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DILEMMAS OF REPRESENTATION IN A STUDY OF AUTONOMOUS WEAPON SYSTEMS. A FOCUS GROUP PERSPECTIVE[1]

DILEMAS DE REPRESENTAÇÃO NUM ESTUDO SOBRE SISTEMAS DE ARMAS AUTÓNOMOS. A PERSPETIVA DE UM GRUPO DE DISCUSSÃO

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Abstract

Armed forces are developing and integrating technology driven by artificial intelligence (AI) to gain military superiority, yet such promises risk failing to recognise the intrinsic role of public communication risks unbalancing the moral center of gravity in the military domain. Understanding the opinions and concerns of the general public towards autonomous weapon systems (AWS) is relevant for guiding public policy decisions related to their implementation. This paper reports the findings of six focus groups (n=53), which were used to gauge the perceptions and attitudes towards the development of AWS. The study findings indicate that AI-embedded systems should be perceived as decision--making instruments, although with the caveat that any decisions pertaining to life and death matters should not be delegated to a machine. Among the participants, there was also a consensus that any commander giving a direct order to use AWS to carry out a mission should be held responsible for any unlawful killings that may result from that mission. More significantly, a soldier's patriotism was considered one of the most crucial factors in warfare; however, implementing a patriotic code and increasing autonomous weapons' algorithmic will to defend would be, according to the participants, difficult to imagine that unmanned platforms can hardly ever be equipped with patriotical algorithms.

Keywords: Autonomous weapon systems; Unmanned ground vehicles; Laws of war; Military ethics.

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Resumo

As Forças Armadas de vários países têm vindo a investir no desenvolvimento e integração de tecnologia controlada por inteligência artificial (IA) com o objetivo de obter superioridade militar. No entanto, apesar dos benefícios, se o papel essencial da comunicação pública não for reconhecido, corre se o risco de introduzir desequilíbrios no centro de gravidade moral da instituição militar. É imperativo compreender as opiniões e preocupações dos cidadãos em relação aos sistemas de armamento autónomos (SAA) para que estas possam orientar as decisões políticas relacionadas com a sua implementação. Este artigo relata as conclusões de um estudo que analisou as perceções e atitudes de seis grupos de discussão (n=53) relativamente ao desenvolvimento de SAA. O estudo revelou que os sistemas controlados por IA devem ser considerados instrumentos de tomada de decisão. Porém, as decisões relativas a questões de vida ou morte não devem ser confiadas a uma máquina. A opinião consensual foi a de que qualquer comandante que dê uma ordem direta para utilizar SAA numa missão deve ser responsabilizado pelas mortes ilícitas que daí possam resultar. Ainda mais importante, o sentimento de patriotismo é considerado um dos fatores mais cruciais num conflito armado. No entanto, segundo os participantes, dotar os algoritmos que gerem as armas autónomas de um código patriótico e imbuí lo de um desejo de defender a pátria é algo difícil de imaginar, uma vez que não é possível programar estas plataformas não tripuladas com algoritmos patrióticos.

Palavras-chave: *Sistemas de Armamento Autónomos; Veículos Terrestres Não Tripulados; Leis da Guerra; Ética Militar.*

1. Introduction

AI-enabling systems in the military domain have been debated among scholars for quite some time (Asaro, 2012, pp. 687-709; Santoni de Sio & van den Hoven, 2018, pp. 1-14; Sparrow, 2016, pp. 93-116). Opportunities and risks associated with weapon applications of AI have received much attention from all stakeholders in areas like transparency, reliability, predictability, accountability, and bias. It is voiced that "[…] ignoring the capabilities of AI to alleviate the limitations of human cognitive performance in military operations, thereby potentially increasing risks for military personnel and civilians, would be irresponsible and unethical" (Meerveld et al., 2023). However, there is much disagreement on determining AWS among the scientific community and states, but consensus on terminology is recognised by all stakeholders (Wood, 2023, p. 16). The study approaches this phenomenon with the definition from the US DoD by identifying AWS that "[…] once activated, can select and engage targets without further intervention by an operator" (Directive 3000.09, 2023). In doing so, I concede that such a term may be contested, but that dispute is not the focus of this article. Given that terminology, it serves as a primary descriptive example for research purposes from a focus group perspective.

Although there has been a recent flux of policy papers on this topic (ICRC, 2018, pp. 4-12; SIPRI, 2021, pp. 1-54), a search on science databases reveals that there are still not yet any

studies examining the thoughts and attitudes of the general public toward AWS. The stakes are alarmingly higher as the cost of failure increasingly influences ordinary people's safety and protection from algorithmic warfare. History shows that US wartime policymakers have obsessed over public opinion and attempted to gauge the impact of contemplated wartime decisions based largely on anticipating how domestic public opinion might react (Boylan, 2015, p. 96). As all facets of society should carefully examine the effects of any disruptive technological development on society, it is vital to have a public judgment on these advancements in the military domain. It has revealed that failure to recognise public opinion and the intrinsic role of effective public communication risks dramatically failing to maintain the moral center of gravity in military affairs (Boylan, 2015, p. 95). Therefore, exploring public attitudes towards AWS that can impact public support is imperative. To do so effectively, this paper attempts to provide new insights, promote discussion, assist in policy making, and envisage factors in determining whether or not to advance or even ban AWS.

