



Public Health
Association of BC

Public Health Summer Institute 2023

Thursday, June 22nd and Friday, June 23rd



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Land Acknowledgement

- I acknowledge and respect the ləkʷəŋən peoples on whose traditional territory the university stands, and the Songhees, Esquimalt and WSÁNEĆ peoples whose historical relationships with the land continue to this day.

Ethics, Governance and Regulation of AI

Overview

- Why govern and regulate AI?
- Technological Determinism and Technological Enablement: Understanding technology as a socio-technical system
- The political economy of AI:
 - The platform economy
 - Network societies and network power
 - Social disembedding/re-embedding
 - Surveillance capitalism
- Emerging technologies: AI as a 'hot' technological field
 - The performative function of 'hype'
- Governance
 - Tentative Governance
 - Ethical Governance
 - Responsible AI
- AI Policy



Why Govern and Regulate AI?

Since 2016, there have been several driving elements that have brought focus to the ethics, governance and regulation of AI:

1. It has become increasingly apparent that AI is likely to have profound implications in many societal sectors, such as the political system, the labor market and the welfare state.
2. The idea that Artificial General Intelligence (AGI) can supersede human intelligence and even pose a existential threat to human civilization has captured the collective imagination, especially boosted in 2023 with the release of ChatGPT4.
3. The scandals of the misuse of social media generated big data in political systems, with the Cambridge Analytica scandal being the example most widely publicized, has pushed many jurisdictions to ramp up efforts to regulate the use of AI.



Technological Determinism

- Technological determinism is the view that technologies, by themselves, are inherently progressive or regressive; that they contain within them the seeds of future social change.
- It argues that the nature of a technology will determine how society will look in the future.
- Thus, the idea was that television, in and of itself, would determine how we communicate, interact with one another, relate as friends and family, engage in politics.
- In other words, the nature of technology makes certain types of social change inevitable.



The Social Determination of Technology

- The polar opposite viewpoint sees the arrival and future progress of technology as an inevitable outcome of certain social processes.
- This view tends to see a kind of evolutionary inevitability to the way social and economic processes are changing, and that the types of technology those changing processes require will automatically come into being.
- It leaves the intentionality and agency of inventors and their inventions out of the equation.
- Typically, these types of deterministic views are aligned with utopian or dystopian techno-fantasy.



Technological Enablement

- Technological enablement is the approach that thinks of technology as enabling and proving certain 'affordances'. This works in two ways: it means technologies are invented with intentionality, in order to do something; it also means that once they are implemented in various ways, the technologies have certain material potentialities that can be exploited.
- This means that the enablement perspective sees both intended uses and unintended uses and consequences of technology as equally important.
- Technologies have within them a multiplicity of affordances, some of which will be realized, some not.
- It is crucial to understand that the concept of affordance means that the specific application is a combination of the material and the social.



A Socio-technical Systems Approach

- ‘Socio-technical systems’ refer to:

“the fact that individual technical artefacts or innovations are not operating in isolation. On the contrary, the functioning of technical artefacts and innovations is highly dependent on specific and complex ensembles of elements in which they are embedded. It is not the individual artefact or innovation as such that has an effect, but it is interplay with and embedding in other technical and non-technical elements in society and economy.” (Borras & Edler, 2014) quoted in (Ulnicane et al., 2022)



The Political Economy of AI

- Before we lay out the details of emerging attempts to catch up with AI proliferation and implementation in terms of ethical implications, governance, regulation and policy, we need to situate ourselves in the political economy within which AI has developed, is developing now and will likely develop in the near future.
- Key concepts:
 - 1. The Platform Economy
 - 2. Network Power
 - 3. Social disembedding/re-embedding
 - 4. Surveillance Capitalism



The Platform Economy

“We prefer the term “platform economy,” or “digital platform economy,” a more neutral term that encompasses a growing number of digitally enabled activities in business, politics, and social interaction. If the industrial revolution was organized around the factory, today’s changes are organized around these digital platforms, loosely defined. Indeed, we are in the midst of a reorganization of our economy in which the platform owners are seemingly developing power that may be even more formidable than was that of the factory owners in the early industrial revolution (Kenny & Zysman, 2016).”

“The belated recognition of the increasing power and pervasiveness of platform firms has resulted in a remarkably rapid change in the policy framing and discourse among political elites and other state actors who had for so long viewed with little concern the unfettered growth, expansion, self-organisation, and largely unilateral private ordering of platform business models and governance (Jacobides and Lianos 2021). As a consequence, the laissez faire neoliberal regulatory ideology of the past quarter century that has prevailed with respect to the Internet in general and to online business platforms in particular is losing its societal legitimacy and political potency.” (Cioffi et al., 2022)



Network Power

“due to their central role in the mediation of online transactions and relationships, platform firms have vast advantages in accumulating, analyzing, and commodifying data for their own use and for sale of either the data or insights gleaned from the data to other parties. Finally, and perhaps most vital, the powerful network effects of online platforms not only underpin and magnify all these economic advantages, they also create winner-take-all dynamics that define the incentives of the managers and financiers of platform firms and drive the monopolistic tendencies within the platform economy” (Cioffi et al., 2022)

- Although we often think of the network form as connoting decentralization, participation, and non-hierarchical structures of authority, scientists who study networks have noted that, in fact, real world networks are often highly centralized in terms of power, have limited autonomy of action for less powerful nodes, and can enact quite strong hierarchical relationships.
- Mechanisms that drive inequality in networks are the cumulative advantages/disadvantages that accrue automatically via preferential attachment, creating “rich get richer” phenomena.
- AI is being developed and controlled mainly by the leading platform firms, who already have dominant market power through their control of the network platforms themselves.



Social Disembedding/Reembedding: The Polanyian 'Double Movement'

First Movement: Disembedding

“Consistent with Polanyi’s account of historical dynamics, the ‘first movement’ in the development of the platform economy is one in which private interests, enterprises, organisations seize the developmental initiative and scale up often with breathtaking speed, generate and accumulate enormous reserves of political economic power, and leverage their speed and power to outpace and thwart the capacities of states to govern and regulate them effectively. Platform firms have at times circumvented or simply ignored regulation, and have consistently deployed growing political influence to protect and advance their command of increasingly concentrated market power and control over resources”

The Second Movement: Reembedding

“We are witnessing an incipient ‘second movement’ during which societal forces mobilize against the growing and increasingly concentrated power of private firms and markets by enlisting state power through economic governance and regulation. These social forces can include not only oppositional forces such as ‘classes’, but also business sectors and firms such as Walmart, Target, and other retailers’ increasing opposition to Amazon; the New York Times and Washington Post opposing Facebook, Twitter and the like; advertising firms opposing Google and Facebook’s grip on the advertising market; local car dealerships opposing Carvana, AutoTrader, and other online car platforms; ad infinitum.” (Cioffi et al., 2022)

Surveillance Capitalism (Shoshana Zuboff)

Shoshana Zuboff developed the argument that there is a new 'logic of accumulation' based on big data, which acts as 'surveillance assets' and attracts 'surveillance capital' as the new dominant form of investment.

The argument is outlined in a series of steps:

- The universality of computer-mediated transactions creates the ubiquitous generation of information in the form of data which is extracted, analyzed, packaged and sold by the mega-platform firms, with Google being the exemplary case and model for this new business strategy.

“Now the enduring questions of authority and power must be addressed to the widest possible frame that is best defined as ‘civilization’ or more specifically – information civilization. Who learns from global data flows, what, and how? Who decides? What happens when authority fails? What logic of accumulation will shape the answers to these questions? Recognizing their civilizational scale lends these questions new force and urgency. Their answers will shape the character of information civilization in the century to come, just as the logic of industrial capitalism and its successors shaped the character of industrial civilization over the last two centuries.” (Zuboff, 2015)



Emerging Technologies: AI as a ‘hot’ technological field

- “the five key attributes of an emerging technology are radical novelty, relatively fast growth, coherence, prominent impact, and uncertainty and ambiguity” (Ulnicane et al., 2022).
- ‘Hot fields’ of research, according to Robert Merton, “intertwined cognitive and social processes of intense interaction and rivalry in a new scientific field lead to the rapid growth of knowledge and scientific innovation.”
- Emerging technologies, Ulnicane et al. argue, are characterized by ‘hypes’ that have a performative function.
- Hypes are closely related to expectations, both positive and negative, that shape emerging technologies.
- “Importantly for policy and governance, “when more and more actors share similar expectations, the promises inherent to these expectations are gradually translated into requirements, guidelines, and specifications regarding the new technology.”” (Van Lente et al. , 2013, quoted in Ulnicane et al.)



Governance

- “Governance of emerging sciences and technologies faces special challenges due to uncertainties around their future developments, societal benefits, and risks”
- This leads to what has been termed ‘**tentative governance**’:
 - “As opposed to more definitive modes of governance, tentative governance maintains flexibility and is open to experimentation, learning, and reflexivity. While uncertainty is a typical characteristic for all sciences and technologies, and thus their governance can benefit from including elements of tentativeness, uncertainties are particularly pronounced in the case of emerging sciences and technologies, and therefore tentative governance is of special importance here.”



Governance

- **Ethical Governance:** “a set of processes, procedures, cultures and values designed to ensure the highest standards of behaviour. Ethical governance thus goes beyond simply good (i.e. effective) governance, in that it inculcates ethical behaviours in both individual designers and the organisations in which they work. Normative ethical governance is seen as an important pillar of responsible research and innovation” (Winfield & Jirotko, 2018, quoted in Ulnicane et al.)
- **Responsible AI:** “the development of intelligent systems according to fundamental human principles and values.”⁴¹ According to her, “responsibility is about ensuring that results are beneficial for many instead of a source of revenue for a few. (Dignum, quoted in Ulnicane et al.)
- Winfield and Jirotko’s Five Pillars:
 - first, publish an ethical code of conduct;
 - second, provide ethics and responsible innovation training;
 - third, practice responsible innovation, including the engagement of wider stakeholders within a framework of anticipatory governance that includes an ethical risk assessment of new products;
 - fourth, be transparent about ethical governance;
 - and fifth, really value ethical governance as one of the core values rather than just a smokescreen.



AI Policy

- By 2020, over 50 countries were in the process, or had developed an AI strategic policy.
- Uneven global development with almost all the countries being in the developed world, with most of Africa, Latin America and many parts of Asia left out.
- Ethical AI guidelines and frameworks have a similar uneven development.
- There is a “global convergence emerging around five ethical principles (transparency, justice and fairness, non-maleficence, responsibility and privacy), with substantive divergence in relation to how these principles are interpreted, why they are deemed important, what issue, domain or actors they pertain to and how they should be implemented” (Jobin, Ienca, Vayena, 2019, quoted in Ulnicane et al.)



AI Policy

- Policy Frames:
 - 1. AI as a revolutionary, transformative, and disruptive technology
 - 2. Emerging global competition and collaboration in the field of AI
 - 3. The role of policy in balancing benefits, risks, and responsibilities in the development and use of AI



AI Policy: Summary of global Developments: The State of Global AI Regulations in 2023 E-Book holisticai.com

What to watch for in 2023



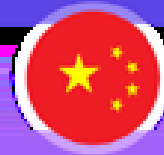
European Union

The groundwork will be laid for the EU AI Act to hopefully take effect in the next 2 years, promoting a risk management framework to be prepared in tandem with the DMA & DSA.



United States

How regulatory bodies and case law lead the pack in targeting companies that intentionally use bad data, and dark patterns and proliferate algorithmic discrimination.



China

Focusing on the implications of digital services, attempting to delve into the complexity of recommender systems, black box technology and enforce its deepfake regulation.



UK

Its sectorial approach to the regulation of AI will continue, pushing for innovation while considering transparency and consumer protection.

AI Policy: The EU Example

- The EU has been recognized as leading the global dialogue and discussion about how to govern and regulate AI through policy mechanisms of various sorts
- The **EU AI Act**, to be implemented in 2024.
- Operates in tandem with **Digital Markets Act** and the **Digital Services Act**
- These regulations are based on a risk management approach, that identifies both specific activities that are deemed 'high risk' and entities, specifically large platforms that act as 'gatekeepers' to markets.
- Important to note major exceptions to protect national security interests.



AI Policy: The EU Example

- High-risk systems are ones that can have a significant impact on the life chances of a user and are subject to specific requirements. High-risk systems include those used in:
 - Biometrics
 - Critical infrastructure
 - Education and vocational training
 - Employment, workers management and access to self-employment
 - Access to and enjoyment of essential private services and essential public services and benefits
 - Health and life insurance
- Systems with unacceptable risk are those that manipulate behaviour in a way that may result in physical or psychological harm, exploit the vulnerