Artificial Intelligence and Human Security:

Understanding the Role of Human in Contemporary Warfare

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Abstract

Throughout history, the nature of warfare has evolved in light of technological developments. The 21st century is witnessing rapid developments in artificial intelligence (AI) technology and their implications in the military sphere. The accelerating intelligence and autonomy that these developments provide the weapon systems are among the main features of the recent Revolution in Military Affairs (RMA). At the same time these features create a feeling of anxiety about the role of humans on the battlefield. This thesis seeks to scrutinize the main reasons behind the failure of the Critical Security Studies (CSS) scholars' attempts to approach the altering nature of warfare and the role of human from a Human Security perspective. Therefore, it argues that in order to address the paradigm shifts in contemporary warfare and how it affects the role of humans on the battlefield successfully, Human Security should be re-connected with war-making. Instead of putting too much emphasis on drone warfare as the existing literature suggests, the more recent developments with the risk of eliminating humans from war-making should be addressed. Achieving a clearer understanding of what sort of motives that artificially intelligent units have would make it possible to control these motives. Thus, it would be possible for Human Security to successfully address the decreasing role of human in war-making.

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Introduction

"I'll be back."

Terminator[1]

Perhaps, he will be back. The killer robot, Terminator, is a famous example that demonstrates how the worries about accelerating artificial intelligence (AI) technology have been reflected on the silver screen. The first movie was shot in 1984, and the cyborg called Terminator was coming from the future, from the year 2029. With the robotic technological advancements hidden under his human-like look, Terminator was trying to save the survival of machines by stopping humans at any costs from waging a war against them. The topic became quite popular, and later on many other episodes of the series were shot. There were plenty of movies that treated the same subject, or similar ones.[2] Now we are already in 2018, eleven years away from 'the future' which Terminator was expected to come from.

Nowadays, the issue is no longer perceived as a science-fiction scenario. So many minds are actually puzzled with questions about artificial intelligence (AI) technology, and how to keep it safe for humanity. The current popularity of the topic is quite high, but it was not always at the same level. A long time passed since 1984 and research on AI safety was not among the top ten of scientists' agenda. However, current debates on AI safety among popular figures from science and technology fields fueled the discussions. Among these were the scientist, Stephan Hawking, who argued that AI actually can be the end of humanity. Elon Musk, Bill Gates and Mark Zuckerberg were others who participated in the debate with their worries and/or enthusiasms about the future of AI technology.[3]

[1] Terminator, Directed by James Cameron (1984; The US: Orion Pictures).
[2] The Matrix, Directed by Lana and Lilly Wachowski -as Wachowski Brothers (1999; The US: Warner Bros); A.I. Artificial Intelligence, Directed by Steven Spielberg (2001; The US: Warner Bros); I, Robot, Directed by Alex Proyas (2004; The US: Twentieth Century Fox).
[3] Future of Life Institute, "Benefits and Risks of AI," (16 November 2015) Available at: https://futureoflife.org/background/benefits-risks-of-artificial-intelligence/ Date Accessed: 22.05.2018.

This thesis problematizes the common preference of Critical Security Studies (CSS) scholars to approach the altering nature of contemporary warfare from the viewpoint of Human Security.[4] In doing so, it aims at highlighting the necessity to draw more attention towards the changing role of humans in contemporary war-making, and the failure of Human Security to analytically engage with this shift in the role of humans. Rather than treating the individual as the agent of war-making, in the framework of Human Security, humans have been perceived as the subjects that should be protected from security threats.[5] This approach victimizes humans, and overlooks their active role in warfare that can provide them with the abilities to cause or lead the paradigm shifts.

Therefore, in the first chapter, the close relationship between technology and war-making has been highlighted. A brief overview of the history of revolutions in military affairs (RMAs) is provided for this purpose. The altering nature of warfare with the accelerating developments in technology drew attention of many scientists as well as academics and influencing figures to the issue of AI and robotic technologies and to keeping them away from the battlefield. Unmanned Aerial Vehicles (UAVs) –often referred to as drones- were among the first indicators of rapidly increasing computer technologies on actual battlefields. Recently, in addition to drones, sem-autonomous and autonomous weapon systems (AWS) are playing the

[4] James Der Derian, "Virtuous War/Virtual Theory," *International Affairs (Royal Institute of International Affairs 1944-*), 76 (2000): 771-788; Ronald C. Arkin, "The case for ethical autonomy in unmanned systems," *Journal of Military Ethics*, 9 (2010): 332-341; Bradley Jay Strawser, "Moral predators: the duty to employ uninhabited aerial vehicles," *Journal of Military Ethics*, 9 (2010): 342-368; Didier Bigo, "Security, exception, ban and surveillance" in *Theorizing Surveillance, the Panopticon and Beyond* ed. David Lyon (New York: Routledge, 2011): 46-68; Derek Gregory, "From a view to a kill: drones and late modern war," *Theory Culture and Society*, 28, (2011): 188-215; Christof Heyns, "Autonomous weapons systems: living a dignified life and dying a dignified death" in *Autonomous Weapons Systems: Law Ethics Policy*, Nehal Bhuta et al. (The UK: Cambridge University Press, 2016): 3-12; Elke Schwarz, "Prescription drones: on the techno-biopolitical regimes of contemporary 'ethical killing'," *Security Dialogue,* 47 (2016): 59-75; Christie Agius, "Ordering without bordering: drones, the unbordering of late modern warfare and ontological insecurity," *Postcolonial Studies,* 20 (2017): 370-386.

[5] Der Derian, "Virtuous War/Virtual Theory", 771-788; Arkin, "The case for ethical autonomy in unmanned systems", 332-341; Strawser, "Moral predators", 342-368; Gregory, "From a view to a kill", 188-215; Schwarz, "Prescription drones", 59-75; Agius, "Ordering without bordering", 370-386.

starring role in humanity's fear of losing control due to the decreasing human autonomy against the increasing autonomy of artificially intelligent weapon systems.[6]

After emphasizing the significant relationship between technology and war-making, the chapter proceeds to underline the likelihood of the spread of AI technology into military sphere. To demonstrate the reasons behind the currently increasing level of anxiety, some ongoing debates about how to keep AI safe are highlighted. The arguments vary from supporting its further developments to standing against its spread in other areas of our lives, including the military.[7]

The second chapter starts with the emergence of Human Security as an alternative concept to provide humans with agency in the international security agenda. In the post-Cold War era, the intention behind its emergence was addressing the security threats that humans can face out of the battlefield. The main aim was to provide humans with the basic rights and protection of these rights.[8] These aims led Human Security to get away from the conditions of war-making and the role of humans in it as actors. Instead, humans were treated as victims of fighting a war, and subjects to be protected. Also, in terms of underlining the recent technological developments and their role in the altering the nature of warfare, scholars who approach the issue from the viewpoint of Human Security seem to miss out the more recent technological developments, and get stuck within drone warfare.[9]

I argue that the main reason behind the failure of Human Security to posit humans as the agents of war-making is the lack of its connection with the recent features of contemporary warfare.

[6] For a selected list of the attempts to deal with the history of RMAs in the literature, see: Arthur K. Cebrowski and John J. Garstka, "Network-Centric Warfare: Its Origin and Future," *Proceedings* (1998); Steven Metz and James Klevit, "The Revolution in Military Affairs and Conflict Short of War," *Strategic Studies Institute US Army War College* (1994); Peter W. Singer, *Wired for War: The Robotic Revolution and Conflict in the 21st Century* (New York: Penguin, 2009); Andrew Cockburn, *Kill Chain: The Rise of the High-Tech Assassins* (New York: Verso, 2015); Lawrence Freedman *The Future of War: A History* (The UK: Penguin, 2017).

[7] Alan Turing, "Computing Machinery and Intelligence," *Mind*, 49 (1950): 433-460; Michio Kaku, *Visions: How Science Will Revolutionize the 21st Century* (New York: Anchor Books, 1997); Future of Life Institute, "Benefits and risks of artificial intelligence".

[8] United Nations Development Program (UNDP), *Human Development Report* (Oxford, New York: Oxford University Press, 1994).

[9] Arkin, "The case for ethical autonomy in unmanned systems", 332-341; Strawser, "Moral predators", 342-368; Gregory, "From a view to a kill", 188-215; Schwarz, "Prescription drones", 59-75; Agius, "Ordering without bordering", 370-386.

To build this connection, Human Security can benefit from the recent work of Ingvild Bode and Hendrik Huelss on autonomous weapons and changing norms in which they argue for the necessity to understand the military institutional norms and their role in shaping the use of artificially intelligent and autonomous weapon systems on the battlefield.[10] In addition, achieving a clear understanding of how artificially intelligent units develop their motives to achieve final goals can lead the future researches in a beneficial direction. In this respect, Nick Bostrom's orthogonality thesis provides a useful beginning point.[11] He underlines that the final goals of artificially intelligent units and of humans do not necessarily have to be parallel all the time. The main aim should be keeping these motivations close to each other, to avoid facing ethical predicaments.

[10] Ingvild Bode and Hendrik Huelss, "Autonomous weapons systems and changing norms in international relations," *Review of International Studies*, (2018): 1-21.
[11] Nick Bostrom, "The superintelligent will: motivation and instrumental rationality in advanced artificial intelligence," *Minds and Machines*, 22 (2012):71-85.

Chapter I: Do Humans Lose Control? Or Are We in The 'Loop'?

This chapter aims at providing a brief review of the history of revolution in military affairs (RMA) and its repercussions on the battlefield. Some of the policy implications of RMA are also underlined, but the overall structures of RMAs up to date highlight the significant role of military actors involved in these processes and of the technological changes. As it was the case with other examples of RMA, the 21th century also received its share and contemporary warfare entered into the phase of a big change. The developments within artificial intelligence (AI) technology are the main elements that cause some profound changes. Among what these changes affect, the most important one is the role of humans in war-making. This historical background chapter aims to provide the guidelines to understand the concerns about decreasing human control (autonomy), and simultaneously rising intelligence and autonomy of AI on the battlespace.

1.1. Technological Advancements in Warfare: An Overview of RMA History

In 1994, Andrew Krepinevich wrote that 'revolutionary' changes which would profoundly affect the conventional understanding about war-making were about to occur.[12] In the 20th century, with the end of Cold War and the changing power relations in world politics, the need to understand and conceptualize 'what the future of warfare might look like' became more apparent. Among the raising concerns were how the conventional methods for fighting a war might be challenged, what forms of war-making would prevail, and whether these would require merging some features of fighting a war or need to be considered separately.

An idea that challenged the strong trust in following solely conventional warfare methods was that the future form of warfare will require more tasks to be handled at the same time than

[12] Andrew F. Krepinevich, Jr., "The Coming Revolution in the Nature of Conflict: An American Perspective," *The US Air Force Roundtable on the Revolution in Military Affairs, Science Applications International Corporation* (1994): 2.

fighting wars on the battlefield against armed forces. This was mentioned first by the then US Marine Corps Commandant Charles Krulak, in 1997:

> In one moment in time, our service members will be feeding and clothing displaced refugees, providing humanitarian assistance. In the next moment, they will be holding two warring tribes apart --conducting peacekeeping operations-and, finally, they will be fighting a highly lethal mid-intensity battle- all on the same day…all within three city blocks.[13]

Krulak's idea of a 'three-block war' was striking. It became a new strategy for the US military to combine features of fighting a war in the new era with the conventional understanding of war-making. In light of this idea, two important figures in the US army, General James Mattis and Lt. Col. Frank Hoffman argued for an additional (fourth) block that deals with the psychological or informational aspect of the war. They described this four-block war as a 'hybrid war'.[14] As time goes by, the meaning of the term 'hybrid war' evolved to mean more than applying different tactics besides conventional military strategies. It has become a war that is fought with full-scale usage of information technologies against terrorists and/or insurgencies in addition to conventional war affairs against militaries of other states.[15]

With the employment of new information technologies, it became easier to start a war, and more difficult to draw the lines separating the conflict zones from peaceful territories. This also meant that it became more difficult to identify the time frame for a war, to tell when it began, and when it would end. This large concept offered an alternative form of warfare which could compensate for the emerging needs and necessities that the conventional war-making failed to realize.[16] When the concept was adopted by the US military, its meaning became even more extensive.[17]

[13] Charles Krulak, "The Three Block War: Fighting in Urban Areas," *Vital Speeches of the Day*, 64 (1997): 139-141.
[14] Frank G. Hoffman and James N. Mattis, "Future Warfare: The Rise of Hybrid Warfare", *Naval Institute Proceedings*, 132 (2005) cited in Lawrence Freedman, "Hybrid Warfare" in *The Future of War*, 223.
[15] Frank G. Hoffman, *Conflict in the 21th Century: The Rise of Hybrid Wars*, (Arlington, VA: The Photomac Institute for Policy Studies, 2007); Thomas M. Huber, "Compound Warfare: A Conceptual Framework" in *Compound Warfare: That Fatal Knot*, ed. Thomas M. Huber (Fort Leavenworth, MS: US Army Command and General Staff College Press, 2002); Freedman, *The Future of War*, 223.
[16] Freedman, *The Future of War*, 224-225.
[17] Frank G. Hoffman, "Hybrid Warfare and Challenges," *Joint Forces Quarterly*, 52 (2009): 34-39.

The usage of information technologies (IT) within warfare was considered to be one of the most significant changes. Thus, it drew further attention to the expected 'revolutionary change' about the conceptualization of war in the following years. The shifting changes in warfare were expected, but the results, and/or what kind of effects it would have were unknown.[18] The digital age has caused profound changes such as easily accessing many sources to receive information, and sharing this information with others regardless of their locations. These alternatives were to be utilized by the US military as well.

Vice Admiral Arthur Cebrowski was a member of the US army who pioneered the talks about future of warfare, he emphasized his vision as 'network-centric warfare'.[19] Two RAND Corporation researchers, David Ronfeldt and John Arquilla were the names behind the spread of notions such as 'cyberwar' and 'netwar'. They also coined the slogan: "It takes a network to defeat a network."[20] Ronfeldt and Arquilla underline the newly emerging modes of conflicts with the developments of information technologies, and facilities that they provide in the digital age. These were different than what has been going on in conventional warfare, and could occur anytime anywhere, even within societies.[21]

The features of cyberwar –underlined above- caused feelings of fear and anxiety among the populations of Western societies. This was because it meant that everything working thanks to data collection and flows of information can be easily under attack, and an enemy can pose a threat without waging an 'actual war'. These targets include energy sources and allocation, transportation, banking, health systems, and even education services.[22] It became possible to realize cyber-attacks because of the vulnerabilities created by what the digital age has brought.

[18] Metz and Klevit, "The Revolution in Military Affairs", 1.
[19] Cebrowski and Garstka, "Network-Centric Warfare"; Cockburn, *Kill Chain*, 47.
[20] Cockburn, *Kill Chain*, 48.
[21] Freedman, *The Future of War*, 227.
[22] Ibid, 230-231.

In addition to its countless benefits, the digital age led the way for the emergence of the huge data web in which every single detail about every single member of societies could be found.[23] However, from the point of security and military actors, the question was not whether there are problems arising from these vulnerabilities. It was already accepted that there are serious issues and raising concerns. Rather, the questions were how to re-conceptualize the warfare in light of these newly emerging threats, and how to respond to them.[24] The military applications of information technology and its advantages were of course matters of interest, what mattered even more were their effects on the power relations. The fact that the balance would change in favor of the ones who have full capacity over the changing nature of warfare was a motivating factor to follow up the 'revolution'.[25]

By the 1970s, the presence of human soldiers and armies started to be questioned. Indeed, there were references to the 'push-button war' where literally pushing a button would be enough to defeat an enemy or neutralize a threat. Missiles which are guided for such missions specifically would do well enough, and human soldiers would be nonfunctional.[26] Lawrence Freedman writes that already in 1971, the first article on 'cyberwars' mentions robots as fearless, unstoppable, and superior to human soldiers fighting against them.[27] This first example is followed by many others. Robots that can kill without receiving orders from human soldiers were in the center of cyber warfare debates.[28]

Yet, there was no reference to the thought of a great network which is what makes possible for these robots or robotic weapons to work in the sense that is happening today with the machine learning in addition to speedy processing of immense amount of data. However, what caused

[23] Yuval Noah Harari, "The Data Religion" in *Homo Deus: A Brief History of Tomorrow* (The UK: Penguin, 2015), Loc 5461.
[24] Jean Loup Samaan, "Cyber Command", *RUSI Journal*, 195 (2010): 16-21; Freedman, *Future of War*, 231.
[25] Metz and Klevit, "The Revolution in Military Affairs": 1.
[26] In *The Future of War*, Freedman argues that the first reference to the 'push-button war' seems to be in the article titled "Science: Push-Button War", *Time Magazine*, (23 June 1947).
[27] Freedman, *The Future of War*, 233.
[28] Eric Arnett, "Hyperwar", *Bulletin of Atomic Scientists*, 48 (1992): 14-21.

the anxiety about these above-mentioned robots or robotic weapons systems was their ability to function without human crew which meant having a certain degree of autonomy for them.[29] With such improvements, the link between technology and war-making was visible once again in the twentieth century.[30]

1.2. Distant Political Killings

As Andrew Cockburn quotes, the US military officials were quite enthusiastic and optimistic about observing the technological developments and their implications on the battlefield for a long time:

> General William Westmoreland, the army chief of the staff and former commander in Vietnam, expressed the vision most concisely in October, 1969: "On the battlefield of the future," he declared in a lunchtime speech to the Association of the U.S. Army, a powerful pressure group, "enemy forces will be located, tracked, and targeted almost instantaneously through the use of data links, computer assisted intelligence evaluation, and automated fire control. With first round kill probabilities approaching certainty, and with surveillance devices that can continually track the enemy, the need for large forces to fix the opposition will be less important."[31]

There were already attempts from the Central Intelligence Agency (CIA) of the US during the Vietnam War to use computer technologies in order to identify the ones who were helping the enemy. The belief was that with the help of computer technology, those who were helping the enemy could be found, and thus, stopped. But it also meant clearly targeting specific individuals who were not necessarily soldiers or members of the army. The automated technologies similar to the case in Vietnam continued to be used by the US army, within several operations under different titles such as 'Assault Breaker' or JSTARS. These were the ancestors of unmanned aerial vehicles (UAVs), or drones, to come in the twenty-first century.[32]

One such operation came to light and was publicly known, like the case of then Congolese Prime Minister Patrice Lumumba. The CIA was found guilty of planning assassinations against

[29] Freedman, *The Future of War*, 233.
[30] Singer, *Wired for War*, 46.
[31] Ibid, 23.
[32] Cockburn, *Kill Chain*, 88.

high-value targets. This case triggered a series of law reforms. In 1976, The Executive Order 11905[33] was first declared by President Gerald Ford. President Carter and Reagan reaffirmed it: "No employee of the United States government shall engage in, or conspire to engage in, political assassination". But when the 1983 Psychological Operations in Guerrilla Warfare manual was distributed, the ban was re-interpreted. With the manual, "neutralizing" the guerrilla forces to ensure the US security interests was allowed, which paved the way for assassinations of high-value target.

When it came to fighting against terrorists, tracking their leaders or important members, and killing them did not count as assassination. In addition to this aspect, Cockburn writes about a spine-chilling detail that he learned from a former intelligence analyst who worked for the US army who was assigned a high-value target cell during the war in Kosovo. He mentioned that the US army would be glad to 'capture' Slobodan Milosevic –the then Serb leader- and in order to achieve this goal, his personal residence, basically any place with a cellphone was under constant surveillance by US army officials.[34]

Targeted killings have long been amongst items of military agendas for many states, notably for Israel. The Israeli army was trying to employ targeted killings to fight against Hamas militants after their withdrawal from the Gaza Strip. Their justification was that because of the geography that is unknown to the Israeli army yet well-known by Hamas militants, and its disadvantageous structure, it was very difficult to capture the militants on land. Utilizing information technologies as tools to fight against Hamas provided the Israeli army with the desired advantages.

Later on, the Israeli model was taken as an example, and was adopted by the US army to fight against radical Islamist terrorists. Both Bush and Obama Administrations employed similar

[33] "The Executive Order 11905*," Central Intelligence Agency* (29 July 1976) Available at: https://www.cia.gov/library/readingroom/docs/CIA-RDP79-00498A000200080107-3.pdf Date Accessed: 17.05.2018.
[34] Cockburn, *Kill Chain*, 89-90.

policies. Currently, unmanned aerial vehicles (UAVs) –drones- can be used for executing 'signature strikes' which -in its simplest form- means that individuals can be targeted based solely on their behaviors. Thus, if the military officials think that there is an individual acting in a 'suspicious' way, 'up to no good', then killing that person can be legitimized.[35]

1.3. Hybrid Features of the Latest RMA: Good and Bad, Old and New

Employment of information technologies, adding new blocks to warfare, changing perceptions towards the enemy and adopting new tactics were among the most significant elements which caused the major change, the paradigm shift as Peter Singer describes, in the military sphere. These were not necessarily technologies or tools with pure military characteristics. Yet they had profound effects on the way warfare was conceptualized, and it was leading to a direction that is unknown, unpredictable, quite different from the conventional understanding about war-making.[36] At first, the term 'Military-Technical Revolution' emerged to describe the process altering the understanding of conventional warfare. Later, 'Revolution in Military Affairs' (RMA) has become the widely used title for the process. It secured a place in the dictionary of military and defense intellectuals.[37]

Singer draws attention to the evolution of warfare throughout history, and underlines that it is possible to observe several revolutions in military affairs. Gunpowder had significant effects that changed the understanding of warfare for centuries. The steam engine, telegram, railroads caused the first industrial RMA, its effects were unpredictable, and were felt strongly for over a century. The second industrial RMA was caused by internal combustion engines, radio, and flight, it has affected warfare for a few decades.[38]

As is the case with many broad concepts with dynamic natures, there is no clear consensus on the exact definition of RMA among military experts and historians. In addition, there are many

[35] Cockburn, *Kill Chain*, 15; Freedman, *The Future of War*, 242-243.
[36] Singer, *Wired for War*, 181-182.
[37] Cockburn, *Kill Chain*, 44-45.
[38] Singer, *Wired for War*, 183.

scholars from different fields who are interested in how the concept of RMA evolved and what are the repercussions on contemporary warfare such as sociologists, political scientists, and futurologists. Thus, it should not come as a surprise that the current meaning of the term is even more complicated.[39] But one can realize that the concept draws a clear line to divide well-known, conventional warfare from current understanding of warfare. It signals the changes to come on the battlefield, or more accurately today, the battlespace. Although it is called 'revolution', this is not because it happens all of a sudden, but because of its strong effects. When the transformation occurs, this creates a room for 'hybrid technologies'. Some quick changes occur with such revolutions, but they do not necessarily rule out all of the existing warfare technologies. While the adoption of new technologies occurs gradually, there is a high possibility to observe the old and the new together.

Amongst systems that contributed to the feeling of anxiety were the unmanned aerial vehicles (UAVs), or drones as commonly referred. Controlled by a distant operator, they were able to fly above targets and provide their operators with intelligence, as well as to release the weapons upon their operators' command. Their primitive versions were already employed during World War I for purposes of intelligence gathering, and identifying targets.[40] There were members of the military who had strong belief in success via drones and thanks to their abilities to gather intelligence, be operated without risking human soldiers' lives. Admiral William Owens was an influential figure in the US military who coined the acronym ISR for intelligence, surveillance, and reconnaissance.[41] This acronym was an important element behind the military's high level of trust for the developing technologies. It also led the conceptualization of warfare towards a more 'technology-driven' direction.

[39] Andrew Latham, "Warfare Transformed: A Braudelian Perspective on the 'Revolution in Military Affairs'," *European Journal of International Relations*, 8 (2002): 232.
[40]Freedman, *The Future of War*, 241; Singer, *Wired for War*, 46.
[41] Cockburn, *Kill Chain*, 47.

The post-Cold War international security environment in which the US proved to be the victor provided drones with the suitable atmosphere to spread. The civil wars of Somalia, Bosnia and other places were triggering incidents that strengthened the belief in the benefits of surveillance, and drones were perfect to be used for surveillance purposes.[42] The US victory in the Gulf War in 1991 was taken as an example for the success to come thanks to the technological improvements and their implications. This meant the trust for RMA and the 'revolutionary' warfare under its effect was strengthened. Because it meant less dead soldier and less collateral damage, its risks and costs were overlooked, the focus was on the advantages.[43]

On the one hand, drones had quite significant advantages such as providing their operators with the opportunity to constantly observe their targets, to identify them, and to attack if all the conditions suggested. Similar technological improvements also made possible for these gathered intelligence and images taken from above the enemy to be distributed amongst all parts of the ongoing operation. This meant any individual involved; from the drone pilot to the military center back at home viewing all the details of the task. There was only need for a single firing to kill each identified target.[44]

On the other hand, there was no guarantee that this technology can always provide the most accurate and trustworthy information from the 'field'. Even after being developed further and providing much clearer images, there was still room for images to be misleading. Quoting the exact words of a Special Forces major from the US army when answering to the question "Your ISR (intelligence, surveillance, reconnaissance) knows there are civilians there…", Cockburn writes: "The ISR? Literally, look at this rug right here sir, that's what an ISR looks like".[45] Given this was the explanation about an error which occurred in a drone strike by the US in

[42] Ibid, 50.
[43] Metz and Klevit, "The Revolution in Military Affairs": 1.
[44] Cockburn, *Kill Chain*, 15; Freedman, *The Future of War*, 241.
[45] Cockburn, *Kill Chain*, 15.

2010 -not so long ago- the major's answer presumably provides a valid reason to question the reliability of these UAVs.

1.4. More Intelligence, Less Predictability?

There are some features of the current implications of RMA that can differentiate it from the previous examples of paradigm shifts in military affairs. In 2015, The US Deputy Secretary of Defense Bob Work gave a speech in which he explained the framework for a strategy that the US adopted; the 'Third Offset' strategy.[46] The main idea behind the strategy was that under the conditions of rapidly changing power relations, the US should keep up with the technological developments, and employ the most recent ones for the purposes of protecting its security interests. Being strong in technological terms was taken as the primary goal in order to remain strong against the US' rivals. Until this point, the US' intentions to follow the upcoming revolution in military affairs seems familiar from history.

But in this strategy, it is also underlined that understanding the importance of networks, human-robot collaborations on the battlespace is necessary which should be employed as Freedman writes "in space, air, sea, undersea, ground, and cyber domains".[47] Amongst the goals of the 'Third Offset' strategy was allowing the US to adopt the most efficient technologies to achieve human-robot collaboration. The belief was that the best possible results in current warfare were to come thanks to managing immense amount of data, and providing support for human soldiers to make quick decisions –which opens the door slightly for weapons to have more authority. Thus, significant attention was paid to artificial intelligence (AI) technology.[48]

The demand to be ahead of rivals, combined with the desire to decrease risk of death for human soldiers triggered the escalation of researches on how to apply artificial intelligence technology

[46] "Deputy Secretary of Defense Speech," *CNAS Defense Forum* (14 December 2015) Available at: https://www.defense.gov/News/Speeches/Speech-View/Article/634214/cnas-defense-forum/ Date Accessed: 13.05.2018.
[47] Freedman, *The Future of Warfare*, 244; "Deputy Secretary of Defense Speech at CNAS Defense Forum".
[48] James R. McGrath, "Twenty-First Century Information Warfare and the Third Offset Strategy," *Joint Forces Quarterly* 82 (2016): 16-23; Freedman, *The Future Warfare*, 244-245.

to develop new weapons. The already well-known outcomes of such researches were drones. In addition, currently, artificial intelligence technology is paving the way for more recent and more advanced forms of weapons systems. These are called semi-autonomous and autonomous weapons systems (AWS), and defined as 'robotic weapons…[which]once activated, can select and engage targets without further human intervention'.[49] Metz and Klevit write that while some revolutions cause extreme changes, others have small-scale effects. Similar possibilities exist in cases of RMAs as well. At the moment, the whole world -particularly the US as the leading actor- is on the brink of making very important decisions about the future trajectory of the latest RMA. It can go further than the previous examples, which is easy considering its already high speed, or it can be limited to some extent.[50]

The rapidly increasing power of computers is the source of the excitement about developing semi-autonomous and/or autonomous weapons systems (AWS). It is not a new phenomenon to see computers in the center of the relation between technology and war-making. In 1820, Charles de Colmar created the first mechanical calculator and called it 'Arithmometer'. His first clients were the French and the British militaries. They used the technological advantage of such a machine to control the trajectory of cannonballs. Likewise, the first programmable computer was coined by Charles Babbage, and he was hired by the Royal Army.[51] What is new about the current status of computers is that with the implications of AI technology, they can provide robotic weapons with 'intelligence', thus, with a certain level of 'autonomy'.[52]

The speedy rise of computer systems provided the recently developed weapons systems with 'intelligence' which means having the ability to obtain information from the outer world and to interpret it much more quickly, to track the location of targets via constant surveillance. These

[49] The US Department of Defense (DoD), "Directive 3000.09," (21 November 2012) Available at: https://www.hsdl.org/?abstract&did=726163 Date Accessed: 07.05.2018.
[50] Metz and Klevit, "The Revolution in Military Affairs", 2.
[51] Singer, *Wired for War*, 45-46.
[52] Freedman, *The Future of War*, 244; Singer, *Wired for War*, 74

technological achievements led 'autonomy' to be more feasible for these weapons. The decreasing costs of production and discoveries of easier ways to obtain the software to control such weapons do not contribute to a feeling of relief. On the contrary, scientists are worried more than ever.[53]

Current implications of artificial intelligence technology to produce weapons that can 'make decisions', and 'take action' without human intervention caused a great level of anxiety among scientist as well. Recently, an open letter was written to address these worries, and it was signed by a large group of researchers working on robotic and artificial intelligence technologies.[54] As stated in the letter, there are growing concerns about how to control the production, spread and use of lethal weapons with a degree of autonomy. What would that degree be, how 'autonomous' these weapons will be, and how this should be measured is an important matter of concern.

The issue becomes even more complicated when it comes to separating semi-autonomous and autonomous weapons systems (AWS) from each other. Heather Roff underlines four functions of a weapon system: trigger, targeting, navigation, and mobility. Even if currently a weapon has the ability to realize three out of the four functions, it is considered not to be fully autonomous. Thus, when even only one of these functions is taken over by a human operator, these weapons are called 'semi' autonomous.[55] In fact, due to these weapons' abilities to observe, follow, choose and directly engage with their targets, the level of human intervention is diminishing in operating such weapons.

However -as seen throughout the history of RMAs- for military actors, the focus is more on the 'efficacy' of these weapons systems. It should be kept in mind that both military objectives and

[53] Singer, *Wired for War*, 74-75.
[54]Future of Life Institute, "Autonomous Weapons: An Open Letter from AI & Robotics Researchers" (28 July 2015), Available at: https://futureoflife.org/open-letter-autonomous-weapons/ Date Accessed: 07.05.2018.
[55] Heather M. Roff, "Autonomous or "Semi" Autonomous Weapons? A Distinction Without Difference," *Huffington Post Blog* (16 January 2015), Available at: http://www.huffingtonpost.com/heather-roff/autonomous-or-semi-autono_b_6487268.html Date Accessed: 01.05.2018.

the subjects that are engaged for the purpose of achieving these objectives play significant roles in the prioritization of efficacy. There can be unintended and/or immoral results of some military objectives. These objectives set strategic and operational goals under the commanders. The more autonomy is given to machines in decision-making, be it tactical, strategic, or operational, the less control humans have over the commands, therefore, over the consequences.[56]

1.5. The Cooperation of Corporations: Where Is the 'Human' In This Scenario?

Another important point about the nature of RMAs was also underlined in this chapter; the nature of the shift in warfare is as political as it is a military matter. The collaboration between politicians and military officials were commonly observed throughout history of RMAs, and some examples were underlined within this chapter. In 1996, there was another attempt from the side of politics to keep up with the ongoing technological developments for the purposes of preserving national security of the US. The 'National Defense Panel' was organized by some members of the Senate. As a result of the talks, the report titled 'Transforming Defense: National Security in the 21st Century' was prepared. Among the threats that were underlined within the report were the vulnerabilities that the information technologies and humans' dependency on these systems created. But more significantly, the need for collaboration with some private, non-state actors, leading technology companies was stressed against the spreading possibility for some terrorists 'to acquire reconnaissance and surveillance services'.[57] A recent collaboration took place between Google and the US Department of Defense. The two parties signed a contract that guarantees assistance from Google by applying its deep learning tools to improve drones' vision and provide language translation for drone pilots, so that their strikes would become 'more precise'. When the news was leaked, Google denied the use of its

[56] Heather M. Roff, "The Strategic Robot Problem: Lethal Autonomous Weapons in War," *Journal of Military Ethics*, 13 (2014): 212, 215.
[57] Philip A. Oden et al., "Transforming Defense: National Security in the 21th Century," *Report of the National Defense Panel* (December 1997).

artificial intelligence technology tools for war-making purposes, and claimed that these tools are to be used only for non-offensive purposes.[58] However the intentions are mentioned to be non-offensive, such developments occur to comply with some military/operational goals which might have non-ethical consequences. This can be understood better when their ability to provide further autonomy for drones or other recently developed weapons systems is considered.

With all these actors involved in the process, there is now even a bigger room for worries about what will happen to human soldiers on the battlefield. Not only the role of soldiers, but also the involvement of all human actors in decision making processes is under threat. In a way, increasing the autonomy of the weapons systems means decreasing the autonomy of humans. Recently, phrases such as 'human in-the loop' or 'on-the loop' has become commonly used in the US military and political discourses. The term implies that there is and there will always be a human involved in the process of operating the 'smart' weapons.[59] Although this term was introduced to decrease the level of anxiety arose out of the decreasing role of humans in contemporary warfare, it has been criticized by many, for not being clearly defined. Wallach and Allen for example, criticize the term for not stating clearly to what extent humans can be involved in the decision making process during an operation.[60]

Furthermore, Singer highlights some errors that occurred in spite of the existence of a human in this loosely defined 'loop':

> During the 2003 Iraq invasion when U.S. Patriot missile batteries accidentally shot down two allied planes that the systems had classified as Iraqi rockets, there were only few seconds to make a decision, and so the human controllers trusted the machine on what to fire at. Their role "in the loop" was actually only veto power, and even that was

[58] Lee Fang, "Google Is Quietly Providing AI Technology for Drone Strike Targeting Project," *The Intercept* (6 March 2018), Available at: https://theintercept.com/2018/03/06/google-is-quietly-providing-ai-technology-for-drone-strike-targeting-project/ Date Accessed: 28.04.2018.
[59] Singer, *Wired for War*, 123.
[60] Wendell Wallach and Colin Allen, "Framing robot arms control," *Ethics and Information Technology*, 15 (2013): 126.

> a power they were unwilling to use against the quicker (and what they viewed as better) judgement of a computer.[61]

At this point, it might be beneficial to draw attention to the increasing level of trust in smart computers, and the changing roles that are assigned to the systems that are under the control of computers. The rapid changes of the functions that drones have for example, demonstrate a quite strong reason to feel worried. At first they were used for surveillance purposes. Later, with the help of technology, they were developed further to have the ability to observe the conflict zone, identify targets, and engage them directly.[62] This means devoting more trust to technology, and loosening the 'loop' for humans.

The increasing level of trust for computer-led technology, and the recent improvements in AI technology is opening the way to utilize lethal autonomous robots (LARs) on the battlefields. William M. Fleischman writes about what military specialists/authorities identify as advantages of having robots on the battlefield. He mentions the "three D's" –dangerous, dirty, and dull- which makes robots superior to human beings on the battlefield. In addition to decreasing the number of dead human soldiers, robotic weapons or even robots themselves can contribute to conducting operations even under conditions that human soldiers would not be able to handle, or would need a lot more assistance to sustain their strength.[63]

These positive thoughts about having robots in battlefield lead to developing a purely deterministic understanding towards use of artificial intelligence technology in war-making. It grants 'agency' to the products of this technology which are, in the end, non-human objects. It also means realizing the potential to play the main role to structure how conflicting humans would interact, how their relations would evolve around a center where this technology and its outcomes stand.[64] Technological developments do have affects that determine the relations

[61] Singer, *Wired for War*, 125.
[62] Ibid, 180.
[63] William M. Fleischman, "Just Say "no!" to Lethal Autonomous Robotic Weapons," *Journal of Information Communication Ethics in Society*, 13 (2015): 302.
[64] Raymond Williams, *Culture and Materialism* (London: Verso, 2000): 32.

between human beings and the tools that they provide.[65] But the main question is whether these effects lead to a decrease in responsibility and accountability for humans utilizing them.

Christof Heyns emphasizes that alongside a great number of advantages that these technologies provide, the question of autonomy remains in the center of worries about the current RMA's future, and thus, the future of warfare. Any case of use of force against an individual by another has been a matter of personal involvement. Humans have been the main actors involved in the process, both the one who uses force and the adversary who is exposed to it. Therefore, they carried the responsibility of their use of force, and remained accountable for it.[66] However, with the increasing trust in computers, it became easier to hold artificial intelligence technology responsible for many of the incidents that resulted from its use in contemporary war-making. As he also highlights:

> Official statements from Governments with the ability to produce LARs indicate that their use during armed conflict or elsewhere is not currently envisioned. While this may be so, it should be recalled that aero planes and drones were first used in armed conflict for surveillance purposes only, and offensive use was ruled out because of the anticipated adverse consequences. Subsequent experience shows that when technology that provides a perceived advantage over an adversary is available, initial intentions are often cast aside.[67]

James Der Derian likens contemporary warfare to a theater stage. He argues that the involvement of recent technology caused the line between contemporary politics and war-making to be blurred, and the reality of war-making to be underestimated.[68] As drones and autonomous weapons systems are enabled to utilize technology to distance soldiers from the battlefield, the reality of war-making becomes questionable. But this side of the story is overlooked as the arguments in favor of altering the nature of warfare emphasize that currently there is more precise attacks with less danger for damage or soldier loss.

[65] Daniel R. McCarthy, "Technology and 'the International' or: How I Learned to Stop Worrying and Love Determinism," *Millennium: Journal of International Studies*, 41 no. 3 (2013): 476.
[66] Heyns, "Autonomous Weapons Systems", 3-4.
[67] Ibid, 6.
[68] Der Derian, "Virtuous War/Virtual Theory", 771.

The asymmetry of warfare is deepened with the shifts caused by the recent RMA in warfare, one of the effects of having fast improvements with AI technology ın the battlefield. The two sides of a conflict cannot be considered equal, when we consider the divide caused by the speedy developments of current weapons systems, technological tools that allow surveillance, targeting, and precise attacks. As Derian puts it: "...virtuous war is anything but less destructive, deadly, or bloody for those on the short end of the big technological stick".[69] He concludes:

> When critical thinking lags behind new technologies, as Albert Einstein famously remarked about the atom bomb, the results can be catastrophic. My encounters in the field, interviews with experts, and research in the archives do suggest that the 'MIME', the 'RMA' and virtuous war are emerging as the preferred means to secure the United States in highly insecure times. Yet critical questions go unasked by the proponents, planners, and practitioners of virtuous war. Is this one more attempt to find a technological fix for what is clearly a political, even ontological problem? Will the tail of military strategy and virtual entertainment wag the dog of democratic choice and civilian policy?[70]

The issue at stake here is related to the level of autonomy that is imputed to these weapons which brings questions related to responsibility and accountability. Fleischman asks the main questions about what the future is holding for us:

> Whose name will be on the disaster precipitated by the malfunction of one of these weapons? Whose name will be attached, as Khrushchev and Kennedy were aware theirs would be to the nuclear disaster precipitated by a reckless gesture in the course of the Cuban Missile Crisis? Who will own the damage to what little of civilized culture we still imagine we possess? Certainly not computer scientists like Arkin, whose names will have long been forgotten. In a sense, this is appropriate. However, much their work contributes to this damage, the disaster will be ours as a society.[71]

With these questions in mind, it is important to underline the ongoing developments in artificial intelligence technology and its accelerating spread. There are advocates of having AI technology supported and developed even further and faster. But there are also puzzled minds about the possible threats that AI can pose for humanity. The second part of this chapter aims at providing a brief overview of the debate on whether it is 'good' to have AI technology as a part of our daily lives as well as on the battlespaces.

[69]Der Derian, "Virtuous War/Virtual Theory", 773.
[70] Ibid, 788.
[71] Fleischman, "Just Say no!", 311.

1.6. Why Is It Necessary to Research AI Safety When It Comes to the Recent RMA?

Humankind has been experiencing technological changes throughout history. Many of these changes caused paradigm shifts by affecting different aspects of humans' lives such as standards of living, life expectancy, consequently populations, healthcare and education services, work activities, and of course; war. In addition, the effects of technological changes were to be seen at individual levels; in the evolution of human relations and of the understandings of matters such as morality, ethics, the human nature, governance etc. Professor Nick Bostrom provides a broad definition of technological change as "a dramatic change brought about relatively quickly by the introduction of some new technology". He also provides some examples which indicates that the consequences of technological developments are like two-edged swords.

When Johan Gutenberg invented the printing press in 1448, the consequences were far from being predictable. His invention played a significant role for triggering the Renaissance and the Reformation processes, as well as the scientific revolution. But after his invention was improved, the same technology helped producing mass copies of Adolf Hitler's 'Mein Kampf'. Similarly, in the 20th century, the scientific researches on atomic physics and quantum mechanics were great progresses in the name of science. However, during the second World War, the very same research activities were taken as the foundation of the Manhattan Project which provided Hitler with the ambition of acquiring the lethal atomic bomb.

Finally, in 1957, Sputnik 1 was launched by Soviet scientists. Again, this was a significant sign of success for scientists. But by the US administration and the military, it was perceived as a potential threat from the USSR to exceed the US in terms of nuclear power. With the urge to stay ahead of its rival –and the potential rivals in the future- the US created the Defense Advanced Research Projects Agency (DARPA). While leading the creation of ARPANET and thereafter the World Wide Web which basically connected the whole world to each other with

services such as e-mail, it also caused the acceleration of the race for better defense measures, and thus, the worldwide arms race.[72]

Currently, artificial intelligence technology and its possible impacts are among the main concerns of many scientists, politicians, military influential actors, and citizens. For example, theoretical physicist, Michio Kaku, foresees that the next revolution in science can occur as a result of the recent and speedy developments in artificial intelligence technology. He underlines that the first wave which led the scientific revolution in history was steam power because it brought the industrial revolution. The second wave was electricity and it led the electrical revolution. The third wave was the digital revolution which led the usage of high technology and it still continues. The fourth and the final wave can be improvements in artificial intelligence which would bring biotech, nanotech, and quantum computers into our daily lives.[73]

Humans have benefited from countless practical advantages of technological developments. In most cases, these advantages meant sharing the burden of work in hand, shortening the time it takes, or –perhaps most importantly- making the process more efficient. Looking back at the ancient Greek and Roman mythologies, one can see the very first attempts at creating mechanical beings to replace human workforce in several areas. Obviously, the primitive attempts in those periods to replicate human power differ incomparably from the currently growing robotic technologies.[74] Today, when it comes to thinking about replacing human workforce, robotic technologies and robots are amongst the first thoughts that humans have.

It is true that robots are machines with a certain level of 'intelligence'. Intelligence can be defined as the skills that allows a subject predict, plan, and to have the rationale to connect

[72] Nick Bostrom, "Technological Revolutions: Ethics and Policy in The Dark," in *Nanoscale: Issues and Perspectives for the Nano Century*, eds. Nigel M. de S. Cameron and M. Ellen Mitchell (John Wiley, 2007): 129-130.
[73] Kaku, *Visions*.
[74] Singer, *Wired for War*, 44.

means and goals to each other.[75] Hence, they certainly are products of artificial intelligence technology, perhaps the most well-known ones. But not the only ones. Thinking about the current artificial intelligent technology as only exists in robots or machines that are shaped like humans would lead to a narrow and superficial understanding of AI technology and its products. In the words of Bostrom, it would mean falling into the error of 'anthropomorphism'.[76] In other words, letting any attempt to understand and conceptualize AI technology evolve solely around humans would cause misperceptions about AI technology. As the Head of Future of Life Institute, Max Tegmark, writes: "AI can encompass anything from Google's search algorithms to IBM's Watson to autonomous weapons".[77]

In 1950, Alan Turing asked a question that would alter the trajectory of scientific researches on computers and the human brain: "Can a machine think?". In order to frame his question, he suggested the 'imitation game' with three players; a man, a woman, and an interrogator of either sex. The task for the interrogator is to find which one of the other players is a man and which one is a woman. Then Turing adds another level to the game, and asks a question: What happens if one of the two players (the man or the woman) is replaced by a machine? Can a machine convince a human being that it is not a machine?[78] Obviously, the computer in this game is not going to be seen by the human player. This is the famous 'Turing test'.

The updated versions of this test still occupies minds of many scientists and researchers from different fields. For one thing, the artificial intelligent unit in the game is not necessarily a human-shaped machine or a robot. It can be a computer as big as a room, or –as more likely to happen today- it can be a software, working with countless algorithms which are intangible. What matters is whether its 'intelligence' can beat the human in the game, and convince him/her to think that he/she is communicating with a human being as well. With the current

[75] Nick Bostrom, "The Superintelligent Will", 74.
[76] Ibid, 72.
[77] Future of Life Institute, "Benefits and risks of artificial intelligence".
[78] Alan Turing, "Computing Machinery and Intelligence," *Mind*, 49 (1950): 433-460.

improvements in AI technology, it seems more possible that the human in the game believes that the artificially intelligent machine or software is another human being like himself/herself. Such a confusion was examined in a recently produced movie titled 'Ex Machina' in 2015. An updated version of the Turing test was applied in the movie. A striking point was that the artificial intelligent unit was not hidden from the human in the movie. Yet he was slowly feeling convinced that the robot sitting in front of him can actually be a human-like creature, and starts questioning his 'human' characteristics.[79]

The developments in AI technology are happening at an incredibly high speed, thus, most of the impacts are unpredictable.[80] This is a significant aspect of it that causes some worries. But The Future of Life Institute -a leading institute that conducts research on AI- underlines that this also causes the spread of some false myths about further developments in AI technology. For example, many believe that by the year 2100, superintelligence will come and this is inevitable. Or the opposite is argued by some who believe that it is impossible to achieve superintelligence by 2100. Instead of the mytical worry of "AI is turning evil" or "AI is becoming conscious", Tegmark underlines the necessity to think about ways out of the problematic of "AI is turning competent, with goals that might be misaligned with humans' goals".[81]

At the heart of the functioning of recent products of AI technology lays mimicking the neural system of human brain via algorithms. Thus, in contrast with the classical machines that humans have produced and had control over, the recent products of artificial intelligence technology are able to learn. They can obtain new data, and utilize them for new operations without necessarily being programed for any certain action or for any identified response. Machines that are

[79] *Ex Machina* directed by Alex Garland. (2014; The US: Universal Pictures International (UPI), Film4, DNA Films/A24).
[80] Bostrom, "Technological Revolutions": 6.
[81] Future of Life Institute, "Benefits and risks of AI".

learning are no longer machines that have predictable behaviors. Their intelligence provides them with a high level of autonomy.[82]

After the historic chess game between Deep Blue and Kasparov in 1997, another astonishing victory of AI against a human took place in March 2016. Developed by Google's Deep Mind, AlphaGo beat the eighteen-time world 'Go' champion from South Korea, Lee Sedol.[83] AlphaGo is a product of artificial intelligence technology. It is developed in a way that it can mimic the neural system of the human brain. This recent example of accelerating improvements in 'machine learning' can be helpful to demonstrate what is meant by the high level of intelligence that is attributed to artificial intelligent units. It is a common metaphor to liken the game of chess to a battlespace. "Go is like a global battlespace, or geopolitics", writes Cade Metz.[84] In a game of chess, there are around thirty-five possible moves, in case of Go this number goes up to two hundreds.

The game was played for three times, and at the fourth game, AlphaGo won against Sedol. Its victory is a pure demonstration of the improvements made with 'machine learning'. AlphaGo's victory has come thanks to algorithms that mimic the way the human brain works, interpret and utilize the data received from the outer world to achieve the desired end. Then the question appears: If now machines can learn as well as humans, what can guarantee that they will not supersede us one day? Considering the speed of improving artificial intelligence technology, that day might not be too far away. Obviously, such developments pose the high risk of eliminating human control over the operations of artificial intelligent units. If this occurs at the battlefield, the consequences can mean a one-way ticket to experience the 'doomsday scenarios' about the future of AI.

[82] Singer, *Wired for War*, 125-126.
[83] Cade Metz, "Google's AI wins fifth and final game against go genius Lee Sedol," *Wired* (15 March 2016) Available at: https://www.wired.com/2016/03/googles-ai-wins-fifth-final-game-go-genius-lee-sedol/ Date Accessed: 06.05.2018.
[84] Cade Metz, "What the AI behind AlphaGo can teach us about being human," (19 May 2016), Available at: https://www.wired.com/2016/05/google-alpha-go-ai/ Date Accessed: 22.05.2018.

1.7. The Debates on AI and the Problem of Communication

There are ongoing debates on the possibilities of decreasing human control over AI technology due to its accelerating level of intelligence and autonomy. Many influential actors and scientists are worried about what the future of AI technology holds for humankind. Elon Musk, the CEO and founder of SpaceX and Tesla, the 'tech billionaire', is among the initial names who stated their concerns.[85] Stephen Hawking, the World-renowned physicist, warned about the dangers that AI technology holds for humans, including its possibility to be the end of humankind.[86]

Not every single influential actor or scientist is as worried as Hawking or Musk. Some focus on the positive sides of the speedy improvements in artificial intelligence technology. Scientists are constantly working on improving AI technology to provide algorithms with superior abilities to rule the data they acquire from the outer world. Some of these researches led to systems that can diagnose illnesses, even suggest ways for curing them.[87] Another 'tech-billionaire', Mark Zuckerberg was among the ones who reacted Musk's 'doomsday scenarios' with counter arguments. He underlined that there is no need for worrying about the future of AI, humans will benefit it the most thanks to human-machine corporation.[88] Bill Gates is another influential actor who seems to agree with Zuckerberg, and argues for benefits of having AI improved further.[89]

[85] Nina Godlewski, "Elon Musk says humans could end up ruled by an immortal AI dictator," *Newsweek* (9 April 2018) Available at: http://www.newsweek.com/elon-musk-ai-artificial-intelligence-dictator-immortal-878061 Date Accessed: 22.05.2018.
[86] Aatif Sulleyman, "Stephen Hawking warns artificial intelligence may replace humans altogether," *Independent* (2 November 2017), Available at: https://www.independent.co.uk/life-style/gadgets-and-tech/news/stephen-hawking-artificial-intelligence-fears-ai-will-replace-humans-virus-life-a8034341.html Date Accessed: 22.05.2018.
[87] IBM Watson Health, "IBM Watson for Patient Safety: Supporting your mission to protect patient well-being" (November 2017), Available at: https://www-01.ibm.com/common/ssi/cgi-bin/ssialias?htmlfid=HPF12369USEN Date Accessed: 07.05.2018.
[88] Catherine Clifford, "Facebook CEO Mark Zuckerberg: Elon Musk's doomsday AI predictions are 'pretty irresponsible," CNBC-e (24 July 2017), Available at: https://www.cnbc.com/2017/07/24/mark-zuckerberg-elon-musks-doomsday-ai-predictions-are-irresponsible.html Date Accessed: 23.05.2018.
[89] Catherine Clifford, "Bill Gates: I do not agree with Elon Musk about A.I. 'We shouldn't panic about it'," CNBC-e (25 September 2017), Available at: https://www.cnbc.com/2017/09/25/bill-gates-disagrees-with-elon-musk-we-shouldnt-panic-about-a-i.html Date Accessed: 23.05.2018.

From the military point of view, what makes AI technology and its usage preferable on the battlefields is the superior abilities of artificial intelligent units such as quickly obtaining immense amount of data, fast decision-making abilities. In addition to these points which were already underlined within the historical progressions made within the RMAs historically, the US Army's tradition of keeping up with the recent technological developments plays a significant role about the fame of AI in military sphere. It roots in the US military officials and influential actors' cautious attitude towards the uncertainty of future stake holders of technological developments.[90]

The US Army was also backing its employment of the recently developed AI technology products –most notably drones- with their superiority to human soldiers in several aspects. This meant the introduction of new capabilities on the battlefield that would keep the US ahead of its rivals.[91] The gap between AI machine learning and human intelligence is growing. A short while ago, Facebook's two bots called Bob and Alice spoke to each other in a language that scientists who developed the algorithms for them could not understand.[92]

This recent case demonstrates the growing gap between the machines and human beings when it comes to processing data and indicates that these algorithms are already superior to humans in terms of processing immense amount of data and conceptualizing it. What is more worrisome about this case is that it can mean that artificial intelligent units started to conceptualize the world around them in a different way than humans do. Thus, they can be more selective about the data they receive, and interpret it in a way that would fit in their perception of the outer world.

[90] Singer, *Wired for War*, 259.
[91] Freedman, *The Future of War*, 246.
[92] Gaia, "AI creates own language humans can't understand" (25 July 2017). Available at: https://www.gaia.com/lp/content/robots-are-learning-and-speaking-in-languages-we-cant-comprehend/ Date Accessed: 04.05.2018.

If we follow the evolutionary logic of science as Yuval Noah Harari writes, humans too, are composed of data processing algorithms. We are inevitably parts of a much bigger and more complex mass of data. To a significant extent –as underlined in the above example too- what makes the machine learning superior to humans is their ability to process immense amounts of data in a much shorter term, at a much higher speed than a human being can manage.[93]

In cases of military usage of artificial intelligent units, this is underlined as the 'interface problem'. Interface is the way of communication between the machine and its human controller. For a healthy interface to occur, the human controller should be in charge of receiving the information that is provided by the algorithms, and should be able to give orders accordingly. With the speedy improvements of AI technology, the gap between the human controller and the artificial intelligent weapons is growing. There are emerging problems of communication between humans and robots or intelligent algorithms. Singer quotes the words of an iRobot engineer: "User interface is a big problem".[94] This can mean not being 'in the loop' for the human soldiers.

There is evidence that already many people think about these algorithms as reliable sources of information when it comes to decision making. The search engines are the clearest current examples. Google is the most well-known among them, and every single day, a lot of humans ask all sorts of questions. Most of the time, these are questions about simple things such as which outfit to choose, what type of coffee to drink, or what food to consume, what product to buy next etc. But the recent developments, combined with their high speed of improvement, seem not far away from making people ask questions about which school to attend, which profession to choose, or even whom to marry.[95]

[93] Harari, *Homo Deus.*
[94] Singer, *Wired for War*, 67-68.
[95] Harari, Homo Deus.

In a similar vein -for the underlined features of the AI technology- its military implications are perceived to be efficient, beneficial, and brings many advantages. Nevertheless, thoughts about high levels of autonomy given to the algorithms, the unmanned vehicles or robotic technologies on the battlefield cause a certain degree of anxiety. As Eriksson and Giacomello underline, the global information society which we are living in has important characteristics that can shed light on how conceptualization of security has changed with the effect of technological developments. The rapid improvements of computers and the networks now allow them to communicate with each other. This can mean getting human beings out of the way. Therefore, such ground-breaking improvements have come with the feelings of fear about the future implications of the recently developed technologies, and about their use in war-making.[96]

Another misperception about AI is underlined as "robots are the main concerns" by the Future of Life Institute. In fact, "misaligned intelligence is the main concern: it needs no body, only an internet connection".[97] Not only 'killer robots', but all products of AI technology which can have a certain level of intelligence and autonomy are the reasons to worry about AI safety and its possible implications on battlefield. As underlined earlier in this chapter, currently semi-autonomous and autonomous weapons systems are among the implications of AI with the most worrying aspect. In February 2018, Munich Security Conference was held with the participation of representatives of NGOs, a former NATO representative, and military officials. During the event, the unlikeliness of employing 'killer robots' were underlined. But there was no mention of legal implications to keep states from using autonomous weapons on the battlefield. Only, it was underlined that human will be kept 'in the pool'.[98]

[96] Johan Eriksson And Giampiero Giacomello, "The Information Revolution, Security, and International Relations: (IR)relevant Theory?" *International Political Science Review*, 24 (2006): 224.
[97] Future of Life Institute, "Benefits and risks of AI".
[98] Campaign to Stop Killer Robots, "Munich security conference," (22 February 2018), Available at: https://www.stopkillerrobots.org/2018/02/msc2018/ Date Accessed: 23.05.2018.

However, in light of the features of AI technology that is enabling non-human units to have -as mentioned earlier- high level of intelligence and autonomy, researches on AI safety are also accelerating. During the steps taken to achieve artificial intelligent units, it is underlined that their interaction with reality, with its complex structure should be made sure to happen before their actual use. Testing their behaviors in laboratories would not give sufficient results in terms of their real-life use.[99]

Throughout the chapter, some prominent implications of information technologies in its early form, and the recently developed weapons systems that reflect the use of AI technology in military sphere were underlined. In addition, the positive and negative views about improving AI technology further were underlined. The underlined features of AI technology, and the interrelation between war-making and technology are the sources of justifying the necessity to focus on the threatening impacts of AI on contemporary war-making. The issues of 'autonomy' and loss of human control were the main issues underlined in this chapter. In this frame, the upcoming chapter will provide the main trajectories of debates on the ethical implications of AI on the battlefield from the viewpoint of Human Security. It will try to demonstrate why Human Security fails to provide clear answers for the worries about rising intelligence and autonomy of the recent weapons systems.

[99] Nate Soares and Benya Fallenstein, "Agent foundations for aligning machine intelligence with human interests: a technical research agenda," In *The Technological Singularity: Managing the Journey* (Springer, 2017).

Chapter II: Why Does Human Security Fail to Understand the Role of Humans Contemporary Warfare?

In the previous chapter, the paradigm shifts that occurred in light of technological developments and their effects on the nature of warfare were examined. It was also discussed that there is a need to research artificial intelligence (AI) security. Thus, as for contemporary warfare, this research underlines the recent developments in AI technology as the main triggers for its current altering. Among the most important indicators of the recent paradigm shift in warfare were unmanned aerial vehicles (UAVs) –or drones- and, currently, autonomous weapons systems (AWS). The rise of their (artificial) intelligence provides these weapon systems with much better abilities to receive and interpret immense amounts of data from the outer world, and to 'make decisions' quickly. With these abilities, they obtain more autonomy and consequently superiority –compared to humans- on the battlefield. Their such qualities raise questions as to whether humans are 'in the loop' while fighting a war, or are the artificially intelligent weapons systems becoming the agents of contemporary war-making.[100] The acceleration of their (artificial) intelligence and autonomy threatens the position of humans in battlespace.

2.1. Brief Overview of the Evolution of Human Security

The earlier debates about security and warfare posit humans as the 'subjects' of the international security rather than the 'agents'. Shahrbanou Tadjbakhsh highlights that the first steps towards redefining international security from an alternative point of view were taken in 1994. The conventional understanding of security implied that security is about the state actors' engagement in relations with each other and its regulation. The alternative approach which takes the security of human beings into its center aimed at challenging this tradition. Instead of focusing only on the military threats, this approach suggested prioritizing the internal threats

[100] For a limited list of the most recent attempts on dealing with this evolution of weapons systems, see: Singer, *Wired for War*; Cockburn, *Kill Chain*; Freedman, *The Future of War*.

about protection and preservation of human rights, economic conditions, social justice, political rights etc.[101] Thus, transforming the international security agenda meant saving it from the state-centric approach in International Relations (IR). While giving voice to the needs and rights of humans which previously have been marginalized, this new conceptualization of security left the military aspect aside.

In the year of 1994, an important step was taken for broadening the framework of international security agenda, and to include threats towards individuals' security in addition to the states'. The publication of the 'Human Development Report 1994' by the United Nations Development Program (UNDP) marks this step. The report also aims at defining borderlines of the new framework clearly. Yet, it falls into error of not considering the altering characteristics of contemporary warfare which –actually- affects human lives dramatically: "Human security is not a concern with weapons-it is a concern with human life and dignity"[102]

As seen, the emergence of Human Security concept goes back to the right after the end of the Cold War. It started to develop in a period when the winds of the change were blowing for the dynamics of conflict and power. Thus, it reflected the altering characteristics of international security environment in which it flourished. In addition to the end of the Cold War, Shahrbanou Tadjbakhsh and Anuradha Chenoy underline the process of globalization as an important factor that profoundly affected the features of international security. It caused the emergence and the spread of 'new threats' in addition to the military ones.[103] But claiming that Human Security is still an efficient perspective to look at the changing dynamics of war-making in the 21st century would be a mistake. As underlined in the first chapter, the dynamics of war-making are

[101] Shahrbanou Tadjbakhsh, "Human security: concepts and implications with an application to post-intervention challenges in Afghanistan," *Center for Peace and Conflict Resolution Sciences Po* (September 2005): 4-5.
[102] United Nations Development Program (UNDP), *Human Development Report*, 22.
[103] Shahrbanou Tadjbakhsh and Anuradha Chenoy, *Human Security: Concepts and Implications* (London and New York: Routledge, 2007): 11-12.

changing. The position of humans is threatened by the increasing autonomy of weapon systems on the battlefield which can change warfare profoundly compared to the 20th century.

Human Security is a concept with the noteworthy attempt to provide humans with 'agency' in the international security agenda. Notwithstanding, from the very beginning, the alternative framework that it provides misses the significant connection between evolution of warfare and humans' role in war-making. Nevertheless, the concept of Human Security is frequently addressed by Critical Security Studies (CSS) scholars when it comes to scrutinize the ethically problematic implications of the relation between war and technological developments for individuals. Currently, this relation has become even more important with the increasing level of intelligence and autonomy of the weapon systems. They pose the risk to eliminate humans from the battlespace, and taking the experience of war-making to a less humane, as well as more dangerous level.

This research seeks to demonstrate how Human Security -a concept that attempts to keep international security agenda relevant to the conditions of its time- fails to remain relevant in the face of altering warfare in the 21st century. As underlined above, since its emergence, Human Security evolved around the threats against individuals in any dimension, but not with threats which can arise out of the position of humans in war-making. This is the main problem that keeps the concept from shedding light on the ethical implications of the altering nature of contemporary warfare for humans. I argue that instead of having such an attempt, Human Security keeps the focus of international security agenda on drone warfare. Hence, the focus stands far away from the current acceleration of the autonomy of weapon systems and how this affects the agency of humans in war-making.

2.2. Drone Warfare Under the Microscope of Human Security

The insistence to conceptualize the role of humans in currently altering warfare from the point of Human Security led CSS scholars to pay significant attention to drone warfare. Within this

scope, while keeping the accelerating autonomy of weapon systems out of the agenda, their studies provide beneficial insights into the problematic aspects of drone warfare. In his recent book, Lawrence Freedman underlines that besides their technological advantages, drones were criticized for two main reasons: 'creating situations of complete asymmetry' and 'the question of impunity'. The author continues with the question: "Was it too easy to mount attacks without worrying much about the ethical implications?"[104] Yet again, in drone warfare, humans were posited as 'subjects' of war-making rather than 'agents'. The main focus remained on "what humans should be protected from?"

Precisely for still talking around these parallel questions, the efficacy of Human Security as a theoretical framework is doomed to be criticized. A strong statement of dissatisfaction comes from one of the pioneers of the Copenhagen School; Barry Buzan who describes human security as: "a reductionist, idealistic notion that adds little analytical value". He adds: "If the referent object of human security is the individual, or humankind as a whole, then little if anything differentiates its agenda from that of human rights." Buzan agrees that it is possible to argue in favor of human security from a moral point of view. But doing so, he argues, would dismiss the possibility of analytical engagement with the collective actors involved in the security provision.[105] The analytical engagement with these actors is what this research argues to be necessary for the sake of studying the position of human in war-making, which will be mentioned later in this chapter.

As underlined in the first chapter, working based on surveillance is among the main characteristics of drones.[106] This was the starting point for many scholars who approached the drone warfare from Human Security perspective. Didier Bigo emphasizes that studying surveillance became a specific field of research. Sociologists Gary Marx and David Lyon were

[104] Freedman, *The Future of War*: 241.
[105] Barry Buzan, "A reductionist, idealistic notion that adds little analytical value," *Security Dialogue* (2004): 369.
[106] Cockburn, *Kill Chain*: 50.

among the pioneers of this field. At first, the focus was minority groups that are under constant surveillance and were suppressed.[107] But the accelerating technological developments caused the unpredictability about where surveillance would be employed, and soon the drone warfare was in the center of debates. Marx underlines this as: "we are rarely prescient or adequately prepared for the full consequences of innovation and social change".[108] In a way, this demonstrates that the need for having the role of human in war-making in Human Security's agenda was realized.

However, instead of focusing on the changing 'big picture' of contemporary warfare, scholars who focused on surveillance and drone warfare, tended to move the debate towards questioning 'whats' and 'hows' about protecting individuals from the threatening feelings that come with constant surveillance. Again, this makes us to turn a full circle to the point where Human Security cannot engage with the role of human in 'war-making', and cannot attribute 'agency' to humans. In order to argue for this lack, I look closer at the commonly referred relation between Human Security and development. Because this relation underlies the victimizing humans against the recently developed technologies and weapon systems on the battlefield. By giving credit to this victimization, Human Security overlooks the agency and the role of humans in war-making.

2.3. Human Security and Development: A Redundant Relation, No Agency for Humans

The relation between its conceptualization and development found voice amongst many CSS scholars for quite long time. For example, Brad Evans underlines the same relation, and points out Foucault's concept of 'biopolitics':

> For Foucault, the biopolitical specifically referred to the political strategization/technologization of life for its own productive betterment. Effectuating, then, the active triangulation between 'security, territory and population', bio-politics

[107] Bigo, "Security, exception, ban and surveillance", 46.
[108] Gary Marx, *Windows into the Soul: Surveillance and Society in an Age of High Technology* (Chicago and London: The University of Chicago Press, 2016): 299.

> forces a re-prioritization of those concerns ordinarily associated with human development/progress in a manner that complements traditional security paradigms[109]

Fundamentally, emphasizing this relationship implies that emergence and spread of Human Security is the result of the opportunistic liberal system that moved further by promising to mitigate suffering in the conflict zones in developing countries. Mark Duffield is among the pioneers of the debate on conceptualizing Human Security, and he strongly argues in favor of the relation between development and Human Security agenda. He also shapes his argument by looking at Foucault's biopolitics.[110] However, arguing for this relationship does not take Human Security any closer to providing humans with agency on the battlefield.

There are arguments against this relationship in the literature as well. Although connected to the changing conditions of international security with the end of the Cold War, they are not proposed in relation to the role of human in war-making. It is more about the decreasing interest of the developed to control the less-developed, so the agency of human is still missing in these arguments. Tara McCormack for example, argues against such a strong relation between development and Human Security. She takes the Cold War as the breaking point, and accentuate the changing international context with the end of it. For obvious reasons, the divide between Western and non-Western states was clearer during the Cold War period. The former's fall under the influence of communism was interpreted as an existential threat by the latter, and vice versa. Therefore, McCormack argues, the Western states were eagerly seeking to alter the non-Western societies for the purpose of eliminating the communist threat. In the absence of such an obvious threat, less attention is paid to the non-Western societies by the West.[111]

With this strong emphasis on development in its conceptualization, Human Security approaches drone warfare and focuses on the victimization of humans on the battlefield in its asymmetric

[109] Brad Evans, "Foucault's legacy: security, war and violence in the 21st century," *Security Dialogue*, 41 (2010): 415.
[110] Mark Duffield, *Development, Security, and Unending War: Governing the World of Peoples* (Cambridge: Polity Press, 2007).
[111] Tara McCormak, "Human security and the separation of security and development*," Conflict Security and Development*, 11 (2011): 235-260.

nature. In terms of the asymmetry problem, the most common critiques are towards drone pilots' limited experience of war. Some scholars who involved in the debate argue that being distant from the actual battlefield keeps drone pilots from truly understanding the conditions of war. Once they finish their missions within a specific operation, they can go home, have dinner with their families, play with their kids... In short, they can go back to 'normal life' in a quite short time.[112] In drone warfare, killing the enemy includes less involvement of human. The war becomes 'clean' and 'precise', and the enemy is dehumanized.[113]

James Der Derian describes the latest revolution in military affairs which is led by the US as a 'virtual revolution'. He emphasizes that the words 'virtual' and 'virtuous' have lost their ancient-originated and closely related meanings, and they were separated. The recent paradigm shifts in military affairs and the altering nature of contemporary warfare offer a way to re-unite these words' meanings via technological developments. As he puts it: "At the heart of virtuous war is the technical capability and ethical imperative to threaten and, if necessary, actualize violence from a distance with no or minimal casualties." It presents a clean, precise way of fighting against the enemy with the promises of less casualties, and less collateral damage by keeping the US soldiers away from the actual conflict zones.[114]

The distance between the drone pilots and the actual war zone is underlined as a significant factor to 'ease' the killing missions that these drone operators have to accomplish. Derek Gregory refers to Dave Grossman's writing on how American soldiers 'learn to kill' as a strong reference point. He especially underlines the part about the video games that teaches US soldiers to distance themselves from the enemy, and to kill without having any ties with the

[112] Freedman, *The Future of War*, 242.
[113] Kevin Robins and Les Levidow, "Socializing the Cyborg Self: The Gulf War and Beyond," in *The Cyborg Handbook,* ed. Chris Hables Gray (New York & London: Routledge, 1995): 119–25; Kevin Haggerty, "Visible war: surveillance, speed, and information war," in *The New Politics of Surveillance and Visibility*, Ed. Kevin Haggerty and Richard Ericson (Toronto: University of Toronto Press Incorporated, 2006): 3-25; Torin Monahan and Tyler Wall, "Somatic Surveillance: Corporeal Control through Information Networks*," Surveillance and Society*, 4 (2007): 154–173.
[114] Der Derian, "Virtuous War/Virtual Theory": 772.

actual battlefield. Grossman writes about how these soldiers are becoming distant from the reality of war emotionally, psychologically, socially, as well as culturally, thus, become 'ready to kill'.[115]

Hence, from the viewpoint of Human Security, the promise of new technologies for a 'clean' war is criticized for being one-sided. What is reflected on the TV screens or newspaper pages of civilians living in the 'developed' states signal that the recent technological developments altered contemporary warfare in a positive way; there is less blood, less killing, and a more precise, a more humanitarian way of fighting. It works in favor of the party which has the technological capability to keep its soldiers away from where the actual war occurs. On the other hand, as Der Derian sums up: "...virtuous war is anything but less destructive, deadly, or bloody for those on the short end of the big technological stick".[116] As seen, the relation between development and conceptualization of Human Security is at the heart of these arguments, and they look at the 'victims' of drone warfare, not at the altering role of humans with the paradigm shifts.

Examining recent examples of studies in the same trajectory from the viewpoint of Human Security would be beneficial to highlight that the current literature provides me with the chance to demonstrate the accuracy of my argument. Elke Schwarz brings the relation between Human Security and development in his 2015 article. He argues that calling drones 'humane' weapons is a 'biopolitical' issue, and these attempts degrade human lives to processing of data, usage of techniques, and to their success.[117] His research focuses on the less developed, unfortunate side of drone warfare, and falls into error of not considering the bigger picture about the altering war-making and the increasing autonomy and intelligence of the weapons on the battlefield.

[115] Grossman, *On Killing: The Psychological Cost of Learning to Kill in War and Society* (New York: Back Bay Books, 1995) cited in Gregory, "From a view to a kill", 197-198.
[116] Der Derian, "Virtuous War/Virtual Theory", 773.
[117] Schwarz, "Prescription drones", 61.

Writing in 2017, Christie Agius keeps the relation between Human Security and development at the heart of her article. She aims at focusing on the ongoing drone warfare and how it affects the security of individuals. However, she does not attempt to bring Human Security closer to examining the role of human in contemporary warfare with its altering features. Instead, under the shadow of development, she underlines victimization of the locals where drone warfare has been going on. Focusing on its asymmetric structure, Agius underlines the division between 'haves' and 'have nots' of this warfare. armies that are able to adopt these technologies away from the war zones.[118]

Criticizing Agius' attempt to deal with the asymmetry of drone warfare does not mean that this problem should be totally ignored. However, focusing solely on the asymmetry problem, and aiming to do it by looking at drone warfare from the viewpoint of Human Security does not help the concept to deal with the more recent features of contemporary warfare. It does not lead the concept's focus towards the accelerating autonomy of weapon systems and how this affects the role of human on the battlefield, what is the role of recent technological developments in this process. Instead, her research demonstrates clearly that the common understanding of Human Security's conceptualization from the very beginning as in relation to development keeps chasing the concept.

Although focusing on drone warfare provided some advantages for the literature, as already stressed, the accelerating autonomy of weapon systems in contemporary warfare remains out of its focus. This points out to the necessity to approach the more recent questions about the nature of war-making and the role of humans with shifting Human Security's focus more towards understanding the analytical engagement with the recent technological developments and the actors involved in the process. For the purpose of this research, the recent technological developments in artificial intelligence (AI) technology and the role of military actors have been

[118] Agius, "Ordering without bordering", 371.

already underlined in the first chapter, and it will carry out the argument from there. The rest of this chapter deals with how this alternative approach should be shaped.

2.4. "In the Shadow of Drone Warfare"

Bode and Huelss write: "in the shadow of drone warfare, the autonomy of weapons systems is accelerating largely outside of public and academic attention in the discipline of International Relations (IR)".[119] Here, in the final part of this chapter, I argue that their argument is persuasive and if it is understood well while approaching the role of human in contemporary warfare from the viewpoint of Human Security, it can provide the concept with the efficacy that it lacks due to the above-mentioned reasons. As underlined in the previous section, scholars who attempted to examine the altering nature of warfare from the viewpoint of Human Security closely engaged with drone warfare. For a more efficient conceptualization of Human Security, there is a need to get out of its classical understanding about weapons, stop focusing solely on drone warfare, and focus more on the accelerating technological procedures to increase weapons' autonomy on the battlefield.

This does not necessarily eliminate drones from contemporary warfare. They are still employed by some states, notably by the US, and their use continues creating feelings of insecurity as underlined above. The detailed examinations of the ongoing drone warfare certainly provided beneficial sources to take further steps in understanding the paradigm shifts in contemporary warfare. But keeping the focus of these debates solely on drone warfare poses the danger of overlooking the more recent developments about weapons technologies. As Benjamin Meiches puts: "...the materiality of weapons, procedures of technical design and engineering, and the affective properties of weapons are consequently treated as secondary in this approach."[120] Specifically in this regard, I argue for the necessity to focus on the recent and speedy

[119] Ingvild Bode and Hendrik Huelss, "Autonomous weapons systems", 1.
[120] Benjamin Meiches, "Weapons, desire, and the making of war," *Critical Studies on Security*, 5 (2017): 3.

developments of the artificial intelligence technology, and its part in the accelerating autonomy of weapon systems.

A recent step for taking the discussion on the altering nature of warfare and the role of humans out of the predicaments of drone warfare is taken by Bode and Huelss. In an attempt to underline the increasing role of semi-autonomous and autonomous weapons systems, they draw attention to the accelerating intelligence and autonomy of recently produced weapons. They underline that the current level of (artificial) intelligence which these weapons systems possess is considered not to be high, but they also emphasize the need to consider their possible implications on warfare in advance.[121] The relevancy of this point can be understood by looking at the increasing speed of developments in AI technology that is underlined in the first chapter. It is not so unlikely to see the applications of these technologies in the actual warfare. There is already an emerging body of the literature that deals with the further developments of autonomous weapons,[122] and arguments vary, but most scholars argue against having them on the battlefield. While the authors are aiming at affecting the international norm dynamics via their approach, this research seeks to keep the focus away from international norm dynamics. Instead, the main purpose here is to utilize their approach to make it possible for Human Security to become a more efficient framework to address the problem of decreasing human control in contemporary warfare.