2. Theoretical and conceptual framework

The theoretical basis of this study was derived from social representation. Social representation is a concept that "[…] allows research to maintain enough flexibility to adjust for differences in groups, cultural matrices, and information circulating in a given society" (Moscovici, 1988, p. 236). According to Moscovici, "[…] the theory is based on the contents of everyday thinking and the understanding that a stock of ideas gives coherence to our religious beliefs, political ideas, and the connections that we create as spontaneously as we breathe; essentially, it is a way of making the unfamiliar familiar" (Moscovici, 2000, p. 36). The theory also consists of two interrelated processes, "[…] the first is anchoring, which associates new and unfamiliar issues with previous knowledge, and the second is objectification, which then transforms the abstract into reified realities that can be treated as such" (Brondi et al., 2021, p. 2).

The social representation theoretical approach also lends itself to a framework for investigating the public's understanding of science and technology, especially if the issue at stake is controversial and can affect many lives (Farr, 1993, p. 191). For instance, there is a long history of political and societal arguments for and against the use of atomic bombs, "[…] public attitudes about whether to use nuclear weapons being driven largely by consequentialist considerations of military utility" (Press et al., 2013, p. 2). Press argues that in the nuclear domain, "[…] the logic of consequences is stronger than the logic of appropriateness due to the fact that the general public appears to weigh the consequences of using nuclear weapons in narrow terms of immediate military effectiveness" (Press et al., 2013, p. 15).

In this case, it was applied to the abstract representation of autonomous weapons to accurately depict how the public thinks and talks about weaponised AI. The study questionnaire formulation adapts the findings of scholars' opinions regarding autonomous weapons (Pekarev, 2021, p. 202). According to this study, the five primary themes were identified for corresponding research. These five themes were then used to guide the development of the focus group questions and the corresponding thematic analysis (decision-making, accountability, employment, ethics, and regulations).

3. Methodology and Method

This study sought to explore the beliefs, thoughts, and attitudes toward AI-enabled autonomous weapons based on described terminology. Focus groups are a common methodological means for gathering data. Qualitative social science research uses group discussions "[…] to gather insights about the participants' perceptions, opinions, and attitudes regarding a specific study topic" (Krueger et al., 2020, p. 5). Focus groups are also valuable because they offer an essential means of tracking conversations about developing knowledge and representations when something does become a topic of interest and communication (Davis et al., 1993, p. 27). Furthermore, as public acceptance is the critical factor for the success of any novel technology, focus groups can also provide a representation of the public attitudes towards the given technology.

In order to gain new ideas and perspectives and understand the underlying factors driving a particular debate, a focus group can provide a natural environment for participants to both explain to and query each other about a particular topic. It is voiced that "[…] such exchange offers valuable data on the extent of consensus and diversity within a group" (Morgan, 1996, p. 138). Several studies have explored the opinions, perceptions, and attitudes toward new technologies through the use of focus groups (Campelo & Katz, 2020, pp. 8-14; Parent et al., 2000, pp. 48-56; Vaportzis et al., 2017, pp. 4-10). This article reports the responses, particularly to questions Q9-Q12, as shown in Table 1.

Table 1 – List of the primary questions

Q1	* Q1 and Q2 were for introductory purposes (warm-up questions) When you think about the present time and life with the coronavirus - how have you managed to limit isolation and close contact? To what extent has technology changed the way you live, and how has it affected you?
Q2	Next, we would like to talk about technology in our lives, such as self-driving cars, parcel delivery robots, and so forth. What do you think about them? What do you think about the safety of such cars? How would you feel about being a passenger in a self-driving car? (The focus group participants then watch a short video of an unmanned ground system)
Q3	What were your first thoughts when you saw this video? Feel free to say the first keywords that come to mind.
Q4	How do you see the armed forces worldwide developing and using various unmanned vehicles? Why do you think it is necessary or unnecessary?
Q5	To what extent should people retain control of such machines? For example, what things should a machine be allowed to do independently, and what should it not be allowed to do?
Q6	As you saw in the previous video, these machines are currently controlled by humans. What would you think if these machines were able to operate entirely independently? What problems or advantages do you see in this case when the machine operates autonomously?
Q7	Imagine seeing such an unmanned ground vehicle moving in your direction. To what extent do you feel that you can trust the behavior of this machine, and how confident would you be in predicting its actions?
Q8	How do you define artificial intelligence? What does this mean for you? Some people have compared the development of artificial intelligence to raise a child or to animal behavior. What are your thoughts? Do you think such a comparison with AI is appropriate?
Q9	What do you see as the difference between human and machine decisions? In which situations would you trust the machine more, and in which situations would you trust human decisions? What about life and death decisions made by the machine? In this case, who should be responsible for the consequences of the decisions made by the autonomous machine?

[Cont.]

