



Australian
Human Rights
Commission

Inquiry into the Department of Defence Annual Report 2022–23

Australian Human Rights Commission

Submission to the Joint Standing Committee on Foreign Affairs,
Defence and Trade

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1 Introduction

1. The Australian Human Rights Commission (Commission) welcomes the opportunity to make this submission to the Joint Standing Committee on Foreign Affairs, Defence and Trade (Committee) in response to its [Inquiry into the Department of Defence Annual Report 2022–23](#).
2. The role of the Commission is to work towards a world in which human rights are respected, protected and fulfilled. The Commission has expertise on the intersection between technologies and human rights (including the human rights impacts of military technologies).
3. The Commission has demonstrated this expertise across several submissions and speeches, including:
 - [Global NHRI Submission](#): The Commission and Danish Institute for Human Rights jointly prepared a United Nations (UN) submission on behalf of 24 countries' National Human Rights Institutions (NHRI) on the human rights impacts of new and emerging technologies in the military domain.
 - [Lethal Autonomous Weapons Submission](#): The Commission also provided its own UN submission on the human rights impacts of lethal autonomous weapons systems (LAWS).
 - [RightsCon Costa Rica](#): Commissioner Finlay presented at RightsCon Costa Rica in 2023 on the human rights impacts of LAWS, calling for their global regulation.
4. The Commission has hyperlinked this work so that it may be considered in the final report of the Committee. The Commission welcomes further opportunities to engage with the Committee.

2 Definitions

2.1 LAWS

5. There is no internationally agreed definition of LAWS, but for the purpose of this submission, they can be understood as weapons that independently select and attack targets.¹
6. Most LAWS, in their current form, are not truly fully autonomous weapons systems – as there is usually 'some form of human intervention, even if only to activate it'.²

2.2 Autonomous systems

7. Automation refers to systems which perform tasks that ordinarily involve human input.³ As noted by the United Kingdom's [House of Lords' AI in Weapons Systems Committee report](#) (HOL Report):

'Automation and autonomy can be viewed as existing on a spectrum relating to the level of human supervision over a system. This can range from manually controlled systems to those that independently make decisions about how to achieve certain human-set goals.'⁴

8. A system will be considered autonomous where a task is successfully performed by a machine, and without human input, after activation.⁵

2.3 Weapons systems

9. A weapon system is '[a] combination of one or more weapons with all related equipment, materials, services, personnel, and means of delivery and deployment (if applicable) required for self-sufficiency'.⁶

3 Annual report

10. In 2023, the ADF released its Defence Annual Report 2022–23 (Annual Report). It contained several references to the use of artificial intelligence (AI) and autonomous technologies.⁷
11. From the Annual Report and other defence documents there appears to be a willingness, as explored throughout this submission, to develop, test and utilise LAWS.⁸

3.1 Informed human in the loop

12. The Annual Report notes the recent approval of the Robotics and Autonomous Systems (RAS) project which will 'accelerate the Australian Army's technological research and innovation'.⁹
13. RAS will radically alter the way future battles are fought and how the Army trains its personnel. The Army's RAS 2022 Strategy (RAS Strategy) sets out how technologies will be integrated through intelligent machine, machine-to-machine teaming, and human-to-machine teaming.¹⁰
14. The RAS Strategy refers to the ability for technologies to provide a competitive advantage in conducting dangerous operations.¹¹ The focus