Even when humans are 'in the loop' as referred to by Singer, there is a high chance for weapons to have most of the control on the battlefield.[123] With their increasing level of intelligence and autonomy, the status of weapons as 'tools of war' started to evolve to become 'agents' in war-

[121] Ingvild Bode and Hendrik Huelss, "Autonomous weapons systems": 2.
[122] Arkin, "The case for ethical autonomy in unmanned systems", 332-341; Fleischman, "Just say no!": 299-313; Michael C. Horowitz and Paul Scharre, "Do Killer Robots Save Lives?" *Politico Magazine* (2014); Heather M. Roff, "Lethal autonomous weapons and jus ad bellum proportionality," *Case Western Reserve Journal of International Law*, 47 (2015): 37-52.
[123] Singer, *Wired for War*, 124.

making.[124] Having autonomous weapons on the battlefield poses a challenge against the position of humans as the main agents in war-making, and this causes high level of worries for a long time. Currently, the level of anxiety is increasing. The main triggers of this increase can be underlined by looking at the arguments in favor of the efficiency that robots would have in the battlefield, and therefore be superior to human soldiers. For example, in a situation where there are constant gun fires, human soldiers would have to protect themselves first, and act carefully. On the other hand, robots would not need to take precaution.[125] These arguments are frequently referred to by military actors, as underlined in the first chapter as well.

Trying to achieve the legal regulations on how to limit or ban the artificially intelligent weapons on the battlefield at the moment causes the delay for focusing on the actually significant points. This implies that the priority should be given to the current increase at the autonomy and intelligence of weapon systems. It can be beneficial to achieve consensus on legal regulations about their use, in fact they are needed for the future of warfare. But focusing solely on legal implications does not limit the acceleration of the intelligence and autonomy these weapons currently acquire. As a matter of fact, trying to achieve a consensus on this matter can cause wasting time, considering the anarchic nature of International Law and the difficulty to convince state actors to take measurements to slow this acceleration down.

In 2013, states that are parties to the Convention on Conventional Weapons (CCW) adopted a report and set the goals for their next meeting's agenda. Among the agenda items was discussing the questions about developments of autonomous weapon systems[126] which can occur in the near future. But parties cannot agree clearly on to what extent a weapons should be defined as 'autonomous', 'lethal autonomous' or 'semi-autonomous'.[127] The unclear differentiation and

[124] Meiches, "Weapons, desire, and the making of war", 1.
[125] William M. Fleischman, "Just say no!", 302-303.
[126] Campaign to Stop Killer Robots, "Nations agree to take on killer robots!," Available at: https://www.stopkillerrobots.org/2013/11/ccwmandate/ Date Accessed: 30.05.2018.
[127] Ingvild Bode, Hendrik Huelss, "Why "stupid" machines matter: autonomous weapons and shifting norms," *Bulletin of the Atomic Sciences* (12 October 2017), Available at: https://thebulletin.org/why-

the ambiguity that it causes was underlined in the first chapter, as explained by Heather Roff.[128] Furthermore, the definition of US Department of Defense (DoD) in the earlier mentioned Directive 300.9 of these weapons systems cause confusion to what extent their autonomy should be underlined as risky.[129] The legal text takes 'target selection' as the main line between the division, something that drones are currently able to do. Then the question is: how to draw the line between drones and these autonomous weapons systems and prioritize the research on them? How to draw attention to their accelerating autonomy and ability to make decisions on the battlefield instead of humans?

The first step to take in this regard is to accept and understand the increasing level of intelligence, also the autonomy that the newly developed weapons systems are acquiring. That was the first chapter's purpose behind giving the historical background of the technological developments and their military implications. With these qualities in mind, there are some suggestions in the literature that draw attention to ways of keeping weapons systems 'moral' and 'ethical', and preventing the elimination of humans from war-making. There are arguments against emphasizing the significance of developments in AI technology. Alex Leveringhaus writes about ethics and autonomous weapons, and argues for keeping the possible further developments of AI technology and its capacities out of the main focus of the debate. He seems to degrade the further improvements in AI technology, the improvements that are about to lead artificially intelligent units to obtain full autonomy and be present in the battlefield to a bunch of possibilities.[130]

The acceleration of weapons systems' autonomy is not a future scenario, but it is already happening. Like Bode and Huelss, Matthias Scheutz also emphasizes this fact. The most fragile

%E2%80%9Cstupid%E2%80%9D-machines-matter-autonomous-weapons-and-shifting-norms11189 Date Accessed: 28.05.2018.

[128] Roff, "Autonomous or 'semi' autonomous weapons? A distinction without difference".

[129] US Department of Defense, 'Directive 3000.09' (2012): 13-14.

[130] Alex Leveringhaus, *Ethics and Autonomous Weapons* (London: Palgrave Macmillan, 2016): 7.

issue among them all is that (artificially) intelligent units will have to make decisions, and take actions on their own. They are currently 'able' to do so to a certain level, and that is what makes them to be considered 'autonomous'.[131] Self-driving cars are among the most popular examples to give for situations that require making morally acceptable decisions. There is a high level of excitement about having them on the streets already.[132] Their capability to drive much faster and more careful than humans is behind this enthusiasm, as it was the case with the desire for employing the recent technological developments in military sphere.

Scheutz puts forward the argument that in order to keep the artificially intelligent units in line with what is considered 'moral' for humans, they should be built with more human-like ways of thinking. In other words, the algorithms that should lead their behaviors in situations where a morally risky decision is involved, their behaviors should be predicated on the ways humans would act.[133] However, trying to understand what is the 'human-like' way of making ethically acceptable decisions can be tricky. The details of how the human brain works is still the million-dollar question that scientists and experts are trying to answer.

Instead, I argue that trying to understand and to be able to control the will of artificially intelligent units is a more feasible task. Since humans are in charge of the creation of the artificial intelligence that these units would have, it is more realistic to try understanding the motives behind their actions. In order to do this, I take Nick Bostrom's orthogonality thesis into consideration. In his words, this means:

> ...synthetic minds can have utterly non-anthropomorphic goals- goals that are bizarre by our lights as sand-grain-counting or paperclip-maximizing. This holds even (indeed *especially* [emphasis in original] for artificial agents that are extremely intelligent or superintelligent. Yet it does not follow from the orthogonality thesis that it is impossible to make predictions about what particular agents will do. Predictability is important if one seeks to design a system to achieve particular outcomes, and the issue becomes more important the more powerful the artificial agent in question is.[134]

[131] Matthias Scheutz, "The need for moral competency in autonomous agent architectures," in *Fundamental Issues of Artificial Intelligence.* Ed. V.C. Müller (Switzerland: Springer International Publishing, 2016): 517.
[132] Ibid, 523.
[133] Ibid, 518.
[134] Nick Bostrom, "The superintelligent will": 75.

Bostrom stresses that what determines the way artificially intelligent units 'behave' is that what is set as the 'final value' for them to achieve. In order to achieve that final value -visible with the current acceleration of (artificial) intelligence that these units are obtaining- they can and are most likely to take any necessary step. Therefore, what should be emphasized is that how these final values are determined. The orthogonality thesis underlines that expecting artificially intelligent units to have human-like values is not rational. Artificially intelligent units –whether they are killer robots or autonomous weapons, not necessarily human-shaped, or not necessarily visible algorithms- do not necessarily have the same final goals as humans have.

Instead, which instrumental values the artificially intelligent unit will pursue to achieve its final goals, and what these final goals will be can be determined. This should be done in a way that the final goals would not clash with the intended results by its creators. Although it is possible to achieve –difficult but possible- at this point, Bostrom highlights the danger of taking only institutional values as the determinants of final goals and thus, of 'safe behavior'. Because instrumental values can lead the artificially intelligent unit to overlook some errors to achieve the final goal.[135]

This is where this research seeks to combine Bode and Huelss' approach for determination of the international norms with Bostrom's emphasize on understanding artificial intelligent will. Bode and Huelss argue for the necessity to observe practices of the actors who lead both the acceleration of autonomy that weapons systems are acquiring, and supporting their employment in battlefield. Their argument challenges the way constructivist scholars approached to the processes of norms evolution in IR which takes time and becomes possible only after lengthy processes of observing practices. Instead, they reverse the argument, and emphasize considering the role of practices in constituting the expected or intended norms, namely behaviors in light of institutional values.[136]

[135] Ibid, 83-84.
[136] Bode and Huelss, "Autonomous weapons systems and changing norms,": 3.

The challenging feature of their argument is concentrating on 'practices' of actors who can affect the process of accelerating autonomy for weapon systems. This should be taken as the beginning point for Human Security to engage more analytically with the possible ethical implications of these weapon systems. In case of military actors for example, their institutional norms become the determinant of what the final goal that artificially intelligent, autonomous systems should achieve on the battlefield. Thus, the practices prevail. While the consensus to set the international security agenda cannot be achieved, contemporary warfare has already gone into the phase of a paradigm shift.

The consequences are yet to be discovered, but are expected to be seen in the near future. Therefore, the role that Human Security would play here can be crucial. Preventing the further acceleration of the autonomy that weapon systems already required is a noble task that can lead Human Security to become an efficient concept with analytical value. It would mean taking a stand towards the big picture that the shifts in contemporary war-making gives, and interpreting the role of humans as 'actors' of war-making in light of the recent paradigm shifts.

Conclusions

In problematizing the Critical Security Studies' (CSS) tendency to approach the paradigm shifts in contemporary warfare from the viewpoint of Human Security, this thesis seeks to highlight the lack of focus on the growing autonomy of artificially intelligent weapons. Thus, it argues that Human Security misses out the chance to point at the decreasing autonomy and the changing role of humans in war-making. From the very beginning of its conceptualization, Human Security engaged in all security issues that humans might face in several areas of their lives, but much less attention was paid to the position of humans in the battlefield as agents.

In the 21st century, the position of humans in warfare is being challenged by the recently developed weapon systems, due to their accelerating (artificial) intelligence and autonomy. Contemporary warfare has already met unmanned aerial vehicles (UAVs), or drones a long time ago. However, in addition to the evolving role of drones in conflict zones, from being used for surveillance purposes only to being employed for targeted killings, there are ongoing developments in the AI technology to fully employ it in battlefields. Inside and outside of the academia, there are ongoing debates about the accelerating autonomy of weapon systems, and they were treated in this research as the first indicators of the growing concerns about the role of humans in war-making. Thus, they also provided this research with the ability to argue for the necessity of bringing up the questions about humans' position in contemporary warfare.

Immediately after the end of the Cold War, the emergence of Human Security as an alternative way of shaping the international security agenda to put the security of individuals before the security of states was a groundbreaking step for CSS. Although the period in which we live is still called 'post-Cold War', the understanding of war and the position of humans in a war are very different from the immediate post-Cold War era. Therefore, this thesis argued that the way that there is a need for Human Security to be re-conceptualized to let it analytically engage with the current shift in human's role in fighting a war.

This research also identified the frequently emphasized relation between Human Security's conceptualization and development as the main reason behind its problematic approach towards the agency of humans in warfare. This relation keeps Human Security away from dealing with the more recent developments that affect the nature of contemporary warfare and leads CSS scholars to insist focusing on the already much-debated drone warfare. It also causes victimization of humans and takes their agency away.

Although this thesis could not go into the details of the possible solutions to re-conceptualize Human Security, it argued that this can be done by addressing the close relationship between the military and technological developments. In this regard, Ingvil Bode and Hendrik Huelss provide a beneficial source to follow for further research. They argue for the necessity to focus on understanding what military actors want to achieve when employing these recent technologies. In addition to their motives, understanding the motives or drives of artificially intelligent units should also be included in the agenda of Human Security. For this purpose, Nick Bostrom and his orthogonality thesis that underlines the difference between human and machine motives and final goal settings can provide a beneficial roadmap.

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