Q10	Suppose a war breaks out: 1) Would you prefer your country to be defended by human soldiers or unmanned ground vehicles? 2) Would you prefer to have soldiers or unmanned ground vehicles on the enemy side?
Q11	Do you think the development of armed unmanned ground vehicles seen in this video is right or wrong? Is it ethical or unethical?
Q12	Several countries have argued that the development of unmanned ground vehicles should be banned, while others believe that their development should continue. What do you think?

3.1 Sample and participants

A research company (Market Research AS) interviewed the participants and provided the transcriptions (the detailed methodology for the selection procedure is available in the research report upon request). The ethics committee of the University of Tartu accepted the study. Four of the six focus groups were Estonian-speaking, and two were Russian-speaking. Each group was comprised of 8-9 participants (53 people in total, 25 female and 28 male). Altogether, 33 respondents had higher education, and 20 had secondary education, as shown in Table 2.

Table 2 – Focus groups characteristics

FG	Size of group	Age group	Language	Education	Higher	Secondary	Basic	F	M
1	9	31-49	EE	higher	9			4	5
2	9	50-60	EE	mixed	6	3		4	5
3	9	20-30	EE	mixed	7	2		5	4
4	8	31-49	EE	secondary		8		4	4
5	9	45-65	RU	mixed	8		1	4	5
6	9	25-35	RU	mixed	3	6		4	5
Total	53				33	19	1	25	28

3.2 Procedure and interview format

The study was conducted in the spring of 2021 via the Zoom application due to COVID-19 restrictions. Each meeting lasted about two hours and consisted of 12 questions and statements meant to provoke free associations to discuss a specific topic orally. After the preliminary questions, the participants watched a short video clip of a combat UGV (unmanned ground vehicle) developed by Milrem robotics, carrying out an operation in a forest and engaging a target. Participants were then asked to describe their initial thoughts and share their opinions about what was happening in the video. In the same manner, each of the participants was then asked to answer the main questions.

3.3. Data analysis

In order to examine the participants' ideas and perspectives, a theoretical thematic analysis, which was based on the five themes, was implemented. This was done to determine

the participants' attitudes and underlying representations. The deductive approach was conducted in order to find in transcriptions particular themes that could cover the entirety of the corpus. The socio-demographic differences between the groups were not included in the study because responses were mostly homogenous, except that some Russian-speaking people tended to be more conservative in their responses and were more likely to be categorically opposed to the development of autonomous weapons. A summary table of typical responses is shown in Table 3.

Table 3 – Typical responses

<table>
<tr>
<td>Q9</td>
<td>
1.1 Trust in people's decisions
A machine may have no emotions and stay calm in some situations, but I would prefer a human for tough decisions. I know a person makes mistakes and but a person takes responsibility. We're equal, and we are both human; neither is a machine.
I wouldn't trust a robot, whether or not to turn a person off from the artificial respiration apparatus to judge a patient's life and death. Everything else can be allowed, with some concessions.
I would not trust machines to solve any ethical issues. I don't think robots should be trusted to do social work or give psychological help. That's what a person has to do.
1.2 Trust in machine's decisions
I would trust an autonomous robot within household appliances. In geological studies, I would trust robots to work in mining shafts.
In theory, a self-driving car reacts many times faster than a person and is more capable of foreseeing and avoiding dangers.
In computational, if something needs to be calculated, then surely a machine is trusted. A person can always make a mistake.
Decisions made by machines, based on statistics, are better than they would have been if humans had made them. Man cannot comprehend as much statistical information as a machine can.

2. Accountability (number of associations)
<table>
<tr><th>Commander</th><th>Chief of Defense</th><th>State Liability</th><th>Operator</th><th>Software engineer</th><th>Head of State</th></tr>
<tr><td>9</td><td>7</td><td>5</td><td>3</td><td>3</td><td>2</td></tr>
</table>
The responsibility lies on the superior who gave an order, whether to machine or soldier.
The soldier/machine is just the executor.
Not a software engineer. The military leadership or the officer who gave the order.
I think only the military can be responsible for this.
</td>
</tr>
<tr>
<td>Q10</td>
<td>
Preference of soldier vs. machine (number of associations)
<table>
<tr><th></th><th>Soldier</th><th>Machine</th><th>Both</th><th>N/A</th></tr>
<tr><td>1. in defense</td><td>9</td><td>22</td><td>3</td><td>19</td></tr>
<tr><td>2. attacked by</td><td>17</td><td>16</td><td>-</td><td>20</td></tr>
</table>
1. Preference in defense
If you can assign the task to a person or a machine, assign the task to the machine.
We would choose to have machines. The fewer casualties there are, the better.
I want to be protected by people, so I know who is responsible for my life. When a machine does something terrible, then I don't know who is responsible.
I also want people to defend me, because human behavior is more predictable than machines.
I trust a person more than a machine. At least based on the knowledge we have right now.
</td>
</tr>
</table>

[Cont.]

<table>
<tr><td></td><td>2. Attacked by machines or soldiers
I think the combination, in the sense that it would be good to have machines on the border, would give more security if real persons were moving among us.
I'd rather see people on both sides. It would give an objective insight; how big the losses are and perhaps enable to end the war more quickly.
Let the same size fight each other, not in a way that soldiers against technology. There must be equality.
If the opponent has a better arsenal, a technology we can't even face, how can we prefer machines? We can prefer machines only if we know exactly what machines opponents have.</td></tr>
<tr><td>Q11</td><td><table><tr><td></td><td>Right, ethical</td><td>Wrong, unethical</td><td>Both</td><td>N/A</td></tr><tr><td>Development of AWS</td><td>7</td><td>7</td><td>13</td><td>26</td></tr></table>1. Ethical
The development is right, of course, because machines are used in situations and places where it is dangerous or uncomfortable for people to be.
Most of the things produced for war are later used in the civilian field. I'm optimistic in that sense. The things that are currently being developed enthusiastically will still find use somewhere in the future.
2. Unethical
I can't even give you a reason, but it's just that the human dimension is disappearing there, and I don't think that's right.
3. Both
That depends on the concrete situation and whether the development of unmanned vehicles is ethical or not. If a machine is not making real decisions, then it's ethical. But if they build killing machines, I don't think it's ethical.
4. N/A
I can't tell you, it's a complicated question. It all depends on many circumstances; it is difficult for me to take a stand on this issue.
I would say there is no right or wrong answer here. I also can't tell if it is ethical or unethical. War is war.</td></tr>
<tr><td>Q12</td><td><table><tr><td></td><td>Ban</td><td>Develop</td><td>N/A</td></tr><tr><td>Should the development of AWS prohibited or not?</td><td>7</td><td>13</td><td>26</td></tr></table>1. Ban
Where people's lives may be put at risk, they should not act on their own. Such killing weapons would rather be gone.
Why is it necessary to make weapons first and only afterward use them as household appliances? Why not directly invent civil society things and develop what people need? It doesn't have to come through war, through the development of military equipment.
Autonomy could be in areas where lives are independent of machines.
2. Develop
What is being developed as a military technique will later be used in the civilian field.
You're just forced to develop these things. It is necessary to agree on what they will be used.
This arms race is like a development spiral; if possible, make agreements. The arms race is not good, but it is not sensible to step off this ladder.
3. N/A
I tried to formulate my point of view somehow, but I didn't have any good ideas on this subject, no opinion.
I would recommend using experts, not people from the street. It determines very little in general.
In addition to developing this technology, we should develop a person, develop a completely different way of thinking.</td></tr>
</table>

The quotations of participants' opinions and beliefs were marked with codes in the following manner (for instance, 1ET36FH and 6RU35MS). Each code begins with a focus group number (1-6), followed by an abbreviation indicating the spoken language of the participant (ET-Estonian, RU-Russian), and then a notation showing the age, gender (F-female, M-male), and education level (H-higher, S-secondary) of the participant. In addition, an asterisk was also (*; **) used in cases where the social demographics code is the same as it appears in the focus groups nr 1 and 2, as shown in Table 4.

Table 4 – Participants of focus groups 1-6

FG	Language	Age	Gender	Education	Code
1	ET	36	Female	Higher	1ET36FH
		45			1ET45FH
		32			1ET32FH
		40			1ET40FH
		42	Male		1ET42MH
		38			1ET38MH
		38			1ET38MH*
		42			1ET42MH
		38			1ET38MH**
2		53	Female	Higher	2ET53FH
		59			2ET59FH
		58			2ET58FH
		54		Secondary	2ET54FS
		51	Male		2ET51MS*
		59		Higher	2ET59MH
		51		Secondary	2ET51MS
		59		Higher	2ET59MH
		50			2ET50MH
3		27	Female	Higher	3ET27FH
		23			3ET23FH
		29			3ET29FH
		28			3ET28FH
		25		Secondary	3ET25FS
		24	Male	Higher	3ET24MH
		29		Secondary	3ET29MS
		27		Higher	3ET27MH
		25			3ET25MH

[Cont.]

4		39	Female	Secondary	4ET39FS
		38			4ET38FS
		32			4ET32FS
		31			4ET31FS
		49	Male		4ET49MS
		40			4ET40MS
		37			4ET37MS
		32			4ET32MS
5	RU	48	Female	Higher	5RU48FH
		56			5RU56FH
		51			5RU51FH
		54			5RU54FH
		58	Male		5RU58MH
		52			5RU52MH
		48		Secondary	5RU48MS
		46		Higher	5RU46MH
		45			5RU45MH
6		23	Female	Secondary	6RU23FS
		29			6RU29FS
		29		Higher	6RU29FH
		30			6RU30FH
		35	Male	Secondary	6RU35MH
		33			6RU33MH
		31			6RU31MS
		30		Higher	6RU30MH
		32		Secondary	6RU32MS

4. Results and Discussion

The prevailing opinion among the participants was that the development of AWS is inevitable. It was expressed, however, that their development will create new possibilities in the civilian sector, despite there still being deep underlying concerns, particularly in relation to their implementation by the armed forces. The acceptance of such disruptive technologies conjured up some feelings of uneasiness for some participants, as the means of ensuring transparency in the development of these systems was very uncertain. Enforcement and monitoring of the use of autonomous weapons were also concerns brought up by the participants. It was emphasised that technologies should be developed only for the benefit of humans and peace.

4.1. Decision making: human vs machine and legal responsibility

As a result of one study outcome, "[…] trust in an intelligent robot performing security operations is appropriately sensitive to the robot's behaviour" (Lin et al., 2022, p. 19). It has also been shown that "[…] the decisions and actions that humans should and should not delegate to AI systems using military force has proved to be highly problematic" (Taddeo et al., 2022, p. 37).

There were several questions in this study addressing the degrees of trust in relation to human vs. machines' decision-making capacities and the subsequent issues surrounding the issue of accountability in the event that a war crime is committed by, or as a result of, an AWS. The discussion regarding the autonomy of machines focused on the quality of decision--making, whether people would favor the decisions made by humans or vice versa, and why? Generally, the participants believed that decision-making by machines would be very problematic because even humans struggle with difficult decisions with limited information. One participant brought up the example of how humans have the ability to make more nuanced decisions in the case of situational awareness.

> There was a thought experiment where it had to be decided whose life should be saved – a small child or an elderly person. However, it turns out that the child is incurably ill and does not have long to live, while the older person is a Nobel prize winner and a distinguished grandfather and still has 25 years left to live. So it has to be decided which factors to base the decision on. Human life is not like buying a car where two of the same kind of sedans are for sale, and you decide which one to buy based on the color. When we talk about humans, there are more nuances, so would the machine be able to consider these things? (1ET36FH)

In the example above, saving the child would be a natural choice for most, but most people would probably change their minds if they had access to all available information. Conversely, whether a machine would have the faculty and discretion to consider such nuances and, ultimately, what decision an algorithm would make is questionable. Also, there is no certainty as to whether the machines would have permanent access to sensitive personal information (i.e., medical records). In this regard, human and machine decisions are likely to be made from different perspectives, e.g. moral values vs. computational calculation.

Participants also touched on the implication that the interaction between people and machines can be problematic in practice. One participant argued, "If there are self-driving cars, then it has to be such that all cars are self-driving. It can't be that some of them are and some are not. It's hard for a machine to calculate what a driver will do (3ET25FS)." However, some more technophilic respondents believed that AI could resolve complex situations, such as the "Trolley Problem" thought experiment. In their opinion, all of their lives should be saved in that experiment, and choosing or deciding whose life is more important would not be necessary.

However, this sentiment was not shared by all participants, one of whom pointed out the immense difficulty of a machine making life-and-death decisions while controlling a vehicle. "I think that if a self-driving car needs to take on the responsibility of a decision like that, whose life to save, then it is not developed enough to be allowed into traffic (3ET29MS)."

Other respondents inferred that over-reliance on AI can lead to terrible consequences in the case of AWS. Therefore, many were justly concerned about the moral ramifications of artificial decision-making. One participant noted: "If AI is so advanced that it begins to think for itself, then anything is possible – the same machine can go over to the opposing side and turn its gun against us (2ET50MH)." The discussions typically ended with a common sentiment stressing the value of having a moral compass, which another participant summarised: "In another set of circumstances, the machine might be able to think better than the one who is controlling it. But the most important thing is the operator's moral code (2ET51MS)."

Nevertheless, the interviews with the focus groups revealed that more than half of the participants placed greater trust in the decisions made by humans. "In my opinion, those autonomous machines that can independently decide about ending a person's life are immoral and already go beyond the bounds of humanity (3ET24MH)."

However, an apparent distinction was made between more essential and less important decisions. A third of the respondents favored the machines' decisions if they were predictable and would not threaten human life. For instance, the following statement is a good example: "If we are talking about medical care, for example, and whether a person's artificial ventilator should be kept going or not – then a robot, from a moral perspective, should certainly not be allowed to decide. For everything else, it's hard to say (5RU45MH)." Several other respondents also agreed with this distinction but qualified it by saying they would favor the machines' decisions in low-stakes contexts while leaving the more vital decisions to humans.

> If the situation is not so drastic, machines might make more efficient decisions than people. In such a case, I would trust these machines. They are faster, more accurate, and more efficient than people. However, it is quite another matter when emotions come into play and when a decision needs to be made on essential issues like human lives. (1ET36FH)

In principle, the responses reflected the complex conundrum of deciding whose decisions should be trusted more when nuances and grey areas must be considered. Most participants thought everything depended on the situation and available information, which needs highly context-dependent interpretation. Thus, it can be concluded that when more essential decisions must be made regarding ethical values, the accuracy of the information and its correct interpretation is more critical.

Algorithmic warfare becomes more of a concern in armed conflict, where the distinction between legitimate military objects and unlawful targets is blurred. Identifying combatants and civilians participating directly in hostilities is brutal, even for a professional soldier, and can often be subjective. Regarding identifying lawful targets and combatants, one participant noted, "The best thing would be if this machine could differentiate civilians from soldiers. It should also be able to identify the soldiers on its side and not kill them (4ET32MS). The next respondent gave a similar example: "If a machine could differentiate everybody correctly, then I wouldn't trust a person anymore (4ET32FS)."

Still, the general attitude expressed during the focus groups showed that only shallow and mundane decisions should be trusted to robots while the final say in complicated matters should be left to humans. As was outlined in one reply: "Machines can serve as instruments or tools, not as decision-makers (5RU46MH)." It can be concluded that participants were far from trusting AI-driven decision-making when ethical issues were concerned.

4.2. War crimes with no war criminals?

Given the complex and contextual decisions made by, or with, the support of machines and to what extent algorithmic assessment can be relied upon, it is apparent that the nature of autonomy in weapon systems also raises significant legal concerns. Moreover, considering the "*fog of war*" circumstances, and potential but volatile quantum technology, the autonomy aspect multiplies accountability obscurity. It is emphasised "[…] how could anyone ever be morally responsible when such sophisticated yet uncontrollable and opaque AI causes harm, e.g. when autonomous weapon system kills a non-combatant" (Kiener, 2022, p. 576).

Nothing guarantees that AWS can consistently comply with IHL (International Humanitarian Law) principles which raises another difficult question: Who might be responsible for any unlawful killing or any other harm that a machine might cause? Moreover, would using AWS create an accountability gap in such cases?

The question is undoubtedly challenging, so the participants' answers were equivocal. At the beginning of the interviews, responsibility issues were often described as impersonal or collective, meaning everyone involved should be considered accomplices and held accountable. Although the moderator did ask about individual criminal liability and suggested potentially culpable individuals in a given situation, the respondents did not offer detailed explanations as to whom they would consider "everyone" to be or whom they would consider the actual accomplices to be in the event of an unlawful act.

As the discussion progressed, some participants clarified that the unintended consequences resulting from something like a computer hack would mean that the hacker was culpable. Accountability was associated with the owner of the weapon system, meaning that it would be the state's responsibility (army or ministry of defence) for a war crime committed by an AWS. It has been argued that the government has a valuable role in AI accountability (Boutin, 2023, p. 134). Liability at the political level and for the defence industry was not explicitly mentioned, although it was argued that a war crime would not be the fault of the developer or the manufacturer but should, first and foremost, fall under the auspices of the armed forces.

In the context of responsibility, military commanders were mentioned (as was the chief of defence) or, more specifically, singled out as the people who give direct orders to subordinates. Towards the end of each group discussion, the consensus was that the soldier, machine, or anyone not in command is just a means of executing an order. The participants' attitudes reflect that any person in the military hierarchy who gives direct orders to use an autonomous weapon should be held responsible for those actions resulting from that order, as the following examples illustrate.

> When it comes to military action, it is always the military leadership, certainly not the programmer, who is responsible. (6RU30MH)
>
> Definitely not the software engineer. Only the military leaders, the officer who, gave the order. (6RU23FS)

Another common concern revealed by the study was the possibility of a vacuum of responsibility with possible war crimes committed by an AWS and the degree of human involvement. According to Article 28 of the ICC Statute, a commander who fails to adequately control their forces (or AWS in our case) or is involved in a situation where they were knowledgeable and did not take all necessary and reasonable measures to prevent a criminal offence is nevertheless responsible. Furthermore, although there is the possibility of an accountability gap materialising if a commander can demonstrate a lack of intent, knowledge, or ability to control the consequences of a particular situation, that very same accountability gap can be closed by pointing out the fact that it is well known that algorithmic targeting is incredibly risky. Then it does not matter if a person neither intended nor anticipated unlawful consequences. When the decision was made to accept the high risk associated with using AWS, the outcome was accepted as well (Leveringhaus, 2016, p. 86).

Moreover, it is simple negligence not to consider that an AWS could behave unpredictably. Although a person might not be able to prevent the consequences once an autonomous AWS has been deployed, there would still be a person who has accepted the risk and, by extension, the responsibility once the decision has been made to deploy the AWS (Leveringhaus, 2016). Because of the inherent and well-known uncertainties when deploying AWS, it must always be carefully considered whether or not the risk will be excessive in relation to the expected military advantage.

4.3. War in the age of weaponised AI

Understandably, it is a challenge to imagine what will happen in case of the number of unmanned units in an armed conflict gradually increase. However, such a fundamental notion should be addressed and created representation in a way that facilitates making the unfamiliar concept familiar. It is accepted that "[…] soldiers in the regular unit have the capacity to act for the right reason and, importantly, the capacity to act for the wrong reason; either that favours moral preference for deploying AWS because they are incapable of acting for the wrong reason" (Young, 2022, p. 892).

The following questions were formulated to examine which options the respondents would choose. The first question queried whether armed forces should employ AWS or troops to defend a country, and secondly, if the respondents were to imagine themselves defending their country, which would they prefer to fight against – enemy troops or AWS?

In the first case, the participants primarily found unmanned systems preferable to troops because they could save the lives of fellow citizens. For instance, a typical response was as follows: "If we are talking about defending ourselves, of course, a better option would be to protect ourselves and save lives with the help of unmanned machines (2ET58FH)." Some respondents also believed it is safer to be on the machines' side, and they would be less sorry

to lose a machine than a soldier. However, if there were to be a choice between one or the other, some respondents still thought that a combination of soldiers and AWS would be the most reasonable solution for their country's defence.

There were, however, a few participants who were not convinced of AWS supremacy and had doubts about the machines' operational capabilities. One individual expressed this: "The most important factor in defence is the will to protect, which means there has to be someone who wants to protect the people/country (1ET38MH)." Low morale within an army was cited as a strategic challenge because a soldier's patriotism is considered one of the most crucial factors in warfare. In this sense, implementing a 'patriotic code' and increasing autonomous weapons will to defend' would be difficult or impossible. Although unmanned systems have played a role in the current Ukrainian-Russian war, the war has also highlighted that the will to defend the country can be considered the most crucial factor for success on the part of the defenders (Sabbagh et al., 2022, para. 15).

Conversely, and hypothetically speaking, the participants said that they would prefer to fight against enemy soldiers rather than the enemy's robots because human behaviour is more predictable, which is not the case with machines and creates even more uncertainty. One participant (1ET38MH*) said, "If the opponent has a better arsenal and technology we can't even come close to matching, how could we prefer to depend on our machines?" Some respondents were even more frightened by the idea of confronting the enemy's autonomous weaponry.

> What happens if the enemy's machines break through our defences? What would they do after that? Would they keep coming for the civilian population? (2ET54FS)
>
> But if you have to choose whom to fight against, then let's say that fighting against machines will frustrate you. The power of machines is so much greater than that of humans. They can be aggressive because their lives are not in danger; they can keep attacking. (3ET25MH)
>
> People on the enemy side could still be merciful under certain conditions, but machines with their algorithms would destroy everyone and everything. (6RU32MS)

A set of questions identical to the present study were also presented to the World Economic Forum (WEF) attendees in Davos in 2016. Moreover, perhaps not surprisingly, the Davos group gave answers similar to those of the Estonian focus group participants. In Davos, the attendees were asked, "If your country was suddenly at war, would you rather be defended by the sons and daughters of your country or an autonomous AI weapons system?" The majority, 55%, responded that they would prefer AI to defend their country (Del Monte, 2018, p. 12). The attendees were then asked: "If your country was suddenly at war, would you rather be invaded by combatants or an autonomous AI weapons system of your enemy?" The majority, 66%, responded with a preference for soldiers (Del Monte, 2018, p. 14), similar to the Estonian focus groups.

The answers to the questions posed at the forum suggest that respondents did not want to put their own people in harm's way and would instead accept using AI-enabled machines.

However, the preferences would be reversed if their own country were invaded. As a result, the preference for autonomous weapons on one side and not on the opponent's side presents yet another ethical dilemma and highlights how paradoxical these preferences can be. It would be naive to assume that the defenders should be allowed to have AWS in their arsenal while the enemy could only use infantry for offensive operations. To be perfectly honest, and based on worldwide AI development trends, adversaries will also have access to unmanned systems, and the same kind of AWS would also likely be used against the defending side.

4.4. Creating an ethical framework for the development and use of AWS

Generally speaking, most ordinary people are not familiar with the nuances of warfare or how to frame such a disruptive technology within their concept of war. For this reason, the ethical discourse was used to facilitate discussions about the idea of weaponised AI in military arsenals, whether it would be acceptable to use such systems in armed conflict, or whether solid moral grounds exist for banning AWS. Morality is considered a critical issue in these debates, mainly because of hesitation that could AWS' demonstrate the capacity to follow ethical principles in warfare (Zając, 2023, p. 12). Moreover, Purves argues that "[…] we are uncomfortable with AWS making decisions so easily; in the same way, we are uncomfortable with deploying the psychopathic soldier, even supposing he performs all the right actions" (Purves et al., 2015, p. 33).

Participants were asked whether they perceived the extensive development of AWS as either right or wrong and whether they felt that the AWS concept constituted an ethical problem. The results were somewhat surprising because most participants did not give a simple yes or no answer on this issue. Instead, a debate would typically begin with some contingent argumentation about the ethics of autonomous systems in general. It was pointed out that ethics depends very much on circumstances and reliable information but mainly on the purpose of usage because machines cannot simply be categorised as ethical or unethical.

> Whether the manufacture of unmanned vehicles is ethical or not depends on the situation. If it's just a machine that does not make any real decisions when a button is pressed, then it's ethical. But if they start building some killing machines that blast away at 360 degrees like some gypsy rifles, then I don't think it's ethical. (3ET29FH)
>
> I think technological development is ethical, but how it is used may not be. (6RU23FS)

However, the observation of (5RU45MH) succinctly encapsulated the general attitude and the slippery nature of AI ethics: "What is good for us is good; anything against us is unethical and wrong." Many other responses indicate that the participants would accept a machine making life-or-death decisions if the decision were morally justified. 3ET28FH: "But if a person is dying, and the robot has a life-saving injection, then maybe it could be given the right to decide whether or not to give the injection." However, there was no consensus in any of the groups about what people deemed ethical and how the machines would be able to replicate human moral judgment. Several participants believed autonomous systems could be used where emotions would prove a liability. For instance, one stated:

> They [robots] don't have any emotions, and some tasks require being emotionless and precise. If a person gets emotional, such as in a war situation, then their hand may shake, or something else can affect them. A person can make a mistake. A robot doesn't make mistakes. (5RU45MH)

Many participants were concerned that the human dimension would disappear with autonomous machines because AI encourages people to abandon the human modes of thinking and act more like robots. The emphasis on humanity did help to highlight the irrationality of thinking about machines in ethical terms and the importance of treating the adversary as a human being. In addition, there were also questions about how humans would behave if lethal decisions were given over to machines. One participant (4ET49MS) said, "Would a modern person still have enough inner strength to go and kill another person with a weapon? Unmanned ground vehicles would make warfare too comfortable for at least one side."

