Generative AI Systems:

Impacts on Artists & Creators and Related Gaps in the Artificial Intelligence and Data Act

Submission to the Standing Committee on Industry and Technology

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Summary

This brief describes a type of artificial intelligence (AI) system commonly known as *generative AI systems* and explains the impacts that generative AI systems are currently having on Canada's artists and creators. The proposed *Artificial Intelligence and Data Act* (AIDA)[2] contains five significant gaps related to those impacts, and this brief makes five corresponding recommendations to address those gaps:

Gaps in AIDA	*Recommendations*
(1) The requirements set out by AIDA for generative AI systems and all other types of AI systems lack adequate specificity and transparency.	(1) **Remove AIDA from the legislative agenda** until adequate public engagement on generative AI and AI legislation, regulation, and standardization has been conducted.
(2) AIDA was developed without adequate public awareness and public consultation, including consultation with artists and creators.	(2) **Launch national public information campaigns and consultations on AI** to build public awareness of AI policy issues and to gather more detailed information about the impacts of generative AI systems.
(3) AIDA lacks adequate enforcement mechanisms and public oversight mechanisms for regulating generative AI systems.	(3) Amend a future version of AIDA to include **stronger enforcement and public oversight mechanisms,** including: proactive powers to investigate for-profit and non-profit entities; targeted prohibitions, restrictions, and deletion orders; mandates for independent regulatory oversight and periodic public consultation.
(4) Federal institutions lack adequate capacities for AI policy research and development.	(4) Allocate resources to **strengthen the AI policy capacities** of federal institutions, including but not limited to Innovation, Science and Economic Development Canada.
(5) The jurisdictional scope of AIDA is too narrow to effectively account for the wide range of impacts of generative AI systems.	(5) Mandate federal departments and agencies to **coordinate on AI regulation**, and extend co-regulatory activities into civil society.

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[2] Parliament of Canada (2022). Bill C-27: An Act to enact the Consumer Privacy Protection Act, the Personal Information and Data Protection Tribunal Act and the Artificial Intelligence and Data Act and to make consequential and related amendments to other Acts. https://www.parl.ca/DocumentViewer/en/44-1/bill/C-27/first-reading

1. Introduction

In the last year, *generative AI systems* such as ChatGPT, Stable Diffusion, Dall-E, and Midjourney have become a subject of popular discussion.[3] Although generative AI systems are not a new type of AI system, this recent wave of generative AI systems have rapidly risen in popularity due in part to their ease of access and ease of use. By inputting a string of text or a set of images, audio, or video clips, generative AI systems now enable users to rapidly generate text, images, audio, or video through simple web-based or mobile applications.[4]

However, behind the curtain, generative AI systems are often developed by using an enormous volume of data (often hundreds of millions or billions of data inputs such as texts, images, audio, or videos) to "train" the system to become capable of generating text, images, audio, or video derived from that training data. This training data is often the intellectual property (IP) of artists and creators who have not authorized the developers of the generative AI system to include their IP in the dataset and receive no compensation for the use of their IP.

The vast scale of IP theft associated with generative AI systems is already having a high impact on Canada's artists and creators. On April 3, 2023 an open letter signed by 63 concerned artists, creators, citizens, and residents of Canada was sent to Minister Champagne, the minister responsible for Innovation, Science, and Economic Development Canada (ISED).[5] In addition to the open letter, an explainer document[6] has been created to help compensate for ISED's lack of a public information campaign or public consultation on AI prior to the Minister tabling AIDA in Parliament in June 2022.[7] The explainer document provides information about AIDA to artists and creators who are unaware of AIDA's existence or its potential impacts on their livelihoods.

There are clear and significant gaps in the design and development of AIDA that must be addressed before this legislation continues proceeding into law. This brief identifies those gaps in

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[3] For an overview of various government responses to the rapid popularization of generative AI systems, see Holistic AI (2023, May 16), "Generative AI: A regulatory overview." https://www.holisticai.com/blog/generative-ai

[4] For an overview of some of these apps and their impacts on artists and creators, see Tran, T. H. (2022, December 10). "Image apps like Lensa AI are sweeping the internet, and stealing from artists." *The Daily Beast*. https://www.thedailybeast.com/how-lensa-ai-and-image-generators-steal-from-artists

[5] An archived version of the open letter can be found at https://blairaf.com/library/aida-open-letter.pdf

[6] An archived version of the explainer document for artists & creators can be found at https://blairaf.com/library/aida-explainer.pdf

[7] The report of ISED's AI Public Awareness group published in March 2023 highlights gaps in public information campaigns and public consultation on policy design initiatives: https://ised-isde.canada.ca/site/advisory-council-artificial-intelligence/en/public-awareness-working-group/learning-together-responsible-artificial-intelligence

greater detail and recommends a course of action for correcting them. With that aim, the following section provides a brief technical overview of what generative AI systems are and how they function. Section 3 then highlights the impacts of generative AI systems with reference to specific cases of harms caused to artists and creators. Section 4 then describes gaps in the design and development of AIDA related to those impacts. Section 5 concludes by recommending that AIDA be removed from the legislative agenda until those gaps are corrected and amendments to AIDA can be more effectively implemented.

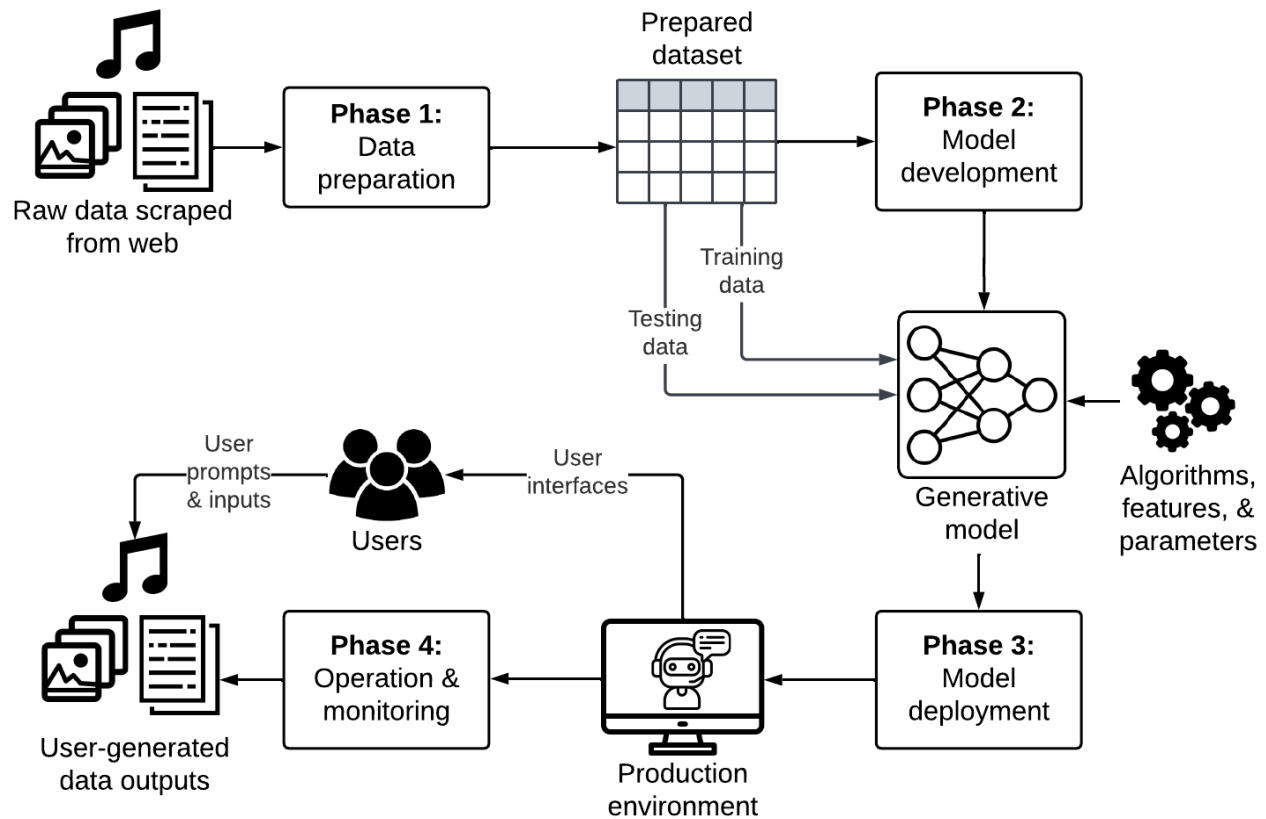## 2. Technical Overview of Generative AI Systems

Figure 1: Simplified high-level diagram of the main phases, inputs, and outputs typically involved in the lifecycle of generative AI systems.

Generative AI systems are a type of AI system that enable users to prompt the system to generate output data such as text, images, audio, or video. There are four main phases involved in creating and making a generative AI system available for use: (1) data preparation, (2) model development, (3) model deployment, (4) operation & monitoring.[8] Figure 1 illustrates a

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[8] For a more detailed technical breakdown of the high-level phases and activities described in this section, see Arsanjani, A. (2023, March 21). "The generative AI life-cycle." *Medium*. https://dr-arsanjani.medium.com/the-generative-ai-life-cycle-fb2271a70349

high-level overview of the main phases, inputs, and outputs involved in the lifecycle of generative AI systems. The activities involved in each of the four phases are described in greater detail below.

Phase 1: Data preparation

Data preparation involves collecting a large volume of data from sources on the web and elsewhere, then cleaning, evaluating, and pre-processing the data to ensure that it meets quality criteria such as accuracy, completeness, relevance, security, and privacy. In the development of generative AI systems, data is often sourced from large sets of text, image, audio, or video data that have been obtained and compiled through *web scraping*. Web scraping is an activity in which an automated tool is used to detect and copy any relevant target data from a specified set of web pages or other web-based services, enabling the user of the scraping tool to build a large dataset that meets the specific needs of their AI project.[9] Although web scraping is an efficient method of rapidly obtaining a large dataset from many diverse sources, careful precautions must be taken to ensure that the scraped data does not violate privacy rights or IP rights by including any personal information or unlicensed copyrighted material.

Phase 2: Model development

Model development involves selecting the appropriate algorithms, features, and parameters needed to process the prepared data into a *generative model*. Once developed, the generative model is capable of generating data outputs based on statistical patterns and classification rules derived from the prepared data. This process of making the model capable of generating data outputs based on the prepared data is known as *training* the model. Following model training, model development also involves *testing* and *evaluating* the model on a separate set of testing data to fine-tune and validate its quality with reference to criteria such as reliability, confidence, and accuracy.

Phase 3: Model deployment

Model deployment involves making the developed model available to users within a *production environment*. A production environment can include digital applications, services, and/or platforms through which users may interact with the generative model and use it to generate data outputs through interfaces such as chatbots, mobile applications, web browsers, user consoles, and/or plugins.

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[9] For more information about what web scraping is and how it works, see "What is Web Scraping and What is it Used For?" at *ParseHub*: https://www.parsehub.com/blog/what-is-web-scraping/

Phase 4: Operation & monitoring

Once a generative AI system is in operation, it is capable of generating data outputs for users (including text, image, audio, and video outputs) based on user prompts and/or other user data inputs. Additionally, while the system is in operation, monitoring activities are continuously and/or periodically conducted to ensure that the system is performing effectively and to continue fine-tuning the system's operation throughout the remainder of its lifecycle.

3. Impacts on Artists & Creators

Many artists and creators in Canada and around the world have expressed concern that generative AI systems such as ChatGPT, Stable Diffusion, Dall-E, and Midjourney violate their IP rights during data preparation and throughout the remainder of the system's lifecycle. The systems are developed with extremely large volumes of copyrighted text, images, audio, video, or other content scraped from the web, often without the awareness or consent of creators. The systems are then used to generate text, images, audio, video, or other content based on the scraped data without compensating the creators. This causes individual and collective material, psychological, and economic harms to artists and creators by infringing upon their IP rights.

Although generative AI systems have only recently become an issue of significant public attention, they are already harming Canada's artists and creators. The harms that have already been caused are innumerable, but a few notable examples include:

- Toronto-based artist Sam Yang discovered that as many as 300 of his copyrighted works were used by AI systems to generate derivative images intended for commercial use without his consent. Additionally, Yang was deliberately targeted for IP theft by an AI platform called Civitai when Civitai launched a contest encouraging their users to create a generative AI system that could imitate Yang's work as accurately as possible.[10]

- Sudbury-based illustrator Mark Gagne searched through a popular image database and discovered one of his copyrighted works. Upon further investigation, Gagne discovered dozens of instances where his art was used by AI systems to generate derivative images without his consent.[11]

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[10] Sam Yang's story is described in an article by *The Toronto Star* published on February 2, 2023 entitled "Whose art is this, really? Inside Canadian artists' fight against AI":
https://www.thestar.com/news/canada/2023/02/02/whose-art-is-this-really-inside-canadians-fight-against-ai.html

[11] Mark Gagne's story is described in an article by *CBC News* published on January 23, 2023 entitled "This Sudbury, Ont., illustrator learned AI used his art without his consent":
https://www.cbc.ca/news/canada/sudbury/ai-generated-art-consent-1.6722981

- Vancouver-based artist Jon Lam has been an influential advocate for protecting artists and creators from AI-based theft. Lam helped popularize the #CreateDontScrape hashtag and regularly shares perspectives from Canadian and international artists, creators, legal experts, researchers, and activists on the impacts of generative AI.[12]

- Following the release of a viral song featuring AI-generated vocals that imitated the voices of popular musicians Drake and The Weeknd, many Canadian musicians expressed concern that their musical works might also be stolen or devalued to train generative AI systems and produce derivative AI-generated music.[13]

Outside of Canada, generative AI systems have become the target of widely publicized legal action and corporate policies. For example:

- Getty Images has filed lawsuits in the United States and United Kingdom alleging that the creators of the Stable Diffusion AI system used millions of Getty's copyrighted images to train the system.[14]

- A class-action lawsuit has been filed in the United States against the creators of the Stable Diffusion and Midjourney AI systems. The class-action complaint alleges that the systems have infringed upon the intellectual property rights of the plaintiffs and millions of other artists.[15]

- A separate class-action lawsuit has been filed in the United States against Microsoft, GitHub, and OpenAI. The plaintiffs allege that the defendants have collectively used publicly available computer code (without obtaining authorization from the creators of that code) to develop generative AI systems and services that are capable of generating computer code derived from the stolen code.[16]

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[12] Jon Lam Twitter profile (@JonLamArt): https://twitter.com/JonLamArt

[13] Weaver, J. (2023, April 21). "Drake and The Weeknd are just the latest stop on the AI art express." *CBC News*. https://www.cbc.ca/news/entertainment/ai-music-drake-weeknd-1.6819092

[14] Vincent, J. (2023, February 6). "Getty Images sues AI art generator Stable Diffusion in the US for copyright infringement." *The Verge*. https://www.theverge.com/2023/2/6/23587393/ai-art-copyright-lawsuit-getty-images-stable-diffusion

[15] A summary of the case and the full class-action complaint can be found at https://stablediffusionlitigation.com/

[16] Claburn, T. (2023, May 12). "GitHub, Microsoft, OpenAI fail to wriggle out of copyright lawsuit." *The Register*. https://www.theregister.com/2023/05/12/github_microsoft_openai_copilot/

- Universal Music Group has notified Spotify, Apple Music, and other audio streaming services that Universal Music "will not hesitate to take steps to protect our rights and those of our artists" if the streaming services provide access to AI-generated music that infringes upon Universal Music's copyrighted works.[17]

In addition to harming artists and creators by violating their IP rights, generative AI systems are also harming artists and creators by contributing to the displacement and devaluation of their labour. After failed negotiations with the Alliance of Motion Picture and Television Producers, the Writers' Guild of America (WGA) went on strike on May 2, 2023. Recognizing the potential for labour displacement and devaluation posed by generative AI systems, the WGA listed amongst their return-to-work demands: "AI can't write or rewrite literary material; can't be used as source material; and MBA-covered material [material covered by the WGA's collective bargaining agreement] can't be used to train AI."[18]

The impacts that generative AI systems are already having on artists and creators are clearly high, and therefore warrant all consideration of all generative AI systems as potentially "high-impact systems" as defined in S. 5(1) of AIDA. Furthermore, the material, psychological, and economic harms associated with these concerns of AI-driven labour displacement and devaluation go far beyond the jurisdictional scope of AIDA. This jurisdictional gap and other gaps in AIDA are discussed in more detail in the following section.

4. Related Gaps in the Artificial Intelligence and Data Act

In its current state, AIDA contains five categories of significant gaps that must be addressed to make AIDA more capable of protecting Canada's artists and creators from harmful generative AI systems: (1) gaps in specificity and transparency of requirements, (2) gaps in public awareness and consultation, (3) gaps in enforcement and public oversight mechanisms, (4) gaps in AI policy capacities, (5) gaps in jurisdiction.

Gap 1: Specificity & transparency of requirements

AIDA does not provide adequate specificity regarding requirements for mitigating risks to IP rights during data preparation, development, deployment, and use of generative AI systems, nor does it adequately specify requirements for any other type of AI system. AIDA applies only to "high-impact systems", but the definition of a "high-impact system" is to be determined only

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[17] Donahue, B. (2023, April 12). "Universal Music asks streaming services to block AI companies from accessing its songs." *Billboard*. https://www.billboard.com/pro/universal-music-asks-spotify-apple-stop-ai-access-songs/

[18] Writers' Guild of America, "WGA negotiations–Status as of May 1, 2023." https://www.wga.org/uploadedfiles/members/member_info/contract-2023/WGA_proposals.pdf

in future regulations after AIDA is already passed into law. The AIDA Companion Document published in March 2023 states that public consultation on regulations as well as on definitions and types of "high-impact systems" will occur only after AIDA is passed into law.[19] Unfortunately, this Companion Document does not constitute a legally binding guarantee of ongoing public consultation, accountability, and transparency once AIDA is passed into law. AIDA therefore guarantees no specific protections from AI-related harms to artists, creators, or other vulnerable groups. Instead, AIDA requires that vulnerable groups–and all other Canadian citizens and residents–trust this government and all future governments to responsibly develop and enforce AI regulations without any legally binding guarantees of public accountability or oversight. This is an unclear, undemocratic, and high-risk approach to AI legislation.

Some legal scholars have been critical of AIDA's legislative approach, describing it as a "blank cheque"[20] or "agile"[21] approach. The rationale for this approach is that by deferring specificity and transparency until AIDA is already passed into law, a more flexible legal framework can be created that will allow this government and future governments to more rapidly respond to new innovations and developments in AI systems. However, this approach is already proving to be rigid and slow. By excluding vulnerable groups, civil society, and the general public from AIDA's policy development process, the Minister has created an incomplete piece of legislation that aims to set requirements on AI systems without first gathering detailed information about the policy needs of the people most impacted by AI systems. This approach creates barriers to public trust, stakeholder buy-in, and quality of the legislation's evidence base from the outset of and throughout the legislative process. Rather than enabling agility or flexibility, these barriers have the ultimate effect of constraining and slowing legislative and regulatory processes related to AI.[22]

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[19] Government of Canada (2022). "The Artificial Intelligence and Data Act (AIDA) companion document." https://ised-isde.canada.ca/site/innovation-better-canada/en/artificial-intelligence-and-data-act-aida-companion-document

[20] Lévesque, M. & Martin-Bariteau, F. (2023, April 27). "AI regulation should not be a blank cheque for government". *CIGI*. https://www.cigionline.org/articles/ai-regulation-should-not-be-a-blank-cheque-for-government/

[21] Scassa, T. (2023, May 25). "Regulating AI in Canada: A critical look at the proposed Artificial Intelligence Act." *The Canadian Bar Review*, Vol. 101, Issue 1: https://cbr.cba.org/index.php/cbr/article/view/4817

[22] For example, when AIDA reached an impasse in the House of Commons in April 2023, the Minister convened an "emergency meeting" of the Advisory Council on AI to generate greater stakeholder buy-in for moving AIDA through the legislative process as quickly as possible (see his April 14, 2023 tweet at https://twitter.com/FP_Champagne/status/1646896322165854216). Without greater specificity, transparency, and public accountability in AIDA's legislative process, similar emergencies of democratic process will likely continue to impede future legislative and regulatory activities related to AI.

Gap 2: Inadequate public awareness and public consultation

AIDA was drafted without adequate public consultation, and without the Canadian public being sufficiently aware of the potential impacts of AI and AI regulation.[23] In February 2023, ISED's AI Public Awareness Working Group published a report urging the federal government to launch sustained public information campaigns on AI, as well as to undertake public engagement "with the intent to co-develop AI policy that addresses these hopes and fears, builds public confidence in the use and governance of the technology, and both enables and limits AI deployment, so it aligns with the interests of diverse communities."[24] Unfortunately, the Minister developed and tabled AIDA before the Public Awareness Working Group completed their report. The Minister therefore did not observe the recommendations of his own AI Public Awareness Working Group in developing AIDA.

Failing to undertake adequate public awareness and public consultation initiatives prior to passing AIDA into law presents risks to public trust in AI and AI regulation.[25] Additionally, inadequate public awareness and public consultation presents risks of causing physical, psychological, economic, material, and/or environmental harms to vulnerable groups and marginalized communities (including but not limited to artists and creators, many of whom are socially or economically disadvantaged) by failing to fully take their interests into account during policy development and implementation.[26]

Gap 3: Inadequate regulatory enforcement & public oversight mechanisms

AIDA does not provide adequate mechanisms for investigating and levying penalties upon AI system developers and service providers. To effectively regulate generative AI systems, the AI & Data Commissioner (AIDC) proposed in S. 33 of AIDA will require specific powers to

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[23] Many other Canadian initiatives intended to support the governance of AI recognize the importance of diligent and ongoing public consultation. See for example the Treasury Board Secretariat of Canada (TBS) consultations on the *Directive on Automated Decision-making* (https://wiki.gccollab.ca/Third_Review_of_the_Directive_on_Automated_Decision-Making) and the Ontario Digital Service's *AI Guidance* consultations (https://www.ontario.ca/page/ontarios-trustworthy-artificial-intelligence-ai-framework-consultations)

[24] Government of Canada (2023, March 2). "Learning together for responsible artificial intelligence: Report of the Public Awareness Working Group." https://ised-isde.canada.ca/site/advisory-council-artificial-intelligence/en/public-awareness-working-group/learning-together-responsible-artificial-intelligence

[25] Challenges to public trust in AIDA and other Canadian AI governance initiatives are discussed in Attard-Frost et al. (2022), "The governance of artificial intelligence in Canada: Findings and opportunities from a review of 84 AI governance initiatives." https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4414212 (pp. 21-22, 25-26).

[26] Tessono et al. (2022). "AI oversight, accountability and protecting human rights: Comments on Canada's Proposed Artificial Intelligence and Data Act." https://www.cybersecurepolicy.ca/aida

investigate developers and service providers suspected of IP infringement as well as powers to mandate the destruction of IP-infringing datasets and models. Additionally, the AIDC will require powers to investigate and penalize service providers whose platforms facilitate the sharing and deployment of IP-infringing datasets and models developed by the platform's users.[27] At present, the AIDC does not have sufficient powers to mitigate the harmful impacts of generative AI systems.

Guaranteeing that the AIDC will conduct proactive investigations of for-profit and non-profit organizations suspected of IP theft and/or commercializing AI systems trained on stolen IP is necessary to mitigate harmful impacts to artists and creators. A guarantee that the AIDC will have the power to order the deletion of IP-infringing data and models is especially important. Multiple organizations have already been found scraping copyrighted images from the web, then using or providing third party access to those scraped images for commercial purposes. For example, LAION–a network of Canadian[28] and international researchers that provides open access to large datasets containing copyrighted images–has been highly criticized for their role in providing the images that were used to train the Stable Diffusion AI system.[29] In the United States, the Federal Trade Commission (FTC) has set precedent in multiple rulings for a non-monetary penalty known as *algorithmic disgorgement*.[30] Algorithmic disgorgement requires companies and individuals that have obtained data or developed models through unfair, deceptive, or illegal practices to destroy the infringing data and/or models. At present, AIDA affords no such powers to the proposed AIDC, as well as no powers to proactively prohibit or restrict the development of certain types of harmful AI systems.

In addition to enforcement mechanisms, AIDA also does not put adequate oversight mechanisms in place to ensure that the AIDC remains accountable to artists and creators, other vulnerable groups, marginalized communities, and the broader public. At present, S. 33(1) of AIDA establishes the AIDC as an appointee and assistant of the Minister. Critics have noted that structuring the AIDC as a ministerial assistant rather than as an independent official introduces

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[27] For example, service providers such as Hugging Face (https://huggingface.co/) and Civitai (https://civitai.com/) provide platforms through which their users can share generative models, datasets, and other AI resources.

[28] Multiple researchers who are credited as part of the LAION team are affiliated with Mila, a Montreal-based AI research institute (see https://laion.ai/team/).

[29] LAION's role in supplying copyrighted data used to train the Stable Diffusion system is described in Edwards, B. (2022, December 15), "Stability AI plans to let artists opt out of Stable Diffusion 3 image training." *Ars Technica*. https://arstechnica.com/information-technology/2022/12/stability-ai-plans-to-let-artists-opt-out-of-stable-diffusion-3-image-training/

[30] For more details about the FTC's algorithmic disgorgement practices, see Goland, J. A. (March 14, 2023), "Algorithmic disgorgement: Destruction of artificial intelligence models as the FTC's newest enforcement tool for bad data", *Richmond Journal of Law & Technology*, Vol. 29, Issue 2: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4382254

several risks to democratic process[31], comprehensive and inclusive stakeholder engagement[32], and unbiased regulatory enforcement.[33]

AIDA also does not establish a legally binding guarantee of ongoing public consultation on AI regulation after AIDA is passed into law. This lack of guaranteed public participation in future regulatory initiatives is particularly concerning in light of the rapid pace of AI technology development and innovation in recent years. As AI systems continue to rapidly evolve, public participation in the monitoring, review, and evaluation of regulatory outcomes will be essential to close gaps in AIDC, ISED, and broader federal government knowledge of the public's regulatory needs. There is already strong precedent in the Accessible Canada Act (ACA) for legislatively mandating periodic public consultation when the legislation is expected to impact a vulnerable group.[34] AIDA does not apply this precedent, despite the AIDA Companion Document recognizing that AI systems are expected to impact vulnerable groups.

Gap 4: Inadequate AI policy capacities

Some features of the design and development of AIDA suggest that ISED and other federal departments lack adequate capacities to conduct effective and timely research on AI policy. Concerns have been voiced by artists, creators, researchers, governments, and intergovernmental organizations that generative AI systems may enable IP theft and devaluation of artistic work since 2019 or earlier[35], yet a discussion of those concerns is nowhere to be found in any policy instruments or supplementary materials that have been published by ISED. This gap in domain knowledge is particularly concerning given that supporting Canadian IP is an important part of the broader mandate of ISED and the Minister.

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[31] Wylie, B. (2023, April 21). "ISED's Bill C-27 + AIDA: Part 4: Calling on federal MPs for a necessary defense of democratic process." *Medium*. https://biancawylie.medium.com/iseds-bill-c-27-aida-part-4-calling-on-federal-mps-for-necessary-defense-of-democratic-process-3003572bc38e

[32] Tessono et al. (2022), p. 8.

[33] See for example the October 28, 2022 Centre for Digital Rights report on Bill C-27 (https://centrefordigitalrights.org/files/document/2022-11-13/257-013312.pdf) or the April 27, 2023 CIGI article "AI regulation should not be a blank cheque for government" (https://www.cigionline.org/articles/ai-regulation-should-not-be-a-blank-cheque-for-government/)

[34] See S. 42(4) of the Accessible Canada Act (https://laws-lois.justice.gc.ca/eng/acts/A-0.6/FullText.html) and related ACA consultation guidance (https://www.canada.ca/en/employment-social-development/programs/accessible-canada-regulations-guidance/consultation.html)

[35] See for example World Intellectual Property Organization (2019), "Draft issues paper on intellectual property policy and artificial intelligence." https://www.wipo.int/meetings/en/doc_details.jsp?doc_id=470053

Additionally, the AIDA Companion Document's discussion of collective harms is alarmingly weak: not only does the Companion Document fail to substantively engage with criticisms of AIDA's approach to protecting human rights[36], but the Companion Document also fails to recognize the existence of a broad range of additional types of collective harm that may be caused by AI systems. It is widely recognized that AI systems are capable of causing a broad range of collective harms, including (but not limited to) collective harms related to human rights violations, collective harms related to IP rights violations, collective harms related to impacts on workers, and collective harms related to environmental impacts. Global Partnership on AI–an international organization that ISED has been instrumental in the creation of–has also published several reports that thoroughly describe how AI systems may cause collective harms related to impacts on workers[37] and environmental impacts.[38] The European Union's AI Act and supplementary materials associated with it also recognize a broad range of potential collective harms throughout the AI value chain, including potential harms to artists and creators associated with IP theft and generative AI systems.[39]

AIDA and the AIDA Companion Document do not account for the various types of collective harm that might be caused by AI systems. This significant gap in domain knowledge suggests an underlying gap in ISED's internal capacity to conduct effective and timely AI policy research and development. In addition to ISED, it is unclear if federal departments and agencies with mandates related to potential impacts of AI systems on human rights, workers, and the environment were involved in the development of AIDA or are developing their own legislative or regulatory instruments related to AI systems. If they are not, then it is likely that similar gaps in AI policy capacity exist across many federal government institutions.

Gap 5: Narrow jurisdiction

As described in the Preamble to Bill C-27, the jurisdictional basis of AIDA is the Minister's authority to regulate international and interprovincial trade and commerce. This jurisdictional basis is far too narrow to effectively regulate the broad range of potential impacts

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[36] Scassa, T. (2023, March 21). "Explaining the AI and Data Act." https://www.teresascassa.ca/index.php?option=com_k2&view=item&id=369:explaining-the-ai-and-data-act&Itemid=80

[37] Global Partnership on AI (2022). "AI for fair work report." https://www.gpai.ai/projects/future-of-work/AI-for-fair-work-report2022.pdf

[38] Global Partnership on AI (2021). "Climate change and AI: Recommendations for government action." https://www.gpai.ai/projects/climate-change-and-ai.pdf

[39] See for example the European Parliament's press release "AI Act: A step closer to the first rules on artificial intelligence"(https://www.europarl.europa.eu/news/en/press-room/20230505IPR84904/ai-act-a-step-closer-to-the-first-rules-on-artificial-intelligence) and "General-purpose artificial intelligence" brief (https://www.europarl.europa.eu/RegData/etudes/ATAG/2023/745708/EPRS_ATA(2023)745708_EN.pdf)

that generative AI systems and other types of AI systems pose to human rights, workers, and the environment. To effectively regulate this broader range of impacts, additional authority will be needed to intervene in: AI systems that violate the human rights of protected groups; AI systems that are developed and/or used to subject workers to unfair, unsafe, and/or exploitative working conditions; AI systems, hardware, and/or infrastructure that contribute to environmental degradation or consume high volumes of energy and/or water during development, deployment, and/or use, and thereby have a high environmental impact.

5. Recommendations

To more effectively address AIDA's gaps related to generative AI systems, the following actions are recommended:

(1) Remove AIDA from the legislative agenda until adequate public engagement on AI legislation, regulation, and standardization has been conducted.

In its current state, the gaps in AIDA related to impacts on artists and creators are too numerous and too severe to be adequately corrected through committee study alone. Many of those gaps would have been lessened in severity if the Minister had taken greater due diligence to perform adequate public engagement and policy research prior to tabling AIDA in the House of Commons. AIDA should therefore be removed from the legislative agenda until greater public engagement on AI legislation, regulation, and standardization has been conducted.

Given the rapid pace of change in AI development and innovation, the multilayered design of AIDA's policy framework is sensible: providing several layers of varying technical specificity through reference to regulations, national standards or international or industry standards accredited by the Standards Council of Canada (SCC), and associated accreditation programs and guidelines can contribute to an agile and flexible approach to regulating AI. However, this multilayered design will be most effective if appropriate time and due diligence are taken from the outset of the legislative process to guarantee that adequate regulatory and accountability mechanisms will be enshrined in the text of AIDA. Democratic process and transparency cannot be sacrificed for agility and flexibility without jeopardizing the trustworthiness and effectiveness of the entire framework.

Before resuming the legislative process, the Minister should publish draft regulations along with a detailed schedule and action plan for future regulatory development and implementation. In addition, SCC should publish draft standards and accreditation program

plans.[40] Other federal departments and agencies with mandates related to potential AI impacts on human rights, workers, and the environment should also coordinate on publishing their own policy and regulatory guidance (see Recommendation 5). This improved transparency will help bolster public trust in AI and in AIDA by increasing the public's awareness of the specific requirements, penalties, and regulatory mechanisms that should be expected from this legal framework. Public accountability and trust in AI and in AIDA can also be strengthened by encouraging the general public to participate in the further development of those draft regulations, standards, program plans, and other policy and guidance documents.

To provide Canada's artists and creators with an adequate guarantee that they will be protected from harmful generative AI systems, more specific requirements pertaining to the data preparation and model development phases of the generative AI lifecycle will be needed. Draft regulations must clearly state that all AI systems developed using data scraped from the web (including but not limited to generative AI systems) have the potential to cause high social, physical, psychological, economic, and/or environmental impacts, and are therefore pre-classified as high-impact systems. Draft regulations, standards, and/or other instruments will need to clearly specify requirements for ethical sourcing of training data and testing data, attribution and documentation of data sources, creator authorization and opt-in for use of copyrighted works in model development, as well as quality assurance and documentation of data preparation and model development activities.[41]

(2) Launch national public information campaigns and consultations on AI to gather more detailed information about AI impacts and harms.

The Minister should immediately begin implementing the recommendations of ISED's AI Public Awareness Working Group on Canada's urgent need for public information campaigns, public consultation, and public participation in AI policy co-design initiatives. Public information campaigns should aim to strengthen the general public's ability to make informed decisions about and to participate in civic activities related to AI and AI policy. Special effort should be made to empower vulnerable groups such as (but not limited to) artists and creators with the knowledge and awareness needed to participate in civic activities related to AI and AI policy. Public consultations should aim to directly and iteratively involve the public in the policy

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[40] Ongoing SCC standardization initiatives related to data governance (https://www.scc.ca/en/flagships/data-governance) and AI governance (https://www.scc.ca/en/news-events/news/2022/scc-launches-accreditation-pilot-for-ai-management-systems) were recently combined into one initiative, but SCC has not yet published any drafts of these in-progress standards.

[41] For examples of existing frameworks for data provenance and data documentation, see Miceli et al. (2022), "Documenting data production processes: A participatory approach for data work." (https://arxiv.org/pdf/2207.04958.pdf) and Basman, A. (2022), "Pluralistic data infrastructure." *We Count*. (https://wecount.inclusivedesign.ca/views/pluralistic-data-infrastructure/)

development process and to establish a more comprehensive evidence base on the potential impacts and harms of generative AI systems and other types of AI systems.[42]

Participation in public consultations should be open to all citizens and residents of Canada, and reporting on the outcomes of consultation should be transparent, rigorous, and faithfully represent the full range of interests and regulatory needs expressed by the public. Informing future AI policy through only targeted stakeholder engagements organized by research institutes and other hubs of AI expertise should be avoided, as this approach to limited public consultation is likely to jeopardize public trust rather than secure it. Special effort should be made to include vulnerable groups such as (but not limited to) artists and creators in policy co-design initiatives. These activities will enable future versions of AIDA and its related regulations, standards, supplementary documents, and other instruments to more fully and accurately represent the interests of artists and creators, as well as other vulnerable groups and marginalized communities.

More resources should also be invested into ISED and other departments in order to expand the department's internal capacity to conduct more thorough and timely policy research, including but not limited to consultation-based research (see Recommendation 4).

(3) Amend a future version of AIDA to include stronger enforcement and public oversight mechanisms.

AIDA should be removed from the legislative agenda until greater progress engaging the public on AI legislation, regulation, and standardization is made, and specific amendments can be proposed and implemented more effectively (see Recommendation 1). A future of version of AIDA should then be amended to make the proposed AI & Data Commissioner (AIDC) an independent official and to empower the AIDC with: a more proactive investigatory and enforcement mandate; the authority to pre-classify certain types of AI systems as high-impact systems; the authority to prohibit or restrict the development, deployment, and/or use of certain types of high-impact systems; the authority to levy non-monetary penalties such as deletion of IP-infringing data and models, targeted prohibitions, or targeted restrictions on specific individuals or organizations.

In addition to stronger enforcement mechanisms, a future version of AIDA should also be amended to include stronger mechanisms for ensuring that the AIDC and AI regulation will be subjected to a higher degree of public accountability and oversight. The AIDC should be mandated within the text of AIDA to conduct independent investigations and periodic independent reviews of Canada's AI regulations, standards, and regulatory outcomes. This will

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[42] See the RSA (2019) best practices guidance document "Artificial intelligence: Real public engagement" (https://www.thersa.org/reports/artificial-intelligence-real-public-engagement) or the recommendations pertaining to public trust and public consultation provided by Attard-Frost et al. (2023), pp. 21-22 & pp. 25-26.

help to ensure that AIDA continues meeting the needs of artists and other vulnerable groups as AI technologies continue to evolve. The AIDC should also be mandated within the text of AIDA to conduct periodic public consultation. Precedent for legislatively mandated periodic public consultations with vulnerable groups already exists in S. 42(4) of the Accessible Canada Act (ACA), and this precedent should also be applied to AIDA. The AIDC should then regularly involve Canadian arts organizations, artists, and community groups in that legislatively mandated consultation process, along with other vulnerable groups and communities.

(4) Allocate resources to strengthen the AI policy capacities of federal institutions.

Gaps in domain knowledge associated with the types of impacts and collective harms caused by generative AI systems and other types of AI systems suggest that ISED and other federal institutions lack adequate capacities to conduct effective and timely AI policy research and development. To correct this gap, parliamentarians, ministers, and government officials with mandates related to potential impacts of AI systems should immediately begin allocating more resources to strengthen the internal AI policy capacities of their departments or agencies. The speed and scale at which new AI developments, innovations, and impacts are emerging and evolving requires urgent capacity-building in order to ensure that the federal government will be capable of governing AI systems at scale.

Specific departments and agencies that ought to be allocated more resources to strengthen their internal AI policy capacities include (but are not limited to): ISED to expand their existing expertise on AI policy and participatory research; Employment and Social Development Canada (ESDC) to expand and translate existing ESDC-supported research on the social and workforce impacts of AI systems into policy and regulatory instruments; Environment and Climate Change Canada (ECCC) to expand and translate existing research on the environmental impacts of AI systems into policy and regulatory instruments; Treasury Board of Canada Secretariat (TBS) to expand their existing AI policy expertise and AI policy framework; the Office of the Privacy of Commissioner of Canada (OPC) to expand their existing expertise on AI policy and privacy law to support a greater volume of research projects on AI-related privacy issues and investigations into privacy-infringing AI systems. In addition, Parliament should establish cross-functional permanent working groups and/or committees on AI in both the House of Commons and the Senate. The potential impacts and harms of AI systems are far too broad to fall within the exclusive purview of a single parliamentary committee such as INDU or ETHI.[43]

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[43] Parliament's Standing Committee on Information, Privacy and Ethics (ETHI) has already conducted a separate study and published a report on their findings entitled "Facial recognition technology and the growing power of artificial intelligence" (https://www.ourcommons.ca/Content/Committee/441/ETHI/Reports/RP11948475/ethirp06/ethirp06-e.pdf). The extent to which INDU and ETHI have coordinated their studies of AI systems is unclear, but it appears as though Parliament is approaching general AI regulation and facial recognition regulation as two separate policy issues instead of taking a coordinated cross-functional and cross-committee approach to AI.

Federal institutions seeking to strengthen their AI policy capacities should seek out a greater diversity of AI experts with broad, interdisciplinary domain knowledge of many subjects, sectors, professions, and job roles: because AI is a general-purpose technology and cross-cutting policy issue with the potential to impact virtually every aspect of Canada's society, economy, and environment[44], extensive knowledge and expertise beyond legal, technical, and business expertise is needed to properly guide AI policy initiatives. The federal government should therefore be careful to not over-rely on ISED's Advisory Council on AI for interdisciplinary expert guidance on AI. In addition to review and feedback on AI policy issues from ISED's Advisory Council on AI, external feedback on policy materials from interdisciplinary groups of social science and humanities researchers, arts organizations, labour unions, professional associations, community organizations, and advocacy groups should also be regularly sought out. More representatives of those stakeholder groups should also be invited to join ISED's Advisory Council on AI.

(5) Mandate federal departments and agencies to coordinate on AI regulation, and extend co-regulatory activities into civil society.

A future version of AIDA should be amended to mandate a broad range of federal departments and agencies to coordinate with an independent AIDC on developing, enforcing, and reviewing AI regulation. In addition to administrative coordination, interdepartmental and interagency coordination should also involve the development of coordinating amendments to a broad range of existing laws and regulations that are affected by high-impact AI systems, then referencing those coordinating amendments in the text of AIDA. The impacts of generative AI systems and other types of AI systems extend far beyond the jurisdiction of the Minister of Innovation, Science and Industry, and will require a well-coordinated all-of-government approach to appropriately intervene in.[45]

Organized co-regulation is an increasingly favored approach to AI governance in many other jurisdictions: see for example the joint statement on AI regulation made by several federal agencies in the United States[46], the United Kingdom's multidepartmental approach to AI

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[44] For a more detailed discussion of how AI systems will have a comprehensive impact on Canadian society, see Frost, R B. (2020). "Emerging national artificial intelligence innovation systems in Canada and China: Strategic governance and institutional evolution." *SPACES Online: Spatial Aspects Concerning Economic Structures*, Vol. 16, Issue 1. https://www.spaces-online.com/include/SPACES_2020-01%20Frost.pdf

[45] For a more detailed discussion of the jurisdictionality of AI impacts and opportunities for strengthening Canada's ability to intervene in a broad range of AI impacts through a more interdepartmental, intergovernmental, and intersectoral approach to AI policy, see the recommendations provided by Attard-Frost et al. (2023), pp. 26-29.

[46] Federal Trade Commission (2023, April 25). "FTC Chair Khan and officials from DOJ, CFPB and EEOC release joint statement on AI." https://www.ftc.gov/news-events/news/press-releases/2023/04/ftc-chair-khan-officials-doj-cfpb-eeoc-release-joint-statement-ai

co-regulation[47], or the co-regulatory obligations that the European Union's AI Act sets on a broad range of participants in the AI value chain.[48] Taking those and other comparable co-regulatory approaches as examples, Canadian federal institutions should create and publish joint statements and joint plans on AI regulation. Federal institutions should also create and coordinate provisional guidelines to support each individual institution in applying their existing laws, policies, and regulations to regulate AI systems until AIDA comes into force (e.g., applying existing IP laws to generative AI systems developed through IP theft; applying existing privacy laws to AI systems that violate the privacy of users and/or data subjects; applying existing labour laws to AI systems that harm worker safety and wellbeing).

Expanding the jurisdictional scope of AIDA will also require an expansion of AIDA's policy process. To adequately address the impacts of generative AI systems on artists and creators, further development of AIDA and related laws and regulations should also involve the Department of Canadian Heritage, the Canada Council for the Arts, and ESDC in order to take a more comprehensive and coordinated approach to intervening in generative AI impacts that cause labour displacement and devaluation of Canadian arts, music, video, writing, and other Canadian content.

Co-regulation, coordination, and collaboration on AI governance should also extend beyond government and industry and into a greater variety of civil society organizations. The ongoing Writers' Guild of America (WGA) strike identifies the training of generative AI systems on specified materials and the use of generative AI in the creative process as a key point of contention for the union.[49] The WGA strike has also impacted Canadian artists and creators working for American companies, demonstrating that labour unions should also be directly involved in future AI regulation and policy co-design initiatives. Professional associations can also play an important role in supporting the government to better identify potential impacts of AI systems on their professions and methods of intervening in those impacts, as can arts organizations, community organizations, and advocacy groups for their own communities and constituencies.

To integrate the AI-related knowledge and resources of all of Canada's various stakeholder groups and to support them in more effectively collaborating, coordinating, and

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[47] UK Office for Artificial Intelligence (2023). "A pro-innovation approach to AI regulation." https://www.gov.uk/government/publications/ai-regulation-a-pro-innovation-approach/white-paper

[48] For a more detailed discussion of the value chain implications of the EU AI Act, see Engler, A. & Renda, A. (2022, September 3). "Reconciling the AI value chain with the EU's Artificial Intelligence Act." *CEPS*. https://www.ceps.eu/wp-content/uploads/2022/09/CEPS-In-depth-analysis-2022-03_Reconciling-the-AI-Value-Chain-with-the-EU-Artificial-Intelligence-Act.pdf

[49] Writers' Guild of America (2023).

resolving conflicts, the federal government should immediately begin launching a National AI Alliance. Canada's National AI Alliance should be similar in its aims to other integrative national and supranational initiatives such as the European AI Alliance[50], the United States National AI Initiative[51], or the United Kingdom's recently acknowledged need for new central mechanisms to support nationwide coordination on AI governance activities.[52] Canada's National AI Alliance should be allocated adequate resources to provide independent venues, tools, and opportunities for a variety of stakeholder groups to collaborate and coordinate on creating broad interdepartmental, intergovernmental, and intersectoral initiatives for AI co-governance and co-regulation. Canada's National AI Alliance should regularly publish reports on its work and should engage with the general public and vulnerable groups in policy co-design, regulatory discussions, and other participatory governance initiatives as appropriate.

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[50] European Commission (2022). "The European AI Alliance."
https://digital-strategy.ec.europa.eu/en/policies/european-ai-alliance

[51] National Artificial Intelligence Initiative Office (2023). https://www.ai.gov/

[52] UK Office of Artificial Intelligence (2023). "A pro-innovation approach to AI regulation." (Section 3.3.1).