame on if NATO goes collective on cyber defense what would the limitations or the legal frame be for it? Now the statement is always a political statement. There are always questions as to how would NATO declare Article 5 because of cyberattacks and the answer to that question is there is no cookbook as that would be a political decision and it is always consequence driven.

There is a policy behind everything that is happening in NATO. In 2008 NATO approved the council's first policy which was a follow-up to cyberattacks against Estonia and right now we are implementing the third policy. We had a policy in between. There is an action plan that we are executing right now and at the upcoming summit in Warsaw there will be at least two probably three papers that will be presented for April and that will have an impact on the current policy. We will probably receive a task from the summit to either update the current policy or write a new one.

And now, coming back to hybrid warfare discussion which is the topic of this event I'd like to start with this slide which is from one of the Munich security conferences. And there are similar descriptions or definitions of hybrid warfare. But I'd like to underline even those cyberattacks or use of cyber effects is categorized as one of the components of hybrid warfare. Actually cyber effects can cause impact in all other areas whether it is public opinion through the social media and critical infrastructures on diplomacy or even preparing the battlefield. So that makes cyber special and different even though general security principles apply also to cyberspace. And that's why cyber is sometimes considered or mentioned as a tool of choice in any conflict today. Hybrid warfare discussion should not limit our angle on modern conflict how we see the modern conflict right now or in five years' time.

Now a few examples on cyber effects from Ukraine and what happened in Ukraine. There were cyberattacks in Ukraine as early as 2010. So one of the lessons from Ukraine is that if you have good situational awareness on your country about the cyber events you will actually receive some early indications of who may be targeting you and for which purposes. The adversaries in Ukraine started to penetrate in government networks in Ukraine at least two years before the actual conflict on the ground. So during the conflict actually cyber attacks were almost a daily matter because the plays were already on the networks whether they were using the social media troll factories located in other countries or the compromise of phone calls between the senior government representatives or between Ukraine government and the EU representatives. However, two particular examples are outstanding. One is the compromise of Ukrainian election system and software which cause 20 hours delay in the announcement of the election results. During this 20 hours delay there were false claims of political victory which caused confusion and loss of trust in the population about the election itself. The problem was resolved 20 hours later because since paper votes

were used votes were recalculated and announcement was made. For 20 hours election results were in question.

The second most interesting cyber incident is actually from December last year which also indicates that hybrid warfare does not really terminate even though the events on the ground may come to a political or a military stalemate. In December 2014 two power generators in Ukraine went suddenly offline causing regional blackouts in Western Ukraine. Later it was announced that it was a cyberattack, planned actually in April the same year. It was a very well planned and coordinated multi-factor attack including calls to the emergency lines to keep the line busy so others would not be able to report and access to the actual circuit breakers to take the power plants off. Ukrainians managed to put the power plants back on line six hours later, practically by using the manual push because they had lost the control of the systems. And they are still using the manual system because they are still trying to clean the software and hardware which included the compromise of the firmware of the power plant.

This attack was also the first confirmed case of a power plant being taken out through cyber means. The attack was not highly sophisticated but it was well planned. So another lesson from this attack is that the adversaries don't have access to high-end technology but if they carefully analyze the targets, they will be able to get in. If they have enough time to go around, that means if the situational awareness of the host is not in place, they took their time from April to December to be in the system and to go around and finally to take it down the time they wanted. Because a couple of weeks earlier the Ukrainian government had decided to cut powers to Crimea and then one assessment was that this was a retaliation for that power shortage caused by Ukrainian government.

And why are cyberattacks a tool of choice? There are good reasons that I try to list here. Should you have such a capability, you can cause wide range of effects. Wherever there is a computer you can cause a cyber effect and there's no place anymore where computers don't exist. There is high number of targets. The number of poorly protected networks is incredible. And for the adversaries it is just a matter of going around, doing a reconnaissance and then picking up those poorly defined networks and focusing on those to get in and wreak damage. It is a low risk for the adversaries. Attribution is still a challenge as it takes at least two or three weeks to establish an attribution. It is possible and getting better but it is low risk to attackers as well as low cost. Due to its global deployment you can target any victim or any target across the globe. You don't have to be even in the region. Also cyberattacks are below legal definition of warfare. So it depends on the consequence of course but it cannot be used later for those responses defined in the UN Charter or the international law. And technically it's a convergence of electronic warfare and signals and it

just makes for those organizations in that business to combine these capabilities and then we have one capability that can feed each other.

But there are always challenges. Cyberattacks are not as easy as some would claim. Adversaries would need to have access to high end technologies to be able to carry out high end attacks. Cyberattacks need detailed planning; and an attack which may have been planned for a year may go to bin if the target or the victim makes some changes in its networks whether conscious or unconscious. Even a replacement of a particular firewall or a VPN or an operating system upgrade may actually turn this plan into a bin. I don't want to go through the whole list but the last one: Actually a cyberattack would be ineffective against well protected networks and it is possible to protect networks when it is done properly.

How do we defend against it? Until recently I used to start with resilience. Actually resilience has now become the main defensive tool but situational awareness is really critical. And it is easier to implement and watch and do it both at the tactical and the strategic level. By watching electronic gateways what's hitting the gateways or internal to the networks or what is really leaving the network. Because any penetration or a malware inside a network will try to communicate out that's how it works. It needs to do that. So by watching actually what is leaving your network you will get a good indication of whether there is a malware or penetration in your network and what that is trying to do. Then to put this into perspective there is a need for strategic assessment. There's a need for analysts that put this into a political context that assess what the campaigns are. There is no more a single incident, but there are campaigns. Every incident we see is part of a campaign sometimes called A.P.T. like A.P.T. 28 or A.P.T. 29. Behind each campaign there is a threat actor. Most of the time this is a state or a particular organization in a given state. Once you have this information available, incidents you see will make sense and you will get an early indication of a potential attribution. Then you will understand who is trying to hit your networks and how and what are the objectives. And this information is critical and this objective can be achieved by a small group of technical people and analysts processing feeds coming from the networks. This information will also reflect how you implement resilience, which is very resource-intensive. You need to do risk management because you're not always going to put the same level of protection on every network. You will carry out risk assessment and management and if you know who are targeting you, how are they coming and what are their objectives; the resilience effort will be simpler. Resilience is not just technical means or business continuity plans, it always needs a national strategy and a governance plan and a centralization in place with CONOPs (Conceived Operations) so that every player knows what to do during a crisis. And then it has the main components of technical and human resources aspects. And cooperation with industries is critical. Regarding NATO's adaptation, we are heavily working

on it right now in the committees. In the Warsaw summit there will be papers as I mentioned before.

In conclusion I'd like to first of all mention that our colleagues, whether in Ambassador Ceylan's office or those colleagues who come to NATO meetings from Ankara are very active. For example, there have been recent advances in this field like the creation of cyber command in Ankara. It is already having an impact and creating good work. Turkey is target. The information we have shared with our points of contact in Ankara shows that Turkish networks are regularly targeted because of the geopolitical developments in the region. And the same concerns in most of the allies apply to Turkey as well. Just three points; one cyber is a tool of choice in modern conflicts. Situational awareness and resilience are the key. I would recommend the colleagues here to follow what NATO will announce either publicly or in the NATO papers at the end of the Warsaw Summit.

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