Representation of Libraries in Artificial Intelligence Regulations and Implications for Ethics and Practice

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This is an Author's Original Manuscript of an Article made available under a CC-BY licence whose final and definitive form, the Version of Record, has been published in the Journal of the Australian Library and Information Association on 10 August 2022, available online at:
https://doi.org/10.1080/24750158.2022.2101911

ABSTRACT

We are already living in an algorithmic society. AI policies and regulations are now emerging at the same time as more is learned about the implications of bias in machine learning sets, the surveillance risks of smart cities and facial recognition, and automated decision-making by government, among many other applications of AI and machine learning. Each of these issues raises concerns around ethics, privacy, and data protection. This paper introduces some of the key AI regulatory developments to date and engagement by libraries in these processes. While many AI applications are largely emergent and hypothetical in libraries, some mature examples can be identified in research literature searching, language tools for textual analysis, and access to collection data. The paper presents a summary of how library activities such as these are represented in national AI plans and ways that libraries have engaged with other aspects of AI regulation including the development of ethical frameworks. Based on the sector's expertise in related regulatory issues including copyright and data protection, the paper suggests further opportunities to contribute to the future of ethical, trustworthy, and transparent AI.

Navigating AI definitions, applications, and challenges

Varying definitions of artificial intelligence have emerged over the decades. These definitions are summarised as being concerned with systems that think like humans, act like humans, think rationally, and act rationally (Russell & Norvig, 2020). Yet there is no clear consensus among researchers on a particular definition, and AI thus remains somewhat difficult to define (Bringsjord & Govindarajulu, 2020). This is further complicated by the emergence of AI regulation which has spurred the creation of additional policy-focused definitions that differ from those preferred by AI researchers. This has consequences for developing a shared understanding of what AI is, and for developing effective regulation. In a recent study, researchers centre system and technical elements in their definitions, while policymakers focus on how systems compare to human thought or behaviour (Krafft et al., 2020). Krafft suggests that the OECD's policy-focused definition effectively reaches across the domains of research and policy and this definition also frames this paper, "An AI system 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. AI systems are designed to operate with varying levels of autonomy" (OECD, 2019). Many definitions of AI will continue to be used and created, reflecting different perspectives and agendas. The profession will need to engage with a range of definitions and frames when implementing AI technologies in practice and influencing AI regulation.

AI has numerous applications and sub-fields, several of which are focused on data, text, and images. Many of these are used in commercial applications and by governments including machine learning and Natural Language Processing (NLP). Machine learning and algorithms now underpin everyday information systems such as internet search engines and social media. However, numerous scholars have documented issues in machine learning datasets in social media including racial, gender, and disability bias, and an over-reliance on algorithmic content moderation that can amplify misinformation (Klonick, 2020; Vaidhyanathan, 2021). The use of algorithms and automated decision-making by companies and governments can have profound impacts on livelihoods. AI methods are increasingly used in complex issues to make decisions about people like selecting job candidates, and allocating government services and welfare payments (Krafft et al.). In Australia, some of the potential risks associated with the use of automated decision-making are widely known due to the "Robodebt" case when hundreds of thousands of people received letters falsely stating that they owed large debts to the government. The error was traced to an algorithm used to identify welfare payment recipients incorrectly matched with other datasets in the taxation office (Henriques-Gomes, 2021).

Algorithmic bias is further complicated by a lack of algorithmic transparency (DeNardis, 2020). Some have referred to the inner workings of algorithms as "black boxing". Latour initially used the term "black boxing" to refer to the way scientific and technical work is rendered invisible by its success (DeNardis, 2020; Latour, 2000). Others later expanded on the role of data in society and observed that many algorithms developed by corporations cannot be scrutinised (Brevini & Pasquale, 2020). Algorithmic bias and lack of transparency have an outsized effect on everyday life and have spurred research, ethical frameworks, and regulatory recommendations. For example, a recent Australian report on Human Rights and Technology recommended the development of accountability mechanisms for government and corporations, and compliance with anti-discrimination laws to promote algorithmic fairness (Australian Human Rights Commission, 2021). In addition, AI may negatively impact human rights including freedom of expression and privacy (Gorwa et al., 2020; Langvardt, 2017). The way that multiple data points about people and their behaviours are compiled from different platforms and datasets can have downstream impacts on privacy (Solove, 2021). Library and freedom of expression groups alike have raised the need to further explore the human rights impacts of AI (IFLA FAIFE, 2020; Transparency International & Article 19, 2018).

Adoption of AI methods in libraries and intersection with ethical dilemmas

The growth in image, text, and data research methods using AI across a wide range of fields means that there are already several mature examples of data and collection AI projects developed by researchers and libraries. AI is already being used in libraries and research to support new forms of computational research, discovery, and reuse of library collections in new and engaging ways. AI is also widely used in applications such as literature searching, evidence summaries, and related fields such as digital humanities and data science. Natural Language Processing (NLP) assists in text processing and discourse analysis. These techniques have been applied to a broad range of research fields including optical

character recognition of historic texts, topic modelling in political speeches, and AI-enhanced literature searching. Initiatives in libraries include historical newspaper data projects at the British Library, AI-enhanced OCR at the Koninklijke Bibliotheek (National Library of the Netherlands), relevance searching in the medical database PubMed, and the formation of the Artificial Intelligence for Libraries, Archives & Museums (AI4LAM) community (Babski et al., 2022; Heathman, 2017). The potential of these methods has been greatly enhanced by access to computing, but also legal reforms.

While there are many positive applications of AI in libraries and research, there are also a range of concerns. Given the breadth of AI applications that affect daily life and the lack of transparency, it is unsurprising that debates to date about AI in the library and information profession have been extremely wide-ranging. These range from human rights and ethical dilemmas, concerns about state and private surveillance, the rise of smart cities and facial recognition, to questions about how people will develop algorithmic literacy (Bradley, 2019; Cox, 2020; Fister, 2020; Hernandez-Perez, 2019; IFLA FAIFE, 2020; Padilla, 2019). Libraries create and provide access to enormous amounts of information across numerous datasets and hold a significant amount of personal data. AI methods are already being touted as a feature of many products by library vendors (Hervieux & Wheatley, 2021). However, examples like Robodebt should serve as a caution that combining datasets to create new insights using AI methods requires great care and skill. Yet, few dedicated statements on AI and ethics have been issued to date in the library profession. IFLA's statement is one example that reflects both longstanding ethical values on intellectual freedom and privacy, while making space for further debate within the profession (IFLA FAIFE, 2020).

The rise and rise of AI regulation

Many AI applications and companies are reliant on a legal foundation that includes data protection rules and copyright reforms. Library advocates have consistently argued in favour of reforms that are in the public interest and that ensure that libraries can provide both traditional and new digital services, keep pace with technological change, and cooperate across national borders. For example, data provides the raw input for many AI methods such as natural language processing (NLP) and algorithmic recommendations. Although the treatment of data varies in different countries, the fact that a vast amount of data is, "famously unowned in intellectual-property terms" (Kapczynski, 2020) has also been a key factor in facilitating the rapid growth and profitability of AI. In other areas of reform such as copyright, libraries in the European Union have benefited from text and data mining exceptions that make computational analysis of contemporary as well as historical texts easier ("Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market," 2019). Internationally, the library sector and NGO partners have engaged with the World Intellectual Property Organisation (WIPO) on additional exceptions and limitations to copyright for libraries to undertake their work for well over a decade (Crews, 2015). Turning to data protection, libraries in Europe argued in favour of preserving the integrity of the scholarly and historical record while ensuring individual privacy is protected (White, 2017). Continued engagement is needed in each of these areas to ensure regulations take the public interest into account, as some reforms have resulted in unintended consequences, particularly when combined with AI methods.

Intersections between data creation, information use, and decision-making are among the issues at the forefront of AI regulation. Technology regulation can take many forms including laws, as well as other

means of influence apart from top-down rules (Moses, 2015). AI regulation and approaches to date therefore include a mix of research agenda-setting, funding, literacy and training, engagement in standards development, and geopolitical positioning (Smuha, 2021). The latter is key to some regulations, as, AI and other technologies have created new power imbalances between countries and between governments and companies (Morozov, 2018). Europe, the US, Australia, China, and other countries are all competing to lead in AI innovation and regulation (Gorman, 2020; Hong & Harwit, 2020; Smuha, 2021). However, the intersection between AI, privacy, and other human rights is still emerging (Rodrigues, 2020). It is necessary to make clearly outline how AI impacts human rights to address equity, ethics, and fairness. Without this understanding, a regulatory and ethical void may lead to the emergence of predatory and damaging practices before regulations can catch up. The consequences of regulatory gaps including bias in training data sets, unethical labour practices, and the predatory role of data brokers are widely documented in the literature (Krafft et al., 2022; Noble, 2018; Smuha, 2021). Numerous principles, frameworks, and investments have been launched to develop safeguards and promote ethical practice.

AI regulation is somewhat nascent with a diverse array of regulations, laws and policies emerging in the last five years. Policymakers in some regions have recognised both the potential and risks in AI, leading to the emergence of policy frames such as *trustworthy AI* in Europe, *responsible use of AI* in Canada, and *people-centred AI* globally (Smuha, 2021; Treasury Board of Canada Secretariat, 2019; UNESCO, 2021). However, most countries are yet to develop national plans or provide opportunities for civil society engagement. Where they exist, national plans for artificial intelligence typically cover principles, objectives, and funding priorities for AI. However, even in those countries where regulation and national plans have emerged these plans are far from harmonised. In part, this is obvious considering scholarship introduced earlier that noted the way definitions of AI differ between research and policymaker community, and the background of geopolitical tensions (Krafft et al., 2020; Smuha, 2021). This is also evident in different regulatory levels to date that include national, sector-based, and risk-based approaches that are all trying to avoid being outpaced by technological developments. Opportunities for civil society engagement have sometimes included the library sector, and these will be the subject of three brief case studies presented in this article. Consequently, the current AI policy and regulatory landscape can be briefly summarised as follows:

Values and rights-based approaches

Trustworthy, responsible, ethical AI are all terms describing a similar approach that in some cases are also evolving into more binding regulations (Smuha, 2021). In Europe, for example, guidelines for trustworthy AI were adopted in 2019 followed by proposed harmonised rules for risk-based regulation in 2021 (European Parliament, 2021). Australia has developed a rights-based approach and adopted a voluntary AI and ethics framework (Australian Human Rights Commission, 2021; Department of Industry, 2021). Values and rights-based approaches tend to result in policies and plans that incorporate issues such as research investment, intellectual property, and export controls. Such approaches also seek to create influence. China's New Generation Artificial Intelligence Development Plan incorporates ethical considerations, but also research funding and education (Roberts et al., 2020; Wu et al., 2020). In Europe, the proposed regulation seeks to influence state and corporate behaviour (Tanna, 2021). A recent analysis of national AI plans suggests variation in democratic countries based on their level of technical maturity in terms of which countries address issues such as ethics and governance in their plans, and those that

don't (Fatima et al., 2021). Values and rights-based approaches can be national, or international. Organisations such as the OECD and UNESCO are looking at how regulation can be applied across multiple countries (Smuha, 2021).

Sectoral approaches

Other countries such as the US are pursuing a sectoral approach (MacCarthy, 2020). Such an approach reflects variation in risk among different sectors, for example, acknowledging the vast gap between lower-risk AI-powered search engines compared to high-risk military applications, or the widespread use of automated decision-making by government (Henriques-Gomes, 2021).

Standards and other forms of regulation

Professional standards and protocols can also be a form of regulation. There is renewed attention to technical and professional standards within key organisations such as the Internet Engineering Task Force (IETF) that have a significant role in internet functions (Rachovitsa, 2016; Raymond & DeNardis, 2015). Within the library sector, statements on AI have canvassed a mix of technical and ethical issues (IFLA FAIFE, 2020).

Libraries in national AI strategies and plans

At the time of writing, the OECD AI policy observatory identified approximately 60 countries with a national AI plan or associated policies (EC/OECD, 2021). Some countries listed in the OECD policy observatory do not have a national AI plan or strategy and instead have plans targeted at specific sectors or initiatives. National plans in English or Spanish language were selected for analysis to identify mentions of libraries or library projects. After reviewing the plans, a small number of national AI plans that mention libraries were identified. Of these, library examples and roles included in the plans typically focused on activities within national libraries such as access to cultural heritage, collections, and language preservation resources, among other topics.

Examples of library work included in national AI plans or strategies can be summarised as follows. This list is not exhaustive and reflects plans at the time of writing:

- Access to digital cultural heritage: Switzerland, Netherlands (Ministry of Economic Affairs and Climate Policy, 2019; Ofcom, 2020);
- Making available collections as data: Germany, Netherlands (Ministry of Economic Affairs and Climate Policy, 2019; The Federal Government, 2020);
- Language databases and recordings: Norway (Ministry of Local Government and Modernisation, 2020);
- Countering bias in AI: Netherlands (Ministry of Economic Affairs and Climate Policy, 2019);
- Smart cities, resource sharing, and energy monitoring: Bulgaria (Ministry of Transport, 2020);
- Hosting researchers in libraries: Ireland (Department of Enterprise, 2021)

These examples broadly align with the library and research projects introduced earlier in this paper that extend longstanding library services with new technologies, such as the availability and reuse of

collection data in AI methods including NLP, OCR, and topic modelling. However, these are not the only areas where libraries have indicated current or future potential to contribute to AI regulation. As AI plans in some countries reach maturity, ethical principles and frameworks have been developed in consultation with civil society, industry, and other groups. The library and information sector in Australia, Canada, and across the European Union has also engaged in various consultations, drawing on the profession's expertise in information ethics, rights impacts, and the emergence of algorithmic literacy.

Australia

Although Australia's national AI plan does not mention libraries, a subsequent process following the plan's adoption led by the Department of Industry, Science, Energy and Resources developed Australia's Artificial Intelligence Ethics Framework via a participatory process (Department of Industry, 2019). Australia and Canada, among other countries, are examples of countries that have developed national ethical principles and frameworks following the adoption of an initial AI plan. In Australia's case, the framework was developed in reference to other processes such as the OECD Principles on AI, Global Partnership on AI, and the EU's Trustworthy AI guidelines. The Australian Library and Information Association (ALIA) responded to the consultation on the voluntary AI framework and observed in their response that AI provides opportunities for service improvements as well as potential threats. A central theme in ALIA's response also focused on training for the profession. ALIA noted, "Library and information professionals will need training and ongoing learning to enable us to understand and apply principles for ethical AI in our business practices." (Australian Library and Information Association, 2019). According to current ALIA guidelines, entry-level librarians in Australia are expected to know about AI and machine learning (Australian Library and Information Association, 2020). However, it is unclear what training is currently available to librarians to develop competencies in these topics.

Canada

Canada adopted the world's first national AI strategy in 2017. The plan includes investment in AI research and researchers, training, and programs that support leadership concerning the ethical and legal implications of AI (CIFAR, n.d.). Following the adoption of the national AI plan, Canada took a participatory approach to consultations on algorithmic decision-making in government that included representation from civil society, and libraries. Public libraries have also served as a venue for public consultation on AI ethics in Quebec (CIFAR, 2018). More recently, in a submission on the Ontario AI framework Canadian library organisations including the Canadian Association of Research Libraries (CARL-ABRC) raised ethical risks in AI, issues associated with AI methods in education and research, and risks to freedom of expression (Canadian Association of Research Libraries, 2021). CARL-ABRC also responded to the consultation on AI regulation and its relation to Canadian personal information protection laws (Canadian Association of Research Libraries, 2020).

Europe

The Council of Europe undertook a consultation on the human rights impacts of algorithmic systems in 2019. IFLA's response highlighted impacts on intellectual freedom, digital exclusion, and the need for literacy skills (IFLA, 2019). Engagement with public libraries and digital literacy were among the endorsed recommendations (Committee of Ministers, 2020).

Future directions for libraries and AI

Library and research projects centred on data and collections have been reflected in some national AI plans and libraries have contributed to the development of several ethical frameworks. However, there is not yet a well-defined role for libraries in other activities defined in some national AI plans such as algorithmic literacy. In part, this can be attributed to a lack of clear definitions of algorithmic literacy and somewhat limited examples of implementation in libraries to date (Ridley & Pawlick-Potts, 2021). Other findings also indicate the potential of training, rather than instances where training is already taking place (Hervieux & Wheatley, 2021) However, expectations for librarians to have some knowledge of AI and machine learning like ALIA's will necessitate learning within the profession, and opportunities for recognition of library activities in higher level plans. Existing projects centred on collections and data highlight existing areas of AI expertise in libraries and provide a transparent, approachable entry point for professionals to learn more about AI methods such as NLP.

While individual capabilities are critical to understanding, they are not on their own sufficient to address the systemic human rights, ethical, technological, and geopolitical impacts of AI. The current state therefore provides an opportunity to question what role the library and information sector will have concerning broader rights impacts and themes such as ethical AI. Privacy, for example, is central to library values and one of the key human rights impacted by AI (Rodrigues, 2020). Recent privacy scholarship has urged a stronger focus on the societal value of privacy and regulating structures around how information is used and transferred, and less effort on regulations that largely rely on individuals to manage their privacy risks (Solove, 2021). The need to consider societal impacts as well as individual rights suggests that while there is an important role for regulations that protect individuals and promote algorithmic literacy, such efforts should not be at the expense of addressing systemic problems and minimising harm. Consequently, there is a key role for the library and information profession at both the individual and systemic levels to develop skills while also advocating for reforms in line with key ethical principles and values. The sector's expertise in these dual roles gained from working on issues related to AI including copyright, privacy and data protection provides a strong basis for ways to approach the human rights and ethical challenges of AI.

The third form of regulation identified earlier includes professional standards and ethics. Considering the emergence of multi-sector and multistakeholder ethical AI frameworks such as those in Australia and Canada and the sheer breadth of AI applications, the profession should not take a library-centric approach to the intersection between AI and ethics. Instead, the profession will need to continually reassert core, longstanding ethical values in advocacy at all levels, and in professional training. In turn, the profession will also need to make space to acknowledge and integrate broader ethical AI frameworks and approaches into library work. At the current time, librarians have a range of views about AI from embracing its potential to deep scepticism and alarm. Meanwhile, many library vendors are already promoting AI as part of their products (Hervieux & Wheatley, 2021). Yet as observed earlier about the "black boxing" effects of algorithms and AI, there is not yet enough disclosure or transparency about how these features work nor what ethical standards companies are held to. More debate is needed to build consensus about where the profession stands concerning the use of AI and to resolve ethical dilemmas so that the sector can advocate in regulatory processes effectively. Work is also required to reference ethical AI frameworks in library ethical statements, service development, procurement decisions, and lastly, to provide guidance for library users about AI in their daily lives.

Conclusion

The paper includes a snapshot of library activities and initiatives in AI regulation in a rapidly changing environment. Libraries have been active in shaping and influencing the development of copyright, data protection, and other laws that have created the foundation for contemporary AI applications and machine learning. These regulations have helped libraries to open up their data and collections, but other aspects of these reforms have enabled greater aggregation and analysis of data by companies and governments. As evidenced in this paper, the sector is already participating in consultations and processes to ensure that the future of AI is rights-based, ethical, and transparent. Although there is a limited representation of library services in existing national AI plans and frameworks to date, AI regulation is still somewhat nascent which suggests likely opportunities for libraries in many countries to engage in the future. The risks of algorithmic bias and automated decision-making have led to calls for government regulation, civil society pressure on private companies, and the need for significant reflection on ethical practice. Future regulations may impact library services in ways that are not yet knowable, as seen in the way copyright and data protection laws have impacted library services both positively and negatively in the digital environment. Thus, instead of solely viewing responses to AI through a library-centric lens, the breadth and embeddedness of AI in nearly every aspect of daily life mean that the sector must both contribute to, and draw on, national and sectoral regulations that reflect the role of libraries within a broader information ecosystem.

References

Australian Human Rights Commission. (2021). *Human rights and technology*. https://tech.humanrights.gov.au/sites/default/files/2021-05/AHRC_RightsTech_2021_Final_Report.pdf

Australian Library and Information Association. (2019). *Australia's AI Ethics Framework Response 616546801*. https://read.alia.org.au/alia-submission-response-csiro-data61-artificial-intelligence-australias-ethics-framework-discussion

Australian Library and Information Association. (2020). *Foundation knowledge for entry-level library and information professionals*. https://read.alia.org.au/foundation-knowledge-entry-level-library-and-information-professionals

Babski, D., Lu, Z., & Comeau, D. (2022, 2 February). NLM is a Leader in Using AI to Improve User Experiences. *NLM Musings from the Mezzanine*. https://nlmdirector.nlm.nih.gov/2022/02/02/nlm-is-a-leader-in-using-ai-to-improve-user-experiences/

Bradley, F. (2019). *Anticipating governance, unintended consequences, and disruptive technologies: What recent developments mean for libraries* IFLA WLIC Libraries: dialogue for change, Athens, Greece. http://library.ifla.org/id/eprint/2588

Brevini, B., & Pasquale, F. (2020). Revisiting the Black Box Society by rethinking the political economy of big data. *Big Data & Society*, *7*(2), 2053951720935146. https://doi.org/10.1177/2053951720935146

Bringsjord, S., & Govindarajulu, N. S. (2020). Artificial Intelligence. In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy* (Summer 2020 ed.). Metaphysics Research Lab, Stanford University. https://plato.stanford.edu/archives/sum2020/entries/artificial-intelligence/

Canadian Association of Research Libraries. (2020, 13 March 2020). *Canadian Association of Research Libraries submission on the Office of the Privacy Commissioner of Canada's Proposals for*

ensuring appropriate regulation of artificial intelligence. Retrieved 28 January from https://www.carl-abrc.ca/wp-content/uploads/2020/03/CARL_Submission_AI_and_PIPEDA.pdf
Canadian Association of Research Libraries. (2021). *CARL submission to Ontario Government's Consultation on Developing Ontario's Artificial Intelligence (AI) Framework*. CARL-ABRC. Retrieved 28 January from https://www.carl-abrc.ca/wp-content/uploads/2021/06/CARL_Ontario_AI_Submission.pdf
CIFAR. (2018, 6 June 2018). *Canada and France make historic commitment to inclusive and ethical AI*. https://cifar.ca/cifarnews/2018/06/06/canada-and-france-make-historic-commitment-to-inclusive-and-ethical-ai/
CIFAR. (n.d.). *Pan-Canadian AI Strategy*. https://cifar.ca/ai/
Committee of Ministers, Council of Europe. (2020). *Recommendation CM/Rec(2020)1 of the Committee of Ministers to member States on the human rights impacts of algorithmic systems*. https://search.coe.int/cm/pages/result_details.aspx?objectid=09000016809e1154
Cox, A. (2020). *The impact of AI, machine learning, automation and robotics on the information profession*. https://www.cilip.org.uk/page/researchreport
Crews, K. D. (2015). *Studies on Copyright Limitations and Exceptions for Libraries and Archives*. World Intellectual Property Organization. https://www.wipo.int/copyright/en/limitations/libraries_and_archives.html
DeNardis, L. (2020). After the Internet. In *The Internet in Everything* (pp. 3-24). Yale University Press. https://doi.org/10.2307/j.ctvt1sgc0.4
Department of Enterprise, Trade, Employment, Government of Ireland. (2021). AI - Here for Good: National Artificial Intelligence Strategy for Ireland. *Government of Ireland*. https://www.gov.ie/en/publication/91f74-national-ai-strategy/
Department of Industry, Science, Energy and Resources. (2021, 17 June 2021). *Australia's AI Ethics Principles*. https://www.industry.gov.au/data-and-publications/australias-artificial-intelligence-ethics-framework/australias-ai-ethics-principles
Department of Industry, Science, Energy and Resources,. (2019). *Australia's AI Ethics Framework*. https://consult.industry.gov.au/australias-ai-ethics-framework
Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market, Pub. L. No. 2019/790, European Parliament and Council of the European Union (2019). https://eur-lex.europa.eu/eli/dir/2019/790/oj
EC/OECD. (2021). *OECD.AI OECD Artificial Intelligence Policy Observatory database of national policies*. OECD. Retrieved 18 January from https://oecd.ai/
European Parliament. (2021, 21 April 2021). *Proposal for a Regulation of The European Parliament and of the Council Laying Down Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act) and Amending Certain Union Legislative Acts*. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0206
Fatima, S., Desouza, K. C., Dawson, G. S., & Denford, J. S. (2021). Analyzing artificial intelligence plans in 34 countries. *Brookings*. https://www.brookings.edu/blog/techtank/2021/05/13/analyzing-artificial-intelligence-plans-in-34-countries/
Fister, B. (2020, 9 March 2020). Libraries and the practice of freedom in the age of algorithms. *barbara fister*. https://barbarafister.net/libraries/libraries-and-the-practice-of-freedom-in-the-age-of-algorithms/
Gillespie, T. (2020). Content moderation, AI, and the question of scale. *Big Data & Society*, *7*(2), 205395172094323. https://doi.org/10.1177/2053951720943234
Gorman, L. (2020). *A Future Internet for Democracies: Contesting China's Push for Dominance in 5G, 6G, and the Internet of Everything*. https://securingdemocracy.gmfus.org/future-internet/
Gorwa, R., Binns, R., & Katzenbach, C. (2020). Algorithmic content moderation: Technical and political challenges in the automation of platform governance. *Big Data & Society*, *7*(1), 2053951719897945. https://doi.org/10.1177/2053951719897945

Heathman, A. (2017, 2017/01/09/). This AI found trends hidden in British history for more than 150 years. *Wired UK*. https://www.wired.co.uk/article/british-history-big-data-ai

Henriques-Gomes, L. (2021, 11 June 2021). Robodebt: court approves $1.8bn settlement for victims of government's 'shameful' failure. *The Guardian*. http://www.theguardian.com/australia-news/2021/jun/11/robodebt-court-approves-18bn-settlement-for-victims-of-governments-shameful-failure

Hernandez-Perez, J. (2019). Facial Recognition, Libraries, and Intellectual Freedom. *SpeakUP!* http://blogs.ifla.org/faife/2019/08/19/facial-recognition-libraries-and-intellectual-freedom/

Hervieux, S., & Wheatley, A. (2021). Perceptions of artificial intelligence: A survey of academic librarians in Canada and the United States. *The Journal of Academic Librarianship*, *47*(1), 102270. https://doi.org/10.1016/j.acalib.2020.102270

Hong, Y., & Harwit, E. (2020). China's globalizing internet: history, power, and governance. *Chinese Journal of Communication*, *13*(1), 1-7. https://doi.org/10.1080/17544750.2020.1722903

IFLA. (2019, 17 September 2019). *The Human and the Algorithm: Response to Council of Europe's Draft Recommendation on Human Right Impacts of Algorithmic Systems*. IFLA. https://www.ifla.org/news/the-human-and-the-algorithm-response-to-council-of-europe-s-draft-recommendation-on-human-right-impacts-of-algorithmic-systems/

IFLA FAIFE. (2020). *IFLA Statement on Libraries and Artificial Intelligence*. https://repository.ifla.org/handle/123456789/1646

Kapczynski, A. (2020). The Law of Informational Capitalism. *Yale Law Journal*, *129*(5), 1276-1599. https://www.yalelawjournal.org/review/the-law-of-informational-capitalism

Klonick, K. (2020). The Facebook Oversight Board: Creating an Independent Institution to Adjudicate Online Free Expression. *Yale Law Journal*, *129*(8). https://www.yalelawjournal.org/feature/the-facebook-oversight-board

Krafft, P. M., Young, M., Katell, M., Huang, K., & Bugingo, G. (2020). Defining AI in Policy versus Practice. In *Proceedings of the AAAI/ACM Conference on AI, Ethics, and Society* (pp. 72-78). Association for Computing Machinery. https://doi.org/10.1145/3375627.3375835

Krafft, T. D., Zweig, K. A., & König, P. D. (2022). How to regulate algorithmic decision-making: A framework of regulatory requirements for different applications. *Regulation & Governance*, *16*(1), 119-136. https://doi.org/10.1111/rego.12369

Langvardt, K. (2017). Regulating Online Content Moderation. *Georgetown Law Journal*, *106*(5), 1353-1388. https://www.law.georgetown.edu/georgetown-law-journal/wp-content/uploads/sites/26/2018/07/Regulating-Online-Content-Moderation.pdf

Latour, B. (2000). *Pandora's hope: Essays on the reality of science studies*. Harvard University Press.

Llansó, E. J. (2020). No amount of "AI" in content moderation will solve filtering's prior-restraint problem. *Big Data & Society*, *7*(1), 2053951720920686. https://doi.org/10.1177/2053951720920686

MacCarthy, M. (2020). AI needs more regulation, not less. *Brookings Institution*. https://www.brookings.edu/research/ai-needs-more-regulation-not-less/

Ministry of Economic Affairs and Climate Policy. (2019). *Strategic Action Plan for Artificial Intelligence* [rapport]. https://www.government.nl/documents/reports/2019/10/09/strategic-action-plan-for-artificial-intelligence

Ministry of Local Government and Modernisation, Government of Norway. (2020). *The National Strategy for Artificial Intelligence*. https://www.regjeringen.no/en/dokumenter/nasjonal-strategi-for-kunstig-intelligens/id2685594/

Ministry of Transport, Information Technology, Communications, Government of Bulgaria. (2020). *Concept for the Development of Artificial Intelligence in Bulgaria Until 2030*. https://www.mtc.government.bg/sites/default/files/conceptforthedevelopmentofaiinbulgariauntil2030.pdf

Morozov, E. (2018, 9 June 2018). US power to rule a digital world ebbs away. *The Observer*. http://www.theguardian.com/technology/2018/jun/09/trade-war-trump-technology-internet-protectionism-web-business-morozov-uber

Moses, L. B. (2015). How to Think about Law, Regulation and Technology: Problems with 'Technology' as a Regulatory Target. *Law, Innovation and Technology*, *5*(1), 1-20. https://doi.org/10.5235/17579961.5.1.1

Noble, S. U. (2018). *Algorithms of oppression*. New York University Press.

Recommendation of the Council on Artificial Intelligence, (2019). https://legalinstruments.oecd.org/en/instruments/oecd-legal-0449

Ofcom, Federal Office of Communications,. (2020). *Digital Switzerland Strategy*. https://www.bakom.admin.ch/bakom/en/home/digital-und-internet/strategie-digitale-schweiz.html

Padilla, T. (2019). *Responsible Operations: Data Science, Machine Learning, and AI in Libraries*. https://www.oclc.org/research/publications/2019/oclcresearch-responsible-operations-data-science-machine-learning-ai.html

Rachovitsa, A. (2016). Engineering and lawyering privacy by design: understanding online privacy both as a technical and an international human rights issue. *International Journal of Law and Information Technology*, *24*(4), 374-399. https://doi.org/10.1093/ijlit/eaw012

Raymond, M., & DeNardis, L. (2015). Multistakeholderism: anatomy of an inchoate global institution. *International Theory*, *7*(3), 572-616. https://doi.org/10.1017/S1752971915000081

Ridley, M., & Pawlick-Potts, D. (2021). Algorithmic Literacy and the Role for Libraries. *Information Technology and Libraries*, *40*(2). https://doi.org/10.6017/ital.v40i2.12963

Roberts, H., Cowls, J., Morley, J., Taddeo, M., Wang, V., & Floridi, L. (2020). The Chinese approach to artificial intelligence: an analysis of policy, ethics, and regulation. *Ai & Society*, *36*(1), 59-77. https://doi.org/10.1007/s00146-020-00992-2

Rodrigues, R. (2020). Legal and human rights issues of AI: gaps, challenges and vulnerabilities. *Journal of Responsible Technology*, 100005. https://doi.org/10.1016/j.jrt.2020.100005

Russell, S. J., & Norvig, P. (2020). *Artificial Intelligence: A Modern Approach* (4th ed.). Pearson.

Smuha, N. A. (2021). From a 'race to AI' to a 'race to AI regulation': regulatory competition for artificial intelligence. *Law, Innovation and Technology*, *13*(1), 57-84. https://doi.org/10.1080/17579961.2021.1898300

Solove, D. J. (2021). The Myth of the Privacy Paradox. *George Washington Law Review*, *89*(1), 1-51. https://scholarship.law.gwu.edu/faculty_publications/1482/

Tanna, M. (2021). The EU Draft AI Regulation: what you need to know now. *Society for Computers and Law*. https://www.scl.org/articles/12278-the-eu-draft-ai-regulation-what-you-need-to-know-now

The Federal Government, Germany. (2020). *Artificial Intelligence Strategy of the German Federal Government*.

Transparency International, & Article 19. (2018). *Privacy and Freedom of Expression In the Age of Artificial Intelligence*. https://www.article19.org/wp-content/uploads/2018/04/Privacy-and-Freedom-of-Expression-In-the-Age-of-Artificial-Intelligence-1.pdf

Treasury Board of Canada Secretariat. (2019, 2019-03-04). *Ensuring responsible use of artificial intelligence to improve government services for Canadians*. https://www.canada.ca/en/treasury-board-secretariat/news/2019/03/ensuring-responsible-use-of-artificial-intelligence-to-improve-government-services-for-canadians.html

UNESCO. (2021, 24 November 2021). *Recommendation on the ethics of artificial intelligence*. https://en.unesco.org/artificial-intelligence/ethics

Vaidhyanathan, S. (2021, 2 July 2021). What If Regulating Facebook Fails? *Wired*. https://www.wired.com/story/what-if-regulating-facebook-fails/

White, B. (2017). *Briefing: Impact of the General Data Protection Regulation 2018*. https://www.ifla.org/wp-content/uploads/2019/05/assets/clm/publications/briefing_general_data_protection_regulation_2018.pdf

Wu, F., Lu, C., Zhu, M., Chen, H., Zhu, J., Yu, K., Li, L., Li, M., Chen, Q., Li, X., Cao, X., Wang, Z., Zha, Z., Zhuang, Y., & Pan, Y. (2020). Towards a new generation of artificial intelligence in China. *Nature Machine Intelligence*, *2*(6), 312-316. https://doi.org/10.1038/s42256-020-0183-4

Yoon, J., Andrews, J. E., & Ward, H. L. (2021). Perceptions on adopting artificial intelligence and related technologies in libraries: public and academic librarians in North America. *Library Hi Tech*, *ahead-of-print*(ahead-of-print). https://doi.org/10.1108/LHT-07-2021-0229