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High-tech Wars, the Future of Peace Ethics and the Role of Religious Actors

Dietrich Werner

Humboldt University, Berlin and Globethics, Geneva

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Abstract

The integration of AI into military systems is transforming warfare, raising ethical and humanitarian concerns. This article examines AI-driven military technologies, their trend toward autonomy, and the overstated promises of precision. Using Israel's Gaza conflict and AI tools like "The Gospel" and "Lavender" as examples, it highlights the devastating risks of automated targeting. It critiques the dangers of shortening the "kill chain," calls for public ethical discourse, and proposes initial steps for international AI warfare regulations.

Corresponding Authors: Rev. Prof. Dr. Dr. h.c. Dietrich Werner, Humboldt University, Berlin and Globethics, Geneva: werner@globethics.net

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1. Integration of AI into systems of warfare as stimulus for the changing face and brutalization of wars

One frightening prospect which has characterized recent wars and military tensions in several contexts in the last two decades is the increased use of sophisticated technologies of warfare and the deployment of AI supported software tools called AI DSS (Artificial Intelligence Supported Decision Support Systems)[1] which are dramatically increasing the speed in which crucial decisions on life and death are made in military actions. Whether it is in the war between Russia and the Ukraine, in the war in Yemen, in the DR Congo or the military threats of China against Taiwan or India – in all these contexts drones, new military robots and automated systems of mass destruction dominate modern war scenarios. Winning or losing a war becomes dependent on the speed of technological innovations and the race for who is faster in military communication technologies. The rapid and often unnoticed integration of AI into armed systems is one of the fastest processes transforming the face of war – and for the most part not for the better. It is changing not only every aspect of warfare in the actual battlefield but also every aspect of military and political strategies which is coming under heavy pressures of new alliances between the military industrial complex, global tech companies and the armaments industry with its enormous economic gains. It is not just phantasy of Science Fiction Literature, but the reality in many contexts, that ideas and realized projects of fully autonomous military robots are tested and circulated, programmed to act solely by algorithms which have been fed by millions of pieces of data. China has created a first army of killer robots which are able to make decisions only informed about

[1] See: Holland M., Arthur, 2024 "Decisions, Decisions, Decisions: computation and Artificial Intelligence in military decision-making." *Report for the International Committee of the Red Cross (ICRC)*, in: https://shop.icrc.org/decisions-decisions-decisions-computation-and-artificial-intelligence-in-military-decision-making-pdf-en.html

by pre fed data. The recent debate on China's possible deployment of robots[2], automated killer machines like Sharp Claw and Mule 200[3] along its border with India after the Covid-19 pandemic is only one example about the actual relevance of these technological advances. In addition, recent messages suggest that China's new 6th-gen stealth fighter "J-36" has been constructed in a way to serve as a command centre for a swarm of combat drones which would allow to launch deadly airstrikes on multiple targets. All of this needs to be seen as part of a "broader shift to network-centric warfare".[4]

Examples like this underline "how technology has changed from hand-operated tanks that were used in WWI to the present day's more autonomous weapon systems that are challenging the conventional distinction between combatants and non-combatants as well as between machines and soldiers. The military domain is undergoing rapid transformation due to the adoption of artificial intelligence and other technological advances. The use of this

[2] Jindal, Poonam, 2022. "Deployment of Robot Soldiers by China along the Indian Border and Its Repercussions", in *CESCUBE*: https://www.cescube.com/vp-deployment-of-robot-soldiers-by-china-along-the-indian-border-and-its-; see also Carros Show, 2024: "China is Preparing an Army of Most Advanced Killer Robots for War" [video] *Youtube*: https://www.youtube.com/watch?v=ZFSQ0GwHCqY

[3] Early versions of these automated killer machines exist already since 2014, see: Suciu, Peter, 2020. "China's Army Now Has Killer Robots: Meet the 'Sharp Claw'", in *The National Interest*: https://nationalinterest.org/blog/buzz/chinas-army-now-has-killer-robots-meet-sharp-claw-145302

[4] Wong, Enoch, 2025. "Is China's mystery 6th-gen stealth fighter poised to be a command centre for combat drones?", in *SCMP*: https://www.scmp.com/news/china/military/article/3293421/chinas-mystery-6th-gen-stealth-fighter-poised-be-command-centre-combat-drones; Also: Wong, Enoch, 2025. "Role for new jet 'could be drone command base'", *South China Morning Post*: https://www.pressreader.com/china/south-china-morning-post-6150/20250106/281685440479448?srsltid=AfmBOor2pjUjKB5N7r_QvBXuIVGhwMDX1RE1Ec7-XKr4dbcFF9cZzqqc

technology in military affairs has the capacity to enhance efficiency while also presenting (serious) ethical challenges."[5]

2. The diversity of AI supported military technologies and the trend towards more autonomous weapon systems

While robotics systems are constantly redesigned and becoming more sophisticated, this by far is not the only emerging technology which is substantially reshaping the face and characteristic features of warfare today. There are several cutting-edge and inventive technologies that are currently developing or are being introduced and many of them also tested in actual battlefields.

> "Some of the new technologies include artificial intelligence, 3D printing, the Internet of Things, blockchain, and others. These technologies have transformed the methods by which military strategies are formulated. The use of unmanned aerial vehicles (UAVs) that include automated drones allows for real time data gathering, surveillance and reconnaissance, as well as Internet of Things (IoT) devices that allow for effective and efficient communication on the battlefield. Also, biotechnology, nanotechnology, augmented reality and precision guided hypersonic missiles. All of these are the products of these emerging technologies. These systems, such as sophisticated unmanned aerial vehicles, possess the capability to autonomously identify and neutralise possible dangers with a pretty high level of precision. The emerging technologies used are spearheading an entirely new generation of warfare. These

[5] Junaid, Khola, 2024. "Emerging Technologies and their Impact on Warfare." *Modern Diplomacy*, in: https://moderndiplomacy.eu/2024/06/11/emerging-technologies-and-their-impact-on-warfare

> instruments have significance in several domains of human existence; however, their adaptable uses also make them potentially perilous and destructive weapons.[6]

The continued protractedness of the war of Russia against the Ukraine - despite all feelings of immense exhaustiveness on both sides - is not only due to the adamant nationalistic and imperial Russian ideology of Russkij Mir and the religious justification of war, it is also due to the fact that this war by many is seen as a race for the better military digital technologies. There are perceptions that the more digitization of warfare is accelerated the sooner the end of the war is going to come - most probably an illusion, tragic misunderstanding and miscalculation of contemporary military strategists: the war in the Ukraine has become very much a technology war[7]. Analysts have dubbed it the first commercial space war, the first full-scale drone war, the first AI war. Research has "examine(d) the role of drones, cyber warfare, software-defined warfare and AI, and space technologies in the war in Ukraine. It reveals how the conflict has become a testing ground for new military systems. Innovation is happening at high speed. Thousands of drones, so many of which were never used before, have been deployed in military confrontation. Cloud services and cyber defences have provided existential support. Software, often AI-enabled, is used to improve legacy systems. Without support from satellites, Ukraine would not be able to defend its territory."[8]

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[6] Id. Junaid, K., 2024.

[7] *Editor-in-Chief Note:* Some, as the US economist Jeffrey Sachs, who views the war in Ukraine as a proxy conflict between the US and Russia, have come to the similar conclusion about the importance and partly deceptive dimension of the digitization of warfare. The conflict enters its fourth year, and artillery, the enduring 'queen of battle', remains paramount, exposing the failure of high-tech air dominance to deliver decisive outcomes. This fundamental gap between developing and testing mirrors, tactical vs. *strategic* engagement in war, to achieve a primarily political objective.

[8] Franke, Ulrike; Söderström, Jenny, 2023. "Star tech enterprise: Emerging technologies in Russia's war on Ukraine", in *European Council on Foreign Relations*:

People not interested so much in militaria and weaponry seldom look into new commercial brochures about modern technologies of warfare. More people should do - as the intensity of the militarization of technological and digitization progresses is indeed shocking. This is only the iceberg of a broader movement of one-sided militarization of the whole concept of security in which more and more tech giants, militarists and right-wing extremists are joining hands. Costly brochures and coloured pictures praise the capabilities of modern AI integrated systems of "defence" technologies and play with the fascination of clean technological systems and a new art of warfare where you do not see the deadly impact of your own weapons systems except on a clean and colourful screen.[9] No doubt: The new era of high-tech wars has begun.[10]

3. Misleading promises of the introduction of AI supported software into military applications

The almost religious promises and expectations combined and associated with an ever-greater acceleration of the integration of modern AI technologies into military applications is obvious in many brochures from the armaments industry and from military circles:

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https://ecfr.eu/publication/star-tech-enterprise-emerging-technologies-in-russias-war-on-ukraine

[9] See a brochure of The European Defence Agency in Brussels: European Defence Agency, 2021. "Pushing limits: defence innovation in a high-tech world", *EDM: European Defence Matters*, issue 22: https://eda.europa.eu/docs/default-source/eda-magazine/edm22singleweb.pdf; see also from the US context: Hartzell, C., Master Sgt.; 2023. "Future Weapons Technology of 2040", *NCO Journal*: https://www.armyupress.army.mil/Journals/NCO-Journal/Archives/2023/July/Future-Weapons-Technology-of-2040/

[10] The Economist, "Leaders", 2023. "A New era of high-tech war has begun", *The Economist*: https://www.economist.com/leaders/2023/07/06/a-new-era-of-high-tech-war-has-begun

- Crunching big data and using AI systems for harvesting, combining and communicating them will enable faster decision making in the battlefield;
- Military software tools of AI are capable of animating sensors which is important for soldiers and people in the command chain;
- Application of military AI tools will enable more "rapid-fire coordination of fleets of autonomous military platforms"[11];
- Broad based introduction of AI supported target selection systems will increase the number of precision targets for bombings thereby increasing the military pressure on any aggressor;
- Often also the expectation is added that military AI supported systems will allow for a more rapid and clear distinction between combatants and non-combatants.
- Therefore, at the end of the ideological rhetoric supporting the weaponization of AI and sophistication of related technologies there always is the combination of the promises of immunity (over against attacks of the adversary in the military battlefield) and the promises of impunity (over against any attacks on the home-based ethical accusations due to the anonymization of final moral responsibility lines).

4. Israels war in the Gaza strip and the role of "The Gospel" and "Lavender" targeting software as example of horrific consequences of the weaponization of AI

Whether the military salvation promise of the integration of AI into warfare technology holds true or whether the promise of a more "clean", "effective", "resource-saving" and less costly form of human warfare is one of the greatest

[11] See the brochure of The European Defence Agency in Brussels, page 7: European Defence Agency, 2021, Op. Cit.

self-deceits in our time can be tested by one major case study, which is from the Middle East: looking at the "technological innovations" of the Israeli "war of defence", the 'War of Iron Swords' (Hebrew: מלחמת חרבות ברזל) in the Gaza strip. This war has been going on since October 2023 after the brutal terrorist attacks of Hamas forces in Israel which has killed more than 1200 Israelis and in turn led to the deadliest military campaign against the Palestinians. The Gaza war has killed more than 48,400 Palestinians (70% of which women and children) while harming and wounding thousands more.[12] It is disturbing to note in this context that while the war still has not yet really ended in April 2025 a first celebrative "Israeli DefenseTechSummit" was brought together in Tel Aviv University already in December 2024 to celebrate achievements in new technological innovations of warfare. The conference brought together IDF military specialists, particularly from the Lotem Unit (Digital and Data Unit of IDF), American representatives of high-tech companies, future government officials from the Trump administration and other international IT specialists. The advertisement on the website reads: "Defense Tech Summit 2024 unites top-tier attendees, including CEOs, CISOs, senior executives, venture capitalists, investors, government officials, and startup leaders. Engage directly with key decision-makers, top military figures, and professionals from defence, intelligence, and security sectors across the region."[13] The two-day event featured panels like on "The Future of Global Conflict," "Challenges of Iron Swords" (the IDF's name for the war in Gaza) and "Exploring Innovation in Drone Technology." The DefenseTech Summit was meant to showcase "Israel's cutting-edge technologies and strategies for addressing global security," but observers

[12] See on statistics: Wikipedia, 2025. "Casualties of the Gaza war": https://en.wikipedia.org/wiki/Casualties_of_the_Israel%E2%80%93Hamas_war#:~:text=As%20of%2010%20December%202024,includes%20179%20employees%20of%20UNRWA

[13] DefenseTech Summit 2025 (Tel Aviv University) website: https://deftech-summit.com/

stated that it felt more like a celebration of a new and unrestrained era of techno-militarization inaugurated by Donald Trump's re-election.[14]

What is behind this renaissance of a major technological advance in military arms? It is a revolution implied in the technological systems used for defining military targets for bombings – an AI enabled software development which is known since around 2021:

> "In 2019, the Israeli government announced the creation of a 'targeting directorate' to produce targets for the Israeli Defense Force (IDF), especially the Israeli Air Force (IAF). In previous conflicts such as in the 2014 war and before, the IAF would run out of targets after just a few weeks of fighting, having hit all the targets of which they knew. The targeting directorate was created to mitigate this shortage by pre-emptively creating a 'bank' of militant targets prior to any conflict, thereby ensuring enough targets when hostilities began. The directorate, consisting of hundreds of soldiers and analysts, creates targets by aggregating data from a variety of sources – drone footage, intercepted communications, surveillance data, open-source information, and data from monitoring the movements and behaviour of both individuals and large groups.[15]

The result of the new AI supported military target identification software allowed for a rapid move from identifying *50 military targets per year* to a situation in which *250 targets could be identified per day*. Thus, an immense

> "acceleration of constant attacks became technologically

[14] See: Goodfriend, Sophia, 2024. "With Gaza war and Trump's return, Silicon Valley embraces a military renaissance." 972 Magazine In: https://www.972mag.com/gaza-war-trump-silicon-valley-military/, 31 December 2024.

[15] Noah Sylvia: Israel's Targeting AI: How Capable is It?, 8 February 2024, in: Sylvia, Noah, 2024. "Israel's Targeting AI: How Capable is It?", *RUSI*: https://www.rusi.org/explore-our-research/publications/commentary/israels-targeting-ai-how-capable-it

possible. What previously had been perceived as totally impossible by relying on man-powered observation and secret service information became possible even beyond expectations, moving from human to machine-based intelligence. The IAF (Israel Air Forces) could already proudly state in November 2023 that it had bombed the unimaginable number of more than 22.000 targets in the Gaza strip.[16] Cynically enough the name given to this software, which was now used regularly to assist with the identification of military and human targets in all the days of the Gaza war, was called "Habsura", which is a Hebrew term standing for "the Gospel". Research by specialists using classified information and interviews with members of specialists units within IDF has provided more information on this system and its naming:

> The 'Gospel' (Habsora) AI system produces bombing targets for specific buildings and infrastructure in Gaza, working in conjunction with other AI tools. Notably, the specific usage of the term 'Gospel' implies a biblical connotation of infallibility and ultimate authority potentially attributed to the Israeli system, reflecting its trusted and authoritative status within the IDF. Thereby, the connotation underscores the system's critical role in justifying and executing military strategies, much like the unquestioned truth of the religious gospel.[17]

While there is a lot of internal controversy in assessing how far the precision and infallibility aura of the "Gospel" software technically can be proven as a fact in reality[18] and to what extend the claim can be substantiated that final

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[16] See: Wikipedia, 2025, "AI-assisted targeting in the Gaza Strip": https://en.wikipedia.org/wiki/AI-assisted_targeting_in_the_Gaza_Strip

[17] See: Kurek, Julius; Kühn, Björn L., 2024. "Habsora (הבשורה) and Lavender (אֲזוֹבִיוֹן) Artificial Intelligence Systems – The Missing Piece Towards a Fully Algorithmically Automated F2T2EA Kill Chain?", *EPIS Think Tank*, in: https://www.epis-thinktank.de/post/habsora-lavender-ai-automated-kill-chain

[18] See Noah Sylvia (Op. Cit.) in: https://www.rusi.org/explore-our-research/publications/commentary/israels-targeting-ai-how-capable-it

decisions on actual bombings are still controlled by human minds and in transparent manner, the doubts are overwhelming. Many support the conviction that the "Gospel" AI system used heavily by IDF forces has in reality not helped to humanize warfare but instead has significantly contributed to increase atrocities against civilian populations and has served as a major component resulting in a de facto genocide against the Palestinian population in the Gaza strip.

5. Demythologizing the role of AI supported technologies of warfare and the dangers of shortening and automatization of the "kill chain"

Thus, in contrast to its military salvation promises (mentioned above) the critical literature and research review on the impact of the "Gospel" AI program in actual warfare can be summarized at this stage by the following six observations:

- that the AI systems "Gospel" and "Lavender", which were introduced by the Israeli army (originally designed for urban and regional warfare against a big country like Iran and not for a densely populated, very small area like in Gaza), have to a large extent –together with the use of so-called "dumb bombs" which lead to indiscriminate killings in the neighbouring area– contributed to a massive and disproportionate rise of the number of non-militant victims in the civilian population; they have made the war more brutal and not more humane and limited in terms of causing casualties in the civilian population;[19]
- that these AI systems have heavily changed the ratio between killed combatants and non-combatants as they "led to the loosening of constraints regarding expected civilian casualties.

[19] SPIEGEL Ausland, 2024. "Hat Israels Killer-KI den Gazakrieg tödlicher gemacht?", in *Der Spiegel*: https://www.spiegel.de/ausland/israel-hat-ki-den-gazakrieg-brutaler-gemacht-a-f7713750-5888-452b-a5bb-2d979c6ddd11

The use of an artificial intelligence system to generate more potential targets than ever before, appears to have contributed to the destructive nature of the initial stages of Israel's current war on the Gaza Strip…" [20] The numbers increased from dozens of civilian deaths [permitted] as collateral damage as part of an attack on a senior official in previous operations, to hundreds of civilian deaths as (accepted) collateral damage.[21]

— that these military AI systems for combat situations have led to a dramatic acceleration of decisions on death and life for thousands of persons in a very short time span and therefore fall short of their promise to keep the last decision in human hands in a responsible manner. Few seconds remaining for very serious decision making, which has been made dependent on data which include a lot of ambiguities which would need further investigation and human checking, are simply not enough to make responsible decisions. If hundred or 500 targets are identified and delivered by machines within very few days the human ability to check and prove that the final target recommendations are based on solid and reliable information are minimal and simply not feasible.[22] How to maintain human responsibility and agency with AI DSS systems therefore remains a key concern.[23]

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[20] Abraham, Yuval, 2023. "'A mass assassination factory': Inside Israel's calculated bombing of Gaza", *972 Magazine*: https://www.972mag.com/mass-assassination-factory-israel-calculated-bombing-gaza/

[21] Ibid.

[22] See also: Kitzler, Jan-Christoph, 2023. "Viel mehr Ziele – und viel mehr Opfer?", *Tagesschau*: https://www.tagesschau.de/ausland/asien/israel-gazastreifen-ki-100.html

[23] See: Zhou, W.; Greipl, Anna R., 2024. "Artificial intelligence in military decision-making: supporting humans, not replacing them", in *Humanitarian Law & Policy*: https://blogs.icrc.org/law-and-policy/2024/08/29/artificial-intelligence-in-military-decision-making-supporting-humans-not-replacing-them

— that military software tools like "The Gospel" or "Lavender" need to be seen as one step in the technological attempt to create a totally automated "kill chain" where every single step in the different stages of the decision making leading to a military action and kill command can be prepared and executed within seconds by the machines themselves without being slowed down, hindered or complicated by human intervention. Since a few years military research has been fascinated by the shortening and automation of "kill chains": "The 'kill chain' serves to conceptually capture the process of combating an enemy entity. It begins with finding the target and encompasses every subsequent step up to its eventual destruction. One model to structure the kill chain internally is the so-called F2T2EA model, which is divided into six steps. *Finding* the target is a matter of intelligence, which may come in the form of surveillance or reconnaissance. Once the target is identified, its precise location needs to be determined (*fix*) and kept *track* of as the appropriate weapon is selected (*target*). Afterwards, the target can be *engaged* and, once the attack has been carried out, its effectiveness might be *assessed*."[24] The vision of acceleration or even automatization of the "kill chain" (Find, Fix, Track, Target, Engage, Assess) has been a long dream of the American Air Forces.[25] The use of targeting software like "Gospel" and Lavender clearly is a potential step towards a realization of a fully automated "kill chain" presented by this F2T2EA model, as with current LAWS (Lethal Automated Weapon Systems) from six

[24] Julius Kurek and Björn Laurin Kühn (Op. Cit.).

[25] Tirpak, John A. 2000. "Find, Fix, Track, Target, Engage, Assess", in *Air Force Magazine*: https://www.airandspaceforces.com/article/0700find/

steps and stages, already five can function to a large extent already automatically and autonomously.[26]

— Thus, the application of such AI DSS Systems also leads to quite essential changes on the roles of soldiers and their individual responsibility: "Comprehensive AI-based DSSs could foster a form of virtual remote command and control, reducing soldiers to executing orders displayed on their devices without critically engaging with these systems' outputs. This scenario risks soldiers not questioning orders, even if they have insights suggesting alternative actions. If soldiers receive commands about enemy positions via AI-based DSS, they might act without verifying the situation. This challenges the *military self-perception of conscious decision-making in the spirit of the 'Auftragstaktik'* and in the worst case, results in soldiers 'only following orders'."[27]

— that the application of AI systems in warfare technologies and target selection according to what we know has not undergone any previous ethical investigation and clearance in an admission system in which the ethical ambivalences and shortcomings of these kinds of technologies could have been critically reflected and assessed. Thus, there is no agreed national or even international standard for ethical clearance for AI assisted war technologies.

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[26] See: ULTRA I&C Blog, 2023. "How Ultra I&C's solutions are improving the F2T2EA kill chain model", in *Ultra: Intelligence & Communications*: https://www.ultra-ic.com/blog/how-ultra-ic-s-solutions-are-improving-the-f2t2ea-kill-chain-model/; also US Air Force, 2021. "US Airforce Doctrine on Targeting", *Air Force Doctrine Publication* 3-60 in: https://www.doctrine.af.mil/Portals/61/documents/AFDP_3-60/3-60-AFDP-TARGETING.pdf

[27] Klaus, Matthias, 2024. "Transcending weapon systems: the ethical challenges of AI in military decision support systems" in *Humanitarian Law & Policy*: https://blogs.icrc.org/law-and-policy/2024/09/24/transcending-weapon-systems-the-ethical-challenges-of-ai-in-military-decision-support-systems/

— Finally, a comment needs to be added on the quasi-religious authority claim of these AI supported military software tools and their naming: The fact that the naming of these AI systems is done by using deeply religious terms like "The Gospel" casts some serious doubts on their rationality and the ideologies behind. The term "Habsora" (or: The Gospel) in Christian (and Jewish) tradition stands for a life-giving power and liberating message of liberation. This is about a Gospel of liberation and peace, not a distorted "Gospel" of destruction and death. In other words: a message of life and hope is encapsulated in the Gospel as properly understood in biblical terms, but not a death sentence provided by a machine governed by algorithms producing 250 killing commands a day. The language used symbolizes the deeply inhumane nature of such technologies and the cynical spirit and attitude of contempt which is behind. The use of the term "Gospel" in the IDF military terminology systems constitutes an act of blasphemy and misuse of core biblical terms which are precious for many people. The more religious language is used indiscriminately and perversely to legitimize antagonist values like in lethal and automated AI supported weapon systems, the more rigorous and outspoken should be the response of religious actors. Religious actors, Jews, Christians and Muslims alike, should see themselves as the custodians of religious values and key terms which embody a centuries old commitment to human dignity, human rights and the sanctity of life in all its forms.

6. The need for a more intense and public discourse on ethics of AI in warfare

Researchers on the intersection between technological transformations in military weaponry and AI systems in summarizing their observations have voiced clearly the urgent need for more ethical frameworks and compatibility checks with international humanitarian laws (IHL):

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> The rise of these emerging technologies in warfare has raised crucial questions about the future of warfare. While emerging technologies have increased the efficiency and precision of weaponry, the potential for dehumanization and ethical dilemmas in war are of grave concern and demand immediate attention. The technological advancement worldwide, the autonomous nature of these AI weapons, the ease of access to 3D-printed weaponry, and all other emerging technologies necessitates the establishment of international regulations and ethical frameworks for regulating such technologies.[28]

There are some initial investigations into ethical implications of AI in warfare, like from Elke Schwartz from Queen Mary University in London which highlight serious ethical shortcomings and dilemmas and endeavour to safeguard the principles of humanity and accountability amidst the evolving dynamics of modern warfare:

> "— The integration of AI-enabled weapon systems facilitates the objectification of human targets, leading to heightened tolerance for collateral damage
> — Automation bias and technological mediation weaken moral agency among operators of AI-enabled targeting systems, diminishing their capacity for ethical decision-making
> — Industry dynamics, particularly venture capital funding, shape discourses surrounding military AI, influencing perceptions of responsible AI use in warfare.[29]

[28] Khola Junaid (Op. Cit).

[29] Schwarz, Elke, 2025. "The ethical implications of AI in warfare", in *Queen Mary, University of London*: https://www.qmul.ac.uk/research/featured-research/the-ethical-implications-of-ai-in-warfare; see from the same author: Schwarz, Elke, 2024. "The (im)possibility of responsible military AI governance", in *Queen Mary,*

Other contributions, such as that of the Waterloo Institute for Artificial Intelligence have observed and analysed the "legal void in which AI weapons operate", the "false promises on civilian protection", the "Autonomy in Weapons Systems and the Struggle for Regulation" and the "Actual IHL Accountability Gap of AI".[30] Contributions clearly underline that ethics of AI in military warfare is more than just dealing with weapon systems, but concerns both the weaponry systems as such, the military decision making structures, issues of military research policies and international regulations for political legitimation and ethical assessment as well as legal admission of such systems.[31] Thus the whole range of issues of AI supported warfare and the International Humanitarian Law (IHL) regulatory systems is at stake.[32] And this is not just an issue in the Middle East or in Eastern Europe, it is a global issue which needs attention within the whole of the UN system.[33] A leading role in this discourse demanding more ethical standards is played by the International Committee of the Red Cross which in collaboration with the Geneva Academy of International Humanitarian Law and Human Rights has published a number of outstanding studies[34] and blog papers on the

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University of London: https://blogs.icrc.org/law-and-policy/2024/12/12/the-im-possibility-of-responsible-military-ai-governance/

[30] CIGI Essay Series, 2022. "The Ethics of Automated Warfare and Artificial Intelligence." In *CIGI*: https://www.cigionline.org/the-ethics-of-automated-warfare-and-artificial-intelligence

[31] Matthias Klaus (Op. cit.).

[32] von Schubert, Hartwig, 2023. "Addressing ethical questions of modern AI warfare." In *IPS*: https://www.ips-journal.eu/topics/foreign-and-security-policy/addressing-ethical-questions-of-modern-ai-warfare-6587

[33] Shaughnessey, Sgt. Maj. Ian M., 2024. "The Ethics of Robots in War", in *NCO* Journal: https://www.armyupress.army.mil/Journals/NCO-Journal/Archives/2024/February/The-Ethics-of-Robots-in-War

[34] ICRC Shop, 2024. "Expert Consultation report – Artificial intelligence and Related Technologies in Military Decision-Making on the Use of Force in Armed conflicts: Current Developments and Potential Implications", in *ICRC*:

related issues.[35] It was a Major Milestone Event, that on 24. December 2024 (!) for the first time a common declaration of the General Assembly of the UN was voted upon (against the vote of Russia!) "Artificial intelligence in the military domain and its implications for international peace and security".[36] This declaration brought the topic of AI in the military domain for the first time on the top of the global UN agenda. The declaration emphasizes that human rights norms and international law remain relevant and applicable for the realm of AI in the military domain and clearly identifiable risks and unclarities for AI in military applications need to be further assessed and regulated internationally.

7. First steps and possible institutional partners to consider international regulations on challenges posed by AI in warfare

But few authors only proceed to the then imminent question of how to suggest clearcut and binding international regulations, how to initiate international decision making and how to operationalize regulations and compliance with them in order to stop the unregulated rapid advancement of AI supported sophisticated targeting and recognition systems. Mehmet Akif Uzer in an

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https://shop.icrc.org/expert-consultation-report-artificial-intelligence-and-related-technologies-in-military-decision-making-on-the-use-of-force-in-armed-conflicts-current-developments-and-potential-implications-pdf-en.html

[35] See the series of blog papers of ICRC: ICRC, 2024. "Artificial intelligence in military decision making", in Humanitarian Law & Policy: https://blogs.icrc.org/law-and-policy/category/special-themes/artificial-intelligence-in-military-decision-making

[36] UN General Assembly, 2024. "Resolution adopted by the General Assembly on 24 December 2024: Artificial intelligence in the military domain and its implications for international peace and security", in *UN Digital Library*: https://digitallibrary.un.org/record/4071348/files/A_RES_79_239-EN.pdf; Persi Paoli, Giacomo ; Afina, Yasmin, 2025. "AI in the Military Domain: a briefing note for States", in UNIDIR: https://unidir.org/publication/ai-military-domain-briefing-note-states/

article from September 2024 has suggested four essential components for an international regulation, based on ethical principles:

> "To address the challenges posed by AI in warfare, we propose the following recommendations:
>
> 1) Prohibit Autonomous Weapon Systems Without Human Control: Weapon systems that do not allow for sufficient human oversight in target selection and engagement should be prohibited.
>
> 2) Establish Positive Obligations for Human Control: For systems that are not prohibited, establish clear obligations for human control over weapon parameters (e.g., type of target), the environment of use, and human-machine interaction during use.
>
> 3) Ensure Human Command and Control: Any use of weapon systems with autonomous functionalities must be guided and overseen by a responsible chain of human command and control.
>
> 4) Preserve Human Judgment in the Use of Force: Actions that may result in the loss of human life through the use of force should remain under human intent and judgment. Once a human initiates a sequence of actions intended to end with lethal force, autonomous systems may complete the sequence only with ongoing human oversight.[37]

In the meantime, there has been some enormous effort to advance proposals and considerations both for the issues of *general* AI ethics on international

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[37] Akif Uzer, Mehmet, 2024. "The Integration of AI in Modern Warfare: Ethical, Legal, and Practical Implications", in CYIS: Centre for Youth and International Studies: https://www.cyis.org/post/the-integration-of-ai-in-modern-warfare-ethical-legal-and-practical-implications#:~:text=From%20a%20humanitarian%20perspective%2C%20the,to%20IHL%20rules%20governing%20hostilities

levels as well as for the more narrow and *special* area of *ethical AI in the military domain*.

There are several attempts to formulate internationally binding ethical and political principles for the responsible use of AI systems. For instance, a "High Level of Experts on Artificial Intelligence" was set up by the European Commission and published "Ethics Guidelines for Trustworthy AI"[38] in the year 2019.

This document formulated a list of seven key principles of trustworthy AI under the headings of (1) human agency and oversight, (2) technical robustness and safety, (3) privacy and data governance, (4) transparency, (5) diversity, non-discrimination and fairness, (6) environmental and societal well-being and (7) accountability. However, there is no distinct chapter yet on ethical implications of AI usages in military warfare, except for a concern that was raised at the end under "Examples of critical concerns raised by AI" to investigate this further, as some critical ethical questions have begun to be articulated:

> "Currently, an unknown number of countries and industries are researching and developing lethal autonomous weapon systems, ranging from missiles capable of selective targeting to learning machines with cognitive skills to decide whom, when and where to fight without human intervention. This raises fundamental ethical concerns, such as the fact that it could lead to an uncontrollable arms race on a historically unprecedented level and create military contexts in which human control is almost entirely relinquished, and the risks of malfunction are not addressed. The European Parliament has called for the urgent development of a

[38] Directorate-General for Communications Networks, Content and Technology (European Commission), High-Level Expert Group on Artificial Intelligence, 2019. "Ethics guidelines for trustworthy AI", in Publications Office of the European Union. https://op.europa.eu/en/publication-detail/-/publication/d3988569-0434-11ea-8c1f-01aa75ed71a1

> common, legally binding position addressing ethical and legal questions of human control, oversight, accountability and implementation of international human rights law, international humanitarian law and military strategies. Recalling the European Union's aim to promote peace as enshrined in Article 3 of the Treaty of the European Union, we stand with, and look to support, the Parliament's resolution of 12 September 2018 and all related efforts on LAWS.[39]

There is a similar foundational framework document of UNESCO on ethics of artificial intelligence from the year 2022 "Recommendation on the Ethics of Artificial Intelligence".[40] It is quite similar there, as amongst the 11 key priority areas indicated for policy action for member states one cannot find any section dealing with military use of AI programs. Also, in the "Pact for the Future", which was decided by the UN assembly in September 2024 we face a similar picture. In the section dealing with "new and emerging technologies" (Action 28) there is only one general recommendation and warning expressed in the chapter on "International Peace and Security", stating that more urgent attention needs to be given to exposing and assessing the risks of AI in military applications. Para 46 b) reads:

> Advance with urgency discussions on lethal autonomous weapons systems through the existing intergovernmental process to develop an instrument, and other possible measures, including to address the risks posed by lethal autonomous weapons systems that select targets and apply force without

[39] High-Level Expert Group on Artificial Intelligence, European Commission, 2019 (Op. cit.), p. 34.

[40] UNESCO, 2022. "Recommendation on the Ethics of Artificial Intelligence", *UNESCO* in: https://unesdoc.unesco.org/ark:/48223/pf0000381137

> human control or oversight and cannot be used in compliance with international humanitarian law.[41]

A more promising and substantial example of how actual principles and regulations could be formulated or need to be extended in taking up what from what already exists from the United Nations Office for Disarmament Affairs (UNODA) work on the 2019 Convention on Certain Conventional Weapons on (CCW – Group of Governmental Experts on Lethal Autonomous Weapons Systems) is related to the REAIM process: REAIM stands for "Responsible Artificial Intelligence in the Military Domain" and is a process which has been pushed by a certain number of individual countries tries to following the examples of the earlier disarmament process related to Lethal Autonomous Weapons Systems (LAWS).[42] LAWS are "weapons which have the potential to identify, engage and neutralize a target without any human intervention. While such systems do not exist, the complete autonomy of these weapons may pose a multitude of issues from moral, legal and operational perspectives".[43] The UN declaration on LAWS from 2019[44],

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[41] United Nations, 2024. "Summit of the future outcome documents: Pact for the Future, Global Digital Compact and Declaration on Future Generations", *UN*. Action 28, No b), page 16, in: https://www.un.org/sites/un2.un.org/files/sotf-pact_for_the_future_adopted.pdf

[42] See: United Nations library & archives Geneva, 2022. "Conventional weapons and the arms trade", *Research Guides UN*. https://libraryresources.unog.ch/c.php?g=462684&p=5054227

[43] France Diplomacy, 2019. « 11 Principles on Lethal Autonomous Weapons Systems (LAWS) », *Ministère de l'Europe et des affaires étrangères*, in: https://www.diplomatie.gouv.fr/en/french-foreign-policy/france-and-the-united-nations/multilateralism-a-principle-of-action-for-france/alliance-for-multilateralism/article/11-principles-on-lethal-autonomous-weapons-systems-laws#:~:text=LAWS%20are%20weapons%20which%20have,moral%2C%20legal%20and%20operational%20perspectives

[44] United Nations, 2019. "Annex III: Guiding Principles affirmed by the Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous

which contains some general clauses of caution and prohibition on lethal autonomous weapons, is part of and in continuation of the principles on certain conventional weapons (CCW) which dates back already to 1983, then amended in 2001, and deals with substantive prohibitions and restrictions on certain types of weapons, such as non-detectable fragments, mines, booby traps and other devices, incendiary weapons, blinding laser weapons, explosive remnants of war.[45]

It is a positive sign that under the leadership of Netherlands and South Korea a selected number of 31 governments (unfortunately without Russia and China) have signalled some readiness and interest to push towards more international regulations on responsible military use of artificial intelligence and signed the "Political Declaration on Responsible Military Use of Artificial Intelligence and Autonomy". This was produced and announced at the summit on Responsible Artificial Intelligence in the Military Domain (REAIM) held in February 2023 in Den Haag called together by the Foreign Ministry of the Netherlands. A second REAIM conference followed in 2024 in South Korea and produced a draft paper "'Blueprint' for AI use in military" [46] which was signed by 61 countries, this time also USA and China,

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Weapons System", *Meeting of the High Contracting Parties to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects, CCW*, in: https://documents.un.org/doc/undoc/gen/g19/343/64/pdf/g1934364.pdf

[45] United Nations, 2023 [1980]. "The Convention on Certain Conventional Weapons", *UN Office of Disarmament Affairs*. In: https://disarmament.unoda.org/the-convention-on-certain-conventional-weapons

[46] The Blueprint outlines a series of principles surrounding the impact of AI on international peace and security, the implementation of responsible AI in the military domain, and the future of AI governance. The Blueprint affirms that the principles apply to all "AI applications in the military domain," including those used in logistics, intelligence operations, and decision-making. The Blueprint calls for policymakers to pay particular attention to AI-enabled weapons, AI enabled decision-support systems, and the use of AI in cyber operations, electronic warfare, information operations, and

but without Russia, and which built upon the tradition of the first REAIM document from Den Haag.[47] The next, third REAIM conference will take place 2025 in Spain.

2025 was a crucial year for these issues of ethical regulations of AI in the military domain, as for the first time important streams of discourses were brought together by the UN Institute of Disarmament Research (UNIDIR) in a conference in Geneva in March 2025 under the title: "AI, Security and Ethics".[48] A Global Commission on Responsible Artificial Intelligence in the Military Domain (GC-REAIM)[49] was called together (already in Den Haag conference) and reported about progress made in terms of answering the General Secretary's passionate appeal from 19 December 2024 to produce more critical regulations on artificial intelligence as "AI's expansion into security systems raises fundamental concerns about human right, dignity and the rule of law – from autonomous border surveillance to predictive policing

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the nuclear domain. See. The Readable, 2024. "Full statement: REAIM Blueprint for Action", The Readable, in: https://thereadable.co/reaim-blueprint-for-responsible-ai-use-military

[47] The Blueprint document also included serious warnings related to the risks of proliferation of unproven new forms of military AI supported software programs, see: "3. Recognize also that Al applications can present both foreseeable and unforeseeable risks across various facets of the military domain, which may, inter alia, originate from design flaws, unintended consequences, including from data, algorithmic and other biases, potential misuse or malicious use of the technology and the interaction of Al applications with the complex dynamics of global and regional conflicts and stability, including risks of an arms race, miscalculation, escalation and lowering threshold of conflict", in: The Readable, Ibid.

[48] Website of the Global Conference on AI, Security and Ethics 2025: https://unidir.org/event/global-conference-on-ai-security-and-ethics-2025/

[49] The Hague Centre for Strategic Studies, 2025. "Global Commission on Responsible Artificial Intelligence in the Military Domain (GC REAIM)", *HCSS*, in: https://hcss.nl/gcreaim-commissioners

and beyond". [50] Therefore mutual reporting and developing of guidelines according to the December 2024 UN GA resolution[51] need to be brought forward and pursued energetically. The Global Commission on Responsible Artificial Intelligence in the Military Domain (GC-REAIM) has to provide and finalize its report to the UN General Secretary until June 2025 which then would be discussed by the General Assembly in December 2025.

In addition, the United Nations Office for Disarmament Affairs (UNODA) in New York has published at the end of 2024 (at the date of Christmas 24 Dec!) the result of an essay competition on AI military ethics with young people concerned about the rapid speed of the weaponization of AI.[52] This was the result of a "Republic of Korea-United Nations Sci-fAI Futures Youth Challenge" program in the same year which was designed to engage young minds in imagining the future role of artificial intelligence (AI) in international peace and security. The stories of the young authors which were produced in a setting of a fictional world in the year 2145 are quite substantial reflections about how AI could be used in or to prevent armed conflicts, its potential interactions with other emerging technologies, potential risks and positive scenarios in which AI is leveraged for good in the military domain. The meaningful collection is one promising example to engage also the younger generations in AI ethics which have to live and cope with the consequences of the rapid integration of AI software into the military arms race – and this already much before 2145!

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[50] United Nations Secretary General, 2024. "Secretary-General's remarks to the Security Council - on Artificial Intelligence", UNSG, in: https://www.un.org/sg/en/content/sg/statement/2024-12-19/secretary-generals-remarks-the-security-council-artificial-intelligence-bilingual-delivered

[51] United Nations General Assembly, 2024. "Artificial intelligence in the military domain and its implications for international peace and security: resolution / adopted by the General Assembly", *United Nations Digital Library*. In: https://digitallibrary.un.org/record/4071348?v=pdf

[52] United Nations Office for Disarmament Affairs, 2024. "Youth and Peace in the Age of AI Stories by the Sci-fAI Futures Youth Challenge Winners", *UNODA*, in: https://disarmament.unoda.org/unoda-occasional-papers-no-43-december-2024

While this can indicate some of the institutional spaces and affiliated UN organizations to work on ethics of military AI, the conclusion of this brief survey on recent developments can only repeat what has been demanded for by other specialists already earlier: "We Need Hard Laws on the Military Uses of AI — and Soon".[53] Many voices say that committed agencies, together with EU, should spearhead an initiative for international regulation and standards for using AI in warfare, as the lack of an international governance framework for military AI poses risks to global security. More attention should be paid to what leading experts from Carnegie Europe have stated quite succinctly in the research project called "The EU's Techno-Politics of AI":

> "The absence of a comprehensive global governance framework for military artificial intelligence (AI) presents a perilous regulatory void. This gap leaves a powerful technology category unchecked, heightening risks to international peace and security, escalating arms proliferation, and challenging international law. Governments worldwide are competing for leadership in emerging and disruptive technologies (EDTs) and grappling with the profound and transformative implications of AI. Meanwhile, corporate tech players have joined a trillion-dollar arms race in generative AI, jockeying for venture capital investment in foundation models. In the battle for economic supremacy and the competition over ethical standards, the global balance of power is precarious, and the stakes are high… There is therefore a sense of urgency among international organizations, scientists, and researchers, prompted by the potential of runaway AI developments, including disruptive applications in the military domain. If indeed AI poses an extinction-level existential threat to the future of humankind akin to the atomic bomb, as many in the

[53] Branka Marijan, 2023. "We Need Hard Laws on the Military Uses of AI — and Soon.", *CIGI Online*, in: https://www.cigionline.org/articles/we-need-hard-laws-on-the-military-uses-of-ai-and-soon/

> field claim, the absence of a universally accepted global governance framework for military AI is a crucial concern.[54]

In a similar direction The Centre for AI Safety (CAIS) in San Francisco had stated the major risk of an unfolding Military AI Global Arms Race:

> "The rapid advancement of AI in military technology could trigger a "third revolution in warfare," potentially leading to more destructive conflicts, accidental use, and misuse by malicious actors. This shift in warfare, where AI assumes command and control roles, could escalate conflicts to an existential scale and impact global security. Lethal autonomous weapons are AI-driven systems capable of identifying and executing targets without human intervention. These are not science fiction. In 2020, a Kargu 2 drone in Libya marked the first reported use of a lethal autonomous weapon. The following year, Israel used the first reported swarm of drones to locate, identify and attack militants. Lethal autonomous weapons could make war more likely. Leaders usually hesitate before sending troops into battle, but autonomous weapons allow for aggression without risking the lives of soldiers, thus facing less political backlash. Furthermore, these weapons can be mass-manufactured and deployed at scale… As AI accelerates the pace of war, it makes AI even more necessary to navigate the rapidly changing battlefield. This raises concerns over automated retaliation, which could escalate minor accidents into major wars. AI can also enable "flash wars," with rapid escalations driven by

[54] Raluca Csernatoni, 2024. "Governing Military AI Amid a Geopolitical Minefield.", *Carnegie Europe*, in: https://carnegieendowment.org/research/2024/07/governing-military-ai-amid-a-geopolitical-minefield?lang=en&center=Europe

> unexpected behaviour of automated systems, akin to the 2010 financial flash crash.[55]

There is an important study paper and proposal, which in 2025 became known, and which was developed by the Munich University, the AI Ethics Lab of Rutgers University (New Jersey, USA), Globethics Foundation and the Responsible AI Network Africa. It became known under the title "Munich Convention on AI, Data, and Human Rights", which was presented in March 2025 to the Human Rights Council of the UN. The position paper aims at the intersectionality between AI Ethics, human rights discourse and also integrates some discussions on neurorights.[56] This draft convention paper needs to be brought forward and discussed in wider circles. In a concluding passage the Munich Draft Convention reads:

> "Artificial intelligence (AI) is fundamentally transforming human interactions, key processes and systems that underpin modern society, from decision-making mechanisms to information flows, economic structures, and international relations. While its potential is comprehensive, AI introduces significant risks, such as reduced human autonomy, algorithmic bias, data privacy threats, and challenges in accountability for algorithmic harm. Emerging technologies, such as embodied AI and large language models, exacerbate these risks, affecting human-machine interactions

[55] See website of Centre for AI Safety, in: Dan Hendrycks, Mantas Mazeika, Thomas Woodside, 2023. "An Overview of Catastrophic AI Risks", *Center for AI Safety*. In: https://arxiv.org/pdf/2306.12001

[56] In 2021, Chile became the first country to pass a constitutional amendment protecting neurorights, also see "protection of mental integrity in the context of neurotechnology and AI" (specifically the right to mental integrity, see legislation of neurorights in Chile. See: Cornejo-Plaza MI, Cippitani R and Pasquino V., 2024. "Chilean Supreme Court ruling on the protection of brain activity: neurorights, personal data protection, and neurodata." *Front. Psychol. 15*. See: https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2024.1330439/full

> and raising concerns about environmental sustainability and human rights across the AI value chain. In response to far-reaching societal impacts of AI, policymakers are increasingly adopting a human rights lens for AI governance. *However, the regulatory landscape remains fragmented and characterized by Western led initiatives as well as inconsistent enforcement. To address these limitations, a unified and binding international framework is urgently needed*. The proposed Convention on AI, Data, and Human Rights (drafted as the "Munich Convention on AI, Data, and Human Rights") is an initiative toward such a framework.[57]

In order to summarize some of the key ethical questions which need further common discernment, criteria and deepening one can just indicate six key words (to be further detailed in subsequent occasions):

1) Goals: What are legitimate and precise goals of military AI and who defines them in AI planning?
2) Investments: Who invests and decides on AI for military domains and AI for Peace? How to overcome massive imbalances and under-funding for AI for Peace?
3) Human Agency: How to safeguard human agency in all stages of AI planning, development, deployment, use and assessment?
4) Verification: How to solve the issue of lack of verification tools and criteria for Military AI software and related processes of disarmament?
5) Intersectionality: How to bring together all needed actors in a multi-stakeholder approach, politics, academia, religions, industry, defence ministries, and ethics institutes

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[57] Alexander Kriebitz & Caitlin C. Corrigan (Eds.), "Promoting and Advancing Human Rights in Global AI Eco-Systems, Munich White Paper", *Rain Africa, Globethics Foundation & AI Ethics Lab (Rutgers University)*. In: https://aiethicslab.rutgers.edu/publications/promoting-and-advancing-human-rights-in-global-ai-ecosystems

6) AI peace tools research: How to boost and create investment incentives for AI peace related projects?

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9. Short Biography

Dietrich Werner, born 1956, is Senior Research Scholar in the Research Programme on Religious Communities and Sustainable Development at Humboldt University Berlin and President of Globethics Foundation in Geneva. He was leader of the Theological Dialogue and Policies Unit of Bread for the World, Germany, from 2014 to 2022, Director of the Ecumenical Theological Education Programme of the World Council of Churches in Geneva (2007-2014), Executive Staff for Theological and Ecumenical Education at the Northelbian Centre for World Mission Hamburg (2000-2007). He also served as Director of Studies at Missions academy at the University of Hamburg (1993-2000) and as Honorary Professor for Intercultural Theology at the University of Applied Sciences at Hermannsburg. He has published widely in the field of Ecumenism, Ethics, Higher Education, Development Cooperation and Interreligious Dialogue. His publications include "Anthology of African Christianity" (Regnum Books International 2016, http://hdl.handle.net/20.500.12424/166368) and "International Handbook on Creation Care and Eco Diakonia" (Regnum Books International 2022). Selected works for further readings: http://hdl.handle.net/20.500.12424/4294357. Email: werner@globethics.net