- on RAS, which necessarily is designed to remove reliance on humans and human intelligence, in operations needs careful consideration.¹²
15. A key feature of AI and autonomous systems is that they undertake tasks with little-to-no human oversight once activated. Removing, or reducing, human overseers in the deployment and operation of AI and autonomous systems is a key concern about the use of LAWS.
 16. One key concern here is the potential impact of algorithmic bias, which arises where AI produces outputs that result in unfairness or discrimination.¹³ When used in civilian contexts, there are risks of unlawful discrimination.¹⁴ However, as AI is increasingly interoperable with military technologies, the impact of algorithmic bias in the context of LAWS can be a matter of life and death.
 17. Facial recognition technologies (FRT) utilise AI and pattern recognition. However, FRT is highly problematic and often unreliable. Several products have already been found to perform better for those with light-skinned and masculine appearances, while failing to recognise feminine appearances, people of colour or people with disability.¹⁵ This may result in people being incorrectly targeted.
 18. Relying on algorithms and FRT to distinguish between combatants and civilians is unethical and has dangerous consequences for civilian populations.
 19. Where AI-informed technologies, such as LAWS, are making critical decisions or recommendations – there must be an *informed* human in the loop (as distinct from existing literature which only refers to a ‘human in the loop’) to actively scrutinise outcomes. These human overseers must also be aware of any unconscious biases (e.g. [automation bias](#)).
 20. Despite these challenges, Australia appears to be resistant to the use of ‘informed human in the loop’ safeguards in respect of LAWS. For example, there appears to be resistance to control measures which require the presence of a human to make ‘trigger-pull’ decisions.¹⁶ While it is correct to note that guardrails should focus on controls throughout the lifecycle of a weapons system, a significant focus of such controls must be in the operation of those systems.¹⁷
 21. Where military technology is not capable of functioning with an informed human in the loop, or for practical reasons particular lethal military technology is designed to be free of human interaction or oversight, it should be prohibited.

Recommendation 1: All arms of the Australian military must ensure that an informed human in the loop is present when utilising autonomous weapons systems.

22. The RAS Strategy appears to aim towards truly autonomous systems in military technologies noting that, ‘Extending AI to facilitate truly intelligent and adaptable machines and capable Human-machine and Machine-machine teams will be critical to future RAS capabilities’.¹⁸
23. Given the speed of technological advancement, the RAS Strategy appears too willing to remove humans from the loop as it notes, ‘[t]he slowest element in decision-making is becoming the human decision-maker. In the competitive environment of war, the race truly does go to the swift.’¹⁹ This notion is not new, with the Special Rapporteur on Extrajudicial, Summary or Arbitrary Executions, Christof Heyns, (Special Rapporteur) observing in 2013 that ‘humans have in some respects become the weakest link in the military arsenal’.²⁰
24. This does not, however, justify the removal of humans from decision-making processes. The Special Rapporteur went on to note, in the same 2013 report:
- Yet robots have limitations in other respects as compared to humans. Armed conflict and IHL often require human judgement, common sense, appreciation of the larger picture, understanding of the intentions behind people’s actions, and understanding of values and anticipation of the direction in which events are unfolding. Decisions over life and death in armed conflict may require compassion and intuition. Humans – while they are fallible – at least might possess these qualities, whereas robots definitely do not. While robots are especially effective at dealing with quantitative issues, they have limited abilities to make the qualitative assessments that are often called for when dealing with human life. Machine calculations are rendered difficult by some of the contradictions often underlying battlefield choices. A further concern relates to the ability of robots to distinguish legal from illegal orders.²¹

3.2 Maritime domain

25. AUKUS countries are actively undertaking testing and exercises to improve the scale and sophistication of autonomous systems in the maritime

domain.²² Specifically, this involves testing of uncrewed maritime systems.²³

26. Although not expressly part of AUKUS operations, the ADF is also currently testing uncrewed surveillance naval boats known as 'the Bluebottle' and is beginning to develop a six-metre-long 'Ghost Shark' uncrewed submarine.²⁴

27. It is unclear whether the stealth Ghost Shark will be used as a LAWS. A media release noted that the autonomous vessel will 'carry various payloads' and 'will provide militaries with a persistent option for the delivery of underwater effects in high-risk environments'.²⁵ It is unclear whether this means that the Ghost Shark will deliver 'effects' (in the sense that it can create change by undertaking attacks) or whether it will deliver items for use in operations.

28. In April 2023, the government also announced it was procuring the undersea support vessel, Australian Defence Vessel Guidance, to support the deployment of uncrewed vehicles and RAS.²⁶

29. Deputy Secretary Naval Shipbuilding and Sustainment, Tony Dalton has stated that 'ADV Guidance will be instrumental in developing and testing robotic and autonomous underwater systems, ensuring Defence can compete and succeed in a wide variety of complex undersea environments'.²⁷

3.3 Aerial domains

30. The Australian Air Force is anticipating the arrival of several 12-metre-long uncrewed 'Ghost Bat' aircraft to assist in the protection of F-35 fighter jets.²⁸ The Ghost Bat is a notable pathfinder for the further integration of autonomous systems and AI to enable smart human-machine teams.²⁹

31. The jet's namesake is an Australian predator that 'uses sophisticated multi-spectral sensors to detect, hunt and kill prey both in the air and on the ground. They team together in large numbers to confuse and overwhelm their adversaries and are native to Australia'.³⁰

32. In a media statement it was stated that the name was chosen because it best reflected the mission and operational capabilities of the aircraft.³¹ The choice of name gives the impression that it could be considered a LAWS, although this is not clear based on the media release.

4 Australia's position

33. Despite the Annual Report revealing little about Australia's engagement with LAWS, the national position appears to be resistant to regulation.
34. Australia's engagement at the international level has focused on the benefits that AI and autonomous systems can have in military sectors.³² It is due to these perceived advantages that, in 2018, the Australian Minister for Foreign Affairs stated that the Australian Government considered that 'it would be premature to support a pre-emptive ban on autonomous weapons systems'.³³
35. Australia's resistance is at odds with both the HOL Report and the recent UN AI Advisory Body's [Interim Report: Governing AI for Humanity](#) (Interim Report). The Interim Report rightly describes the targeting and harming of individuals by machines as a 'red line that should not be crossed'.³⁴
36. Australia is amongst a handful of countries such as the UK, US, Turkey and Israel (among others) who have previously opposed a new legal binding instrument on LAWS.³⁵
37. However, in November 2023, Australia voted in favour of Resolution L.56 of the First Committee of the UN General Assembly, which stressed the 'urgent need for the international community to address the challenges and concerns raised by autonomous weapons systems'.³⁶
38. An item titled 'lethal autonomous weapons systems' has also been included in the provisional agenda for the next session of the General Assembly, indicating that there will be further action on this topic.³⁷
39. The HOL Report builds on these developments as it calls for immediate action to be taken by the UK government in response to the challenges of autonomous weapons systems.³⁸ The report called for a 'swift agreement of an effective instrument'³⁹ on LAWS – a marked shift from the UK government's past objections.
40. As the international community pushes for action amidst the growing use of autonomous weapons systems, it can no longer be said that regulation is 'premature'. With Australia voting in favour of Resolution L.56 it appears the national position is shifting to recognise these growing concerns. Australia should use this moment of inflection to revise its position on the regulation of LAWS.

Recommendation 2: Australia develop, in consultation with relevant stakeholders, national policy and regulation on the development, testing and use of LAWS. Such policy and regulation should align with both international human rights law and international humanitarian law.

41. Australia's past reluctance to regulate LAWS appeared to be predicated on three key issues:
- A lack of an internationally agreed definition of LAWS.
 - Benefits of the technology.
 - Existing review mechanisms being considered a suitable safeguard.⁴⁰

4.1 Definitions

42. While an internationally agreed definition is required for international cooperation and regulation, this does not stop Australia from adopting its own definition. If Australia were to adopt a nationally agreed definition (in consultation with stakeholders), it could better approach regulating LAWS domestically.
43. Although it may be argued that it is difficult to define a technology which develops so rapidly, this is not prohibitive to Australia adopting a definition. Other countries, such as China, have already agreed to national definitions of LAWS which will inform their approach to the technology.⁴¹
44. Australia actively seeks to provide common definitions on technologies which are also in a state of rapid development. For example, the Department of Industry, Science and Resources is currently working to provide a national definition of AI.⁴² Accordingly, a similar approach could be taken to defining LAWS.

Recommendation 3: Australia should adopt its own operational definition of LAWS to ensure it can make meaningful policy decisions.

45. This recommendation is in line with that made by the HOL Report.⁴³

4.2 Article 36 reviews

46. Australia has previously expressed the view that existing international humanitarian law frameworks are a sufficient regulatory approach.⁴⁴ For example, it has been stated that art 36 reviews are the most effective way to manage new weapons systems and mitigate international concerns about LAWS.⁴⁵

47. Article 36 of Additional Protocol I to the Geneva Conventions obliges States,

... in the study, development, acquisition or adoption of a new weapon, means or method of warfare ... to determine whether its employment would, in some or all circumstances, be prohibited by [Additional Protocol I or other applicable international law].

48. The Australian Chief of the Defence Force has previously directed that all new and modified weaponry that the ADF intends to study, develop or acquire must undergo art 36 review to determine whether they are consistent with Australia's international legal obligations prior to operational use.⁴⁶

49. The review itself, conducted by weapons law experts in the Directorate of Operations and Security Law,⁴⁷ may be conducted as a single or multi-stage review process and typically considers the following matters:

- A determination as to whether the capability is a weapon.
- An articulation of the normal use of the weapon at the time of evaluation.
- An articulation of the weapon's specific technical details.
- An assessment of whether the weapon complies with the legal principles outlined by International Court of Justice in its Advisory Opinion on the Threat or Use of Nuclear Weapons.⁴⁸

50. While a critical safeguard, art 36 processes lack both transparency and accountability. There is no mechanism to ensure compliance should a state fail to conduct an art 36 review. Additionally, the process is also predicated on good faith reviews, as states are also not obliged to disclose the outcome of these reviews.⁴⁹

51. Evidence provided in the HOL Report noted several other deficiencies in art 36 processes, such as:

- Few states have the capacity to conduct art 36 reviews.⁵⁰

- Lack of binding guidance on how reviews are conducted.⁵¹
- LAWS utilise AI which can learn from new data and engagements – thus changing the parameters of use. This means that an art 36 review may be rapidly rendered inaccurate after a LAWS is operational and being trained on new data, as AI systems transform.⁵²

52. The HOL Report was also critical of the UK government's approach, which similarly emphasised art 36 processes as being sufficient (in line with Australia's approach), given these fundamental issues with art 36 reviews.⁵³

4.3 Usage of LAWS

53. LAWS have already been used in combat zones. Australia's Chief of Defence Force, General Angus Campbell, stated in 2023 that 'a range of new military capabilities are proliferating in the Indo-Pacific, including ... automatic and autonomous systems'. The most notable known use of LAWS to date has been in the Libyan civil war and the Russia-Ukraine war.⁵⁴

54. In Libya, LAWS were used in drones to strike targets without the need for connection between the operator and the munition, in what is described as a 'fire, forget and find' method. The targets of this reported attack were the retreating soldiers of the Libyan National Army of Khalifa Haftar.⁵⁵

55. There is evidence of Russian forces using POM-3 'Medallion' anti-personnel mines in conflict.⁵⁶ This mine has a seismic sensor to enable it to detect movement in a radius of 16 meters and detonate.⁵⁷ Despite international efforts to ban land mines, it appears that Russia has now successfully autonomised them, proving that regulation of these weapons is of the utmost importance.

56. The use-cases of LAWS in Ukraine and Libya demonstrate that, especially where conflict emerges, a commitment by countries to internally review LAWS is insufficient. Article 36 is an integral mechanism for ensuring compliance with international human rights and humanitarian law, however it is not itself a panacea.

57. The RAS Strategy also notes the importance of art 36 processes and commits the army to monitoring the ongoing UN-level discussions on LAWS.⁵⁸ The recent calls to establish a Special Rapporteur on New and

Emerging Military Technologies in the Military Domain to strengthen art 36 review mechanisms will be relevant in this regard.⁵⁹

5 Perceived benefits

58. As noted above, Australia has previously appeared reluctant to regulate LAWS due to autonomous technologies having 'distinct benefits for the promotion of humanitarian outcomes and avoidance of casualties'.⁶⁰

5.1 Strategic advantages

59. The utilisation of LAWS offer significant advantages in combat and other armed operations. Notably, LAWS can:

- Preserve the lives and mental health of Australian soldiers.
- Facilitate force multiplication whereby fewer personnel can undertake more operations.
- Easily penetrate behind enemy lines.⁶¹
- Have faster response times based on data which can be collected from multiple sources, reducing collateral damage and mistakes often committed by human combatants.
- Avoid mistakes which are caused by human emotions and states, such as fear, tiredness and the need for revenge.⁶²

5.2 Increasing physical and emotional distance

60. Proponents of utilising autonomous systems, such as LAWS, consider they pose an ethically preferable alternative to human combatants.⁶³ These remote technologies increase the physical distance between the weapon user and the lethal force it delivers – keeping Australian ADF personnel away from active combat zones.⁶⁴

61. The use of LAWS not only increases the physical distance from harm, but may also (to some extent) protect users from the mental harms of combat. LAWS can identify targets and execute attacks free of human decision-making. This removes humans from the decisions made to take a life.⁶⁵ Not having to make such decisions can reduce the emotional burden on ADF personnel who would otherwise be executing lethal attacks.

62. The issue of defence and veteran mental wellbeing is particularly important and a key focus of the ongoing Royal Commission into Defence and Veteran Suicide.

5.3 Preventing atrocities

63. There is also an argument that LAWS will promote humanitarian outcomes in warfare as it is human emotions and drivers which may potentially motivate war crimes.⁶⁶ The use of LAWS removes human emotion from combat situations which may reduce the atrocities which may occur during the 'fog of war'.⁶⁷

64. Unless specifically programmed to do so, autonomous systems should not intentionally exacerbate suffering often perpetrated in combat zones. For example, the Special Rapporteur has previously noted that autonomous systems will not exacerbate harm in this regard as they will not torture others nor commit sexual violence against civilians as 'robots do not rape'.⁶⁸

65. LAWS may also be able to use lethal force more conservatively because they are not influenced by human emotions (such as fear or anger) and are not driven by the need for self-preservation.⁶⁹

6 Ethical dilemmas

66. While there are significant arguments in favour of LAWS, it is unlikely the technology can ever comply with international humanitarian law (IHL).

67. The ADF's 2020 Concept for Robotics and Autonomous Systems claims that robotics and autonomous systems may one day be capable of complying with IHL.⁷⁰ It goes on to further state that in such circumstances, autonomous systems would be preferable to human operators.⁷¹

68. There is a wealth of literature which directly considers the inability of autonomous weapons systems to comply with IHL. The HOL Report also heard significant evidence which further reinforces this conclusion.⁷²

69. As the ADF considers how it can meet its IHL obligations in developing, testing and deploying autonomous weapons systems, it would be advisable to engage human rights and IHL experts to assist in any such analysis.

Recommendation 4: The ADF should engage in a transparent process with the Australian Human Rights Commission, as Australia's National Human Rights Institution, to seek external human rights and IHL input to inform future autonomous weapons systems planning, including any necessary safeguard and review mechanisms.

70. This recommendation aligns with the RAS Strategy which states that it will remain alert to issues in the development of autonomous systems through a collaborative process with scientific, industrial and academic stakeholders.⁷³

6.1 Proportionality

71. One of the core principles of IHL is the principle of proportionality.⁷⁴ This principle prohibits attacks which are:

... expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated.⁷⁵

72. An attack will be proportionate if the perceived advantages outweigh the harms.⁷⁶ This necessarily requires a weighing exercise on the value of human life against strategic objectives.

73. Complying with the proportionality rule is already difficult for humans as it is 'one of the most complex rules of international humanitarian law'⁷⁷ because it requires a subjective analysis of information.⁷⁸

74. It is arguably impossible for AI to comply with the proportionality rule, because AI is unable to understand the intrinsic value of human life, thus making it unable to undertake any weighing exercise in relation to proportionality – irrespective of any future developments in the technology.

75. This is reflected in the statement by UN Secretary-General António Guterres, that machines determining proportionality in life-or-death situations is 'politically unacceptable and morally repugnant'.⁷⁹

6.2 Distinction

76. Another foundational rule of IHL is the rule of distinction which seeks to minimise the impact of armed conflict on civilians, by prohibiting targeting civilians and indiscriminate attacks.⁸⁰
77. As noted above, LAWS will have faster responses due to their data processing capabilities. This can reduce mistakes and collateral damage where LAWS can reliably distinguish between combatants and non-combatants.
78. However, the underlying technologies are not sophisticated enough to make such distinctions during time-sensitive operations.⁸¹ LAWS utilise AI and FRT which have serious limitations (as discussed above).
79. These limitations are exacerbated by the proliferation of asymmetrical warfare and non-international conflicts (which may occur in urban environments). AI assessments of concepts such as 'direct participation of hostilities' will be extremely difficult in unconventional warfare where combatants are only identifiable through the interpretation of conduct.⁸²
80. Where a human can interpret intentions, conduct and emotions, LAWS will struggle to do so. This is a significant obstacle in complying with the rule of distinction.⁸³

6.3 *Hors de combat*

81. LAWS will also struggle to understand contextual information and how that interacts with IHL obligations.⁸⁴
82. For example, Protocol I of the Geneva Conventions recognises a person as being *hors de combat* if they are, *inter alia*, incapacitated (and therefore incapable of defending themselves) or surrendering. It is unlikely that LAWS could identify when a soldier is injured or if they are in the process of surrendering. It is a breach of IHL to attack a soldier where they are considered *hors de combat*.⁸⁵

6.4 Right to life

83. LAWS pose a fundamental threat to the right to life, which has been recognised as 'the supreme right from which no derogation is permitted, even in situations of armed conflict and other public emergencies that threaten the life of the nation'.⁸⁶ Enshrined in international instruments is

the supreme, and non-derogable, right to life. LAWS cannot evaluate the value of life, and therefore, the consequences of taking one.

84. The Universal Declaration of Human Rights provides that everyone has the right to life, liberty and security of person, whilst the International Covenant on Civil and Political Rights provides that the right to life is inherent and shall be protected by law.⁸⁷
85. By allowing the use of LAWS, the right to life is compromised. A key component of the right to life is that no one shall be arbitrarily deprived of their life. The decision to kill a human can only be legitimate if it is not arbitrary, which cannot be guaranteed when using LAWS.
86. It has been suggested that to guarantee that the use of force is not arbitrary, there must be human control, supervision, and responsibility.⁸⁸ LAWS function with limited human control and oversight, therefore it is difficult to determine who, if anyone, will be held responsible where life is arbitrarily taken.

6.5 Liability

87. State and individual responsibility is a prerequisite to ensuring accountability for the violation of IHL.⁸⁹ However LAWS, despite undertaking decision-making activities, cannot be held responsible for its operations.⁹⁰
88. It is still unclear where legal liability would lie when LAWS violate IHL.⁹¹ Notable already-identified candidates for such liability could be software programmers, those who build or sell the hardware, military commanders, subordinates who deploy LAWS and/or political leaders.⁹²
89. Ordinarily, criminal responsibility would attach to those within the higher ranks of the military.⁹³ Commanders can be accountable for the actions of human subordinates (who are autonomous) – therefore it could be logical to argue they should be accountable for LAWS. The difficulty is that a commander will only be implicated where they ‘knew or should have known that the individual planned to commit a crime yet he or she failed to take action to prevent it or did not punish the perpetrator after the fact’.⁹⁴ It may be considered unlikely that commanders will have a sufficiently robust understanding of LAWS’ complex programming to a sufficient degree to warrant criminal liability.
90. Without an individual being held accountable for the conduct of LAWS, it is unlikely that IHL sufficiently protects human rights by ensuring

accountability. This lack of accountability may also lead to a ‘responsibility vacuum’ providing impunity for all uses of LAWS.

91. The NHRI Digital Rights Alliance (which comprises of NHRIs from 26 different countries)⁹⁵ has previously called on the Human Rights Council’s Advisory Committee to provide guidance on where liability may fall in relation to contraventions of IHL by LAWS.⁹⁶
92. To ensure a proactive response to the ethical and legal dilemmas posed by LAWS, Australia should consider where legal liability rests in respect of any unlawful uses of LAWS.

6.6 Hacking

93. There are also strategic risks associated with LAWS, as they are vulnerable to hacking operations.⁹⁷ LAWS may in the future be intercepted, hacked and taken by non-state actors and used against state or non-state actors – such as civilians or political groups.⁹⁸
94. The HOL Report has previously noted that the ‘complexity and brittleness of AI presents risks’⁹⁹ which may allow critical technologies, such as LAWS, to be hacked.¹⁰⁰
95. While the potential use of LAWS by Australia (and other states) is concerning, the use by non-state actors poses an exacerbated risk to human rights.

7 Recommendations

96. The Commission makes the following recommendations.

Recommendation 1

All arms of the Australian military must ensure that an informed human in the loop is present when utilising autonomous weapons systems.

Recommendation 2

Australia develop, in consultation with relevant stakeholders, national policy and regulation on the development, testing and use of LAWS. Such policy and regulation should align with both international human rights law and international humanitarian law.

Recommendation 3

Australia should adopt its own operational definition of LAWS to ensure it can make meaningful policy decisions.

Recommendation 4

The ADF should engage in a transparent process with the Australian Human Rights Commission, as Australia's National Human Rights Institution, to seek external human rights and IHL input to inform future autonomous weapons systems planning, including any necessary safeguard and review mechanisms.

Endnotes

- ¹ International Committee of the Red Cross, *'Autonomous Weapons Systems: Technical, Military, Legal and Humanitarian Aspects'* (Expert Meeting Report, 2014) 7.
- ² Qerim Qerimi, 'Controlling Lethal Autonomous Weapons Systems: A Typology of the Positions of States' (2023) 50 *Computer Law and Security Review* 1, 1.
- ³ AI in Weapons Systems Committee, *'Proceed with Caution: Artificial Intelligence in Weapons Systems'* (House of Lords, Report of Session 2023-24, 01 December 2023) 8.
- ⁴ AI in Weapons Systems Committee, *'Proceed with Caution: Artificial Intelligence in Weapons Systems'* (House of Lords, Report of Session 2023-24, 01 December 2023) 8.
- ⁵ Australian Army, *'Robotics and Autonomous Systems Strategy v2.0'* (Report, August 2022) 5.
- ⁶ National Institute of Standards and Technology Computer Science Resource Centre, *'Weapons Systems'* (Webpage) <https://csrc.nist.gov/glossary/term/weapons_system#:~:text=A%20'weapons%20system'%20is%20a,%20required%20for%20self%2D%20sufficiency>.
- ⁷ See e.g. Australian Government Department of Defence, *'Department of Defence Annual Report 2022-23'* (Annual Report, 2023) 69, 133-134, 141.
- ⁸ See e.g. Australian Government Department of Defence, *'Department of Defence Annual Report 2022-23'* (Annual Report, 2023); Australian Army, *'Robotics and Autonomous Systems Strategy v2.0'* (Report, August 2022); Australian Defence Force, *'Concept for Robotics and Autonomous Systems'* (Report, 11 November 2020).
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- ¹⁰ Australian Army Research Centre, *'Robotic and Autonomous Systems'* (Webpage) <<https://researchcentre.army.gov.au/rico/robotic-and-autonomous-systems-ras>>.
- ¹¹ Australian Army, *'Robotic & Autonomous Systems Strategy v2.0'* (Report, August 2022) iv.
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- ¹³ Australian Human Rights Commission, *'Final Report'* (Report, 2021) 13.
- ¹⁴ Australian Human Rights Commission, *'Final Report'* (Report, 2021) 13.
- ¹⁵ See e.g. Joy Buolamwini and Timnit Gebru, 'Gender Shades: Intersectional Accuracy Disparities in Commercial Gender Classification' (2018) 81 *Proceedings of Machine Learning Research* 1; KS Krishnapriya, Kushal Vangara, Michael C King, Vitor Albiero and Kevin Bowyer, 'Characterizing the Variability in Face Recognition Accuracy Relative to Race' (Conference Paper, IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops, 2019); Inioluwa Deborah Raji and Joy Buolamwini, 'Actionable Auditing: Investigating the Impact of Publicly Naming Biased Performance Results of Commercial AI Products' (Conference on Artificial Intelligence, Ethics, and Society, 2019).
- ¹⁶ Australia, *'National Commentary Lethal Autonomous Weapons Systems'* (National Commentary, Convention on Certain Conventional Weapons, August 2020) 2; see generally Sonia Chakrabarty, et al., *'A Compilation of Materials Apparently Reflective of States' Views on International Legal Issues Pertaining to the use of Algorithmic and Data-reliant Socio-technical Systems in Armed Conflict'* (Paper, Harvard Law School, 2020) 6.
- ¹⁷ Australia, *'National Commentary Lethal Autonomous Weapons Systems'* (National Commentary, Convention on Certain Conventional Weapons, August 2020) 2; see generally Sonia Chakrabarty, et al., *'A Compilation of Materials Apparently Reflective of States' Views on International Legal Issues*

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