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Author

Rebecca Dragusin

Mapping the Path to Artificial Intelligence (AI) Regulation in Canada with a Focus on Countering Unintended Warfare Uses of AI

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Purpose

The purpose of this Policy Brief is to consider how Canada can create a regulatory framework on Artificial Intelligence (AI) for businesses working domestically that acknowledges the potential unplanned threat posed by this technology to Canadian safety and international human rights on account of its diverse applications. The focus of this brief draws from the reality that private sector innovations in AI have the potential to be used for public sector as well as non-state actor warfare (or other forms of violent conflict). This synergy between private sector advancements and warfare/conflict uses is the result of the unpredictable nature of AI which draws from the fact that it can be developed without complete awareness of what the system is capable of computing.¹ Moreover, seemingly benign AI developments in the private sector can be weaponized in certain cases on account of this technology's versatility.² An application of AI that could prove dangerous if used in the context of violent conflict is data collection.³

Key Terms

Artificial Intelligence (AI) is a "machine-based system that can, for a given set of human-defined objectives, make predictions, recommendations or decisions influencing real or virtual environments".⁴ This definition intends to account for diverse AI development paths and applications. However, consensus on AI definitions has been a barrier to international regulation.⁵ While Canada should explore an in-depth AI definition as part of its regulatory framework, it is most essential to account for the common factor that AI seeks to "perform... functions... associated with human logic".⁶ 'Ethics' relates to "the way AI systems are developed, for what ends, to what... specifications, and why".⁷

Background

Although international discussions on AI regulation have occurred over the past decade in various fora, these platforms have not been fruitful in producing a regulatory framework for this technology.⁸ Advancement in the creation of an international regulatory framework has been stifled by missing consensus on "permissible" use and accountability for AI.⁹ Advancement has also been stifled due to the lack of political will and compromise on behalf of certain states.¹⁰ While the international

1 Geoffrey Priems, and Peter Gizewski, "Leveraging Artificial Intelligence for Canada's Army: Current Possibilities and Future Challenges," Government of Canada, Canadian Army Journal, published May 2, 2022, <https://www.canada.ca/en/army/services/line-sight/articles/2022/05/leveraging-artificial-intelligence-for-canadas-army.html>.

2 Branka Marijan, "Exploring how emerging technologies affect war and peace," Ploughshares, The Ploughshares Monitor, published Autumn 3, 2021, <https://www.ploughshares.ca/publications/exploring-how-emerging-technologies-affect-war-and-peace>.

3 Branka Marijan, "Military AI and civilian protection," Ploughshares, The Ploughshares Monitor, published Spring 2023, <https://www.ploughshares.ca/publications/military-ai-and-civilian-protection>.

4 U.S. Department of State, "Artificial Intelligence (AI)," U.S. Department of State, U.S. Department of State, accessed May 8, 2023, <https://www.state.gov/artificial-intelligence/#:~:text=Artificial%20Intelligence%20and%20Foreign%20Policy&text=Together%20with%20our%20allies%20and,security%2C%20and%20promote%20our%20values>.

5 Nathalie A. Smuha, "From a 'race to AI' to a 'race to AI regulation': regulatory competition for artificial intelligence," Law, Innovation and Technology 13, no. 1 (2021): 63, <https://doi-org.proxy.lib.uwaterloo.ca/10.1080/17579961.2021.1898300>.

6 Priems and Gizewski, "Leveraging Artificial Intelligence".

7 Graeme Auld, Ashley Casovan, Amanda Clarke, and Benjamin Faveri, "Governing AI through Ethical Standards: Learning from the Experiences of Other Private Governance Initiatives," Journal of European Public Policy 29 (11): 1825, <https://doi.org/10.1080/13501763.2022.2099449>.

8 Marijan, "Military AI and civilian protection".

9 Ibid.

10 Ibid.

community has faltered in their approach to AI regulation, the relevance of this regulation has only increased in past years as AI technology is increasingly accessible and desired for warfare. For example, AI provided by both states and the private sector has been used by militaries in Ukraine since 2022.¹¹

At the domestic level, Canada is a leader in AI research and production¹², in addition to having a high output of AI innovations.¹³ Additionally, the majority of Canadians in the AI sector are aged between 25 to 34¹⁴, meaning that they are adaptable recent graduates. The government of Canada has also invested in domestic AI development.¹⁵

Recommendations

Recommendation #1: Canada should advance AI at the domestic and regional level

Based on a stagnant international policy context, Canada has the best opportunity for the advancement of AI regulation at the domestic level. To this point, similar stakeholders (such as the European Union) have begun to take regulatory action on AI.¹⁶

Recommendation #2: Utilize Canada's policy signals from the last five years as a foundation for broader AI regulation

At the international level, Canada has not led discussions or significantly participated in them.¹⁷ However, since 2019, Canada has signalled its position on AI through international messaging based on international law,¹⁸ and membership in the Global Partnership on AI.¹⁹ Domestically, Canada has signalled its AI position through the 2019 Foreign Affairs mandate supporting the ban of autonomous weapons,²⁰ the Advisory Council on AI, the 2019 Directive on Automated Decision-Making in 2019, Canada's Digital Charter which includes guidelines that apply to AI use,²² and the Artificial Intelligence and Data Act (AIDA) (passed as part of Bill C-27).²³

11 Ibid.

12 Karicia Quiroz, "Canada's Advantage For AI: An Ecosystem Fuelled By Talent And Innovation," Invest in Canada, Invest in Canada, accessed May 8, 2023, <https://www.investcanada.ca/blog/canadas-advantage-ai-ecosystem-fuelled-talent-and-innovation>.

13 Ibid.

14 Ibid.

15 OECD, "Pan-Canadian AI Strategy," OECD.AI Policy Observatory, OECD.AI Policy Observatory, accessed May 8, 2023, <https://oecd.ai/en/dashboards/policy-initiatives/http:%2F%2Fai.oecd.org%2F2021-data-policyInitiatives-14828>.

16 Auld, Casovan, Clarke, and Faveri, "Governing AI through Ethical Standards," 1834.

17 Branka Marijan, "Will Canada step up its diplomatic efforts on military AI?," Ploughshares, The Ploughshares Monitor, published February 16, 2023, <https://www.ploughshares.ca/publications/will-canada-step-up-its-diplomatic-efforts-on-military-ai>.

18 OECD, "Canada's leadership in AI – talent, ecosystems, and responsible AI," OECD.AI Policy Observatory. OECD.AI Policy Observatory, accessed May 8, 2023, <https://oecd.ai/en/work/canada-national-ai-strategy-2021>.

19 OECD, "Global Partnership on AI," OECD.AI Policy Observatory, OECD.AI Policy Observatory, accessed May 8, 2023, <https://oecd.ai/en/dashboards/policy-initiatives/http:%2F%2Fai.oecd.org%2F2021-data-policyInitiatives-24565>.

20 OECD, "Canada's leadership in AI".

21 Although this mandate was never implemented, and a similar mandate was not re-issued following a change in Minister, the initial mandate signals a general direction for Canadian policy.

22 OECD, "Canada's Digital Charter," OECD.AI Policy Observatory, OECD.AI Policy Observatory, accessed May 8, 2023, <https://oecd.ai/en/dashboards/policy-initiatives/http:%2F%2Fai.oecd.org%2F2021-data-policyInitiatives-24508>.

23 Charles S. Morgan, Francis Langlois, Jonathan Jacob Adessky, Jerry Lan, and Matthew M. Gallagher, "The Dawn of AI Law: The Canadian Government Introduces Legislation to Regulate Artificial Intelligence in Canada," McCarthy Tetrault, McCarthy Tetrault, published July 11, 2022, <https://www.mccarthy.ca/en/insights/blogs/techlex/dawn-ai-law-canadian-government-introduces-legislation-regulate-artificial-intelligence-canada>

Recommendation #3: Develop regulation that is applicable at the regional level (i.e., considers collaboration with the US and Mexico), while managing the US' lack of desire to develop additional regulation by narrowing bilateral discussions to Canadian concerns

Currently, market indicators suggest that there is a potential “first-mover” benefit on AI regulation.²⁴ Given this context, developing domestic AI regulation that is applicable at the regional level will give Canada influence internationally and provide it with middle power status in AI conversations (aligning with Canada’s historical role in international ethics).²⁵ Yet, the US maintains that “international humanitarian law” is sufficient “for the regulation of all weapons, including those using autonomous functions provided by technologies such as” AI.²⁶ In response, Canada can engage in discourse with their southern neighbour on domestic based regulatory concerns (e.g., the export of AI from Canada to the US).²⁷ This suggestion aligns with existing trends in the Canada-US relationship, including the Canada-U.S. Innovation Partnership.²⁸

Recommendation #4: Canada’s path to regulation must be adaptable enough that it can respond to international calls for regulation, without compromise of domestic regulatory efficacy

This approach will ensure that Canada remains a favourable environment for international businesses, and that Canada will remain prepared for collaboration with international actors and states.

Recommendation #5: Make AI regulation ‘future-proof’ by consulting with stakeholders from multiple disciplines and those who represent diverse interests (e.g., Indigenous groups)

Consultation with diverse stakeholders increases the probability that society follows any resulting regulations.²⁹ Furthermore, consultation with stakeholders producing AI technology is essential because it recognizes the limited expertise of the public service on AI and the value of AI to the economy. However, learning from existing discussions should not mean that the government is adopting existing private sector regulations without amendment. Although the private sector reacts to social pressure to create ethical standards of AI operation³⁰ existing private sector regulations tend to address limited topics.³¹ Consequently, such regulation alone is not adequate for domestic policy and should be counterbalanced with other stakeholder interests. To this point, other non-state actors should be consulted for their expertise. For example, NGOs consider broad ethics subjects³² and provide a balance to the technical focus of the private sector.³³ Further, researchers from Canadian universities should be consulted, alongside Indigenous stakeholders in AI (e.g., the Indigenous Protocol and Artificial Intelligence Working Group).³⁴

24 Auld, Casovan, Clarke, and Faveri, “Governing AI through Ethical Standards,” 1822.

25 Ian Kerr, Yoshua Benigo, Geoffrey Hinton, Rich Sutton, and Doina Precup, “Call for an International Ban on the Weaponization of Artificial Intelligence,” UOttawa, The University of Ottawa, published November 2, 2017, <https://techlaw.uottawa.ca/bankillera>.

26 U.S. Department of State, “Artificial Intelligence (AI)”.

27 Smuha, “From a ‘race to AI’ to a ‘race to AI regulation’”, 78.

28 OECD, “Canada-U.S. Innovation Partnership,” OECD.AI Policy Observatory, OECD.AI Policy Observatory, accessed May 8, 2023, <https://oecd.ai/en/dashboards/policy-initiatives/http:%2F%2Faiipo.oecd.org%2F2021-data-policyInitiatives-26848>.

29 Auld, Casovan, Clarke, and Faveri, “Governing AI through Ethical Standards,” 1836.

30 Ibid, 1828.

31 Daniel Schiff, Jason Borenstein, Justin Biddle, and Kelly Laas, “AI Ethics in the Public, Private, and NGO Sectors: A Review of a Global Document Collection,” IEEE Transactions on Technology and Society 2, no. 1(2021): 37, doi:10.1109/TTS.2021.3052127.

32 Ibid, 37.

33 Ibid, 38.

34 Auld, Casovan, Clarke, and Faveri, “Governing AI through Ethical Standards,” 1834.

Recommendation #6: ‘Future-proof’ regulation by utilizing responsive language (i.e., to the diverse and evolutionary nature of AI) in the regulatory framework

Recommendation #7: Consider the ways in which AI is exported by domestic companies.

By considering the export of Canadian-produced AI, Canada would establish its commitment to international norm-building by communicating an understanding of the importance of accountability for AI development.

Recommendation #8: Balance regulatory concerns with a competitive marketplace by considering ways to manage the export of AI, include auditors in regulation, adopt a risk-based approach

One approach to balancing regulation with innovation is the inclusion of an auditor in regulatory frameworks³⁵ to complete “conformity assessments”.³⁶ A risk-based approach appease the balance between AI regulation and innovation (as well as competition)³⁷ by distinguishing between high and low risk technologies.³⁸ This approach aligns with the existing European Commission example of AI regulation³⁹ thereby providing Canada with an efficient starting point for any risk-based definitions. Furthermore, the AIDA incorporates a risk-based approach. Additionally, it is important to understand that the balance between regulation and innovation is reinforced by the principle of network externalities (“when complying with a standard becomes increasingly beneficial as more actors adopt it”),⁴⁰ thereby aligning with Recommendations #3 and #5.

Recommendation #9: Consider under what existing Ministry an AI regulatory group would fit (a suggestion includes Innovation, Science and Economic Development Canada because this body considers technical issues and has a pool of public servants who could meaningfully contribute to and understand discussions about AI)

35 Branka Marijan, “Unacceptable risk and autonomous weapons,” Ploughshares, The Ploughshares Monitor, published November 29, 2021, <https://www.ploughshares.ca/publications/unacceptable-risk-and-autonomous-weapons>.

36 OECD, “Auditors have a role in Canadian AI governance initiatives, but it needs clarification,” OECD.AI Policy Observatory, OECD. AI Policy Observatory, published March 1, 2023, <https://oecd.ai/en/work/auditors-canadian-ai-governance>.

37 U.S. Department of Commerce, U.S. Leadership In AI: A Plan for Federal Engagement in Developing Technical Standards and Related Tools National Institute of Standards and Technology, National Institute of Standards and Technology, prepared in response to Executive Order 13859, 2019, https://www.nist.gov/system/files/documents/2019/08/10/ai_standards_fedengagement_plan_9aug2019.pdf (accessed May 8, 2023).

38 Marijan, “Unacceptable risk and autonomous weapons”.

39 Ibid.

40 Auld, Casovan, Clarke, and Faveri, “Governing AI through Ethical Standards,” 1825.

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