Ultimately it was evident from the study that ethical values mattered very much for participants' and any development of unmanned weaponry must be both morally justified and ethically sound. However, based on the outcomes of the focus groups, the respondents indicated that the development of military-oriented autonomous systems is not inherently morally wrong per se but does depend highly on the purpose of its use.

4.5. Further development of AWS – whether to cease or continue?

It has been a common consensus that interest in AI-based autonomy in the military domain is a cause of significant concerns that require more concrete global regulation (Bode et al., 2023, p. 5). As indicated earlier, a consensus on what constitutes AWS is one key challenge as dominantly expressed "[…] with such a vague and all-encompassing definition of autonomy in weapons, effective legal regulation is ever more complicated, ensuring that national advances in the development of LAWS are not impeded" (Bächle et al., 2022, p. 14).

There was a degree of uncertainty concerning the final question of the study, whether to ban autonomous systems or allow their development to proceed with strict regulations. Participants stated that autonomy could be tolerated when human lives are not directly impacted or put at risk by machines or weapon systems. The study shows that highly educated and rather middle-aged participants preferred consensus as a means of regulation and development. Among female respondents, support for developing weapons systems was also higher than prohibition. Many of the participants predicted that the continued development and research of AWS would be beneficial for both civil and military purposes.

> The military equipment that is being developed now will later be used in the civilian domain, and in fact, it has always helped to move our lives forward. I don't see a reason why that process should be stopped now. (1ET42MH)
>
> The arms race has always been the basis for technological progress. The civil sector uses everything designed for space or military purposes sooner or later. (2ET50MH)

Therefore, it is broadly accepted that AI-driven weaponry is not only a military concern, "[…] having a clear picture of future battlefields is fundamental towards understanding

the consequences of using certain kinds of weapons and will improve compliance with international law" (Toscano, 2022, p. 92). Overall, banning AWS was not favoured, as this was generally considered unlikely to happen. Some Russian-speaking respondents, however, were categorically opposed to developing autonomous weapons. The main argument against using weaponised systems in all groups was related to the extreme threat to human lives and the uncertainty of how the development might move forward, with several respondents expressing doubts that agreements and regulations would somehow reduce this risk.

> It is easier to kill a person if you are not on the battlefield. The more technologically developed the machine is, the faster it can destroy more people. (3ET29MS)
>
> If the machine already has the opportunity to develop itself, it does not have ethical limits; it has no feelings and might take on the most negative attitude towards the rest of the world. (2ET59MH)

In general, it can be said that a sense of fatalism and inevitability prevailed with the AWS development for military purposes. For this reason, most participants agreed that putting measures and standards into force to monitor weaponised AI research and development should be at least the minimum goal. It was clarified that the process should be treated with caution and that governments should agree on regulations governing the uses of AWS and how to proceed with the concept.

5. Conclusion

The findings indicate that reactions to the development of AWS are varied, and there is still considerable disagreement about what constitutes AWS. The participants' causal thinking and reasoning regarding AWS were intertwined with media coverage and prior knowledge of domestic AWS development, but the interaction within the focus groups did help to foster discussion and explore the issue more in-depth. Issues related to calibrated trust in AWS and how ethical values are reflected in machine operations were a central topic of discussion.

In broad strokes, participants seemed to believe that AI-embedded machines could accelerate alternative decision-making processes, but decisions in delicate matters should not be delegated to a machine. In terms of criminal liability, it was acknowledged that the subject is vague, but the responsibility gap should not be allowed to occur. It is unimaginable that no one could be held responsible for crimes committed by an AWS. The participants' attitudes reflect that any person in a military hierarchy who gives direct orders for using AWS should be held accountable for unlawful killings resulting from that order. The sophisticated issue of machines' "desire" to defend a country was also raised. Even with extreme autonomy, AWS was accepted as an inevitable and effective weapon, but it was generally agreed that coding the machine to act patriotically would not be possible.

The ethical considerations brought up by the study participants reveal that in matters related to the development of military-oriented autonomous systems, there is no right or wrong per se, and a great deal depends on the purpose of use. Ethical values were considered more critical in relation to weaponised AI than other emerging technologies in general. Although the concept of AWS is considered unavoidable progress, the process must be monitored with extreme attention and subject to enforceable measures.

As for the study's limitations, it is acknowledged that sampling is not representative of Estonians in general and does not reflect the views of Europeans more generally. However, the results reflect people's attitudes in the country where the leading European autonomous systems manufacturer is located. To recognise people's opinions more broadly, collecting survey data from multiple countries is advisable to ensure heterogeneity and cover a spectrum of beliefs relating to algorithmic warfare. As has been said, the risk of failing to maintain the moral center of gravity in AI weaponisation can become a reality if people are not allowed to have their voices heard and public opinion is not welcome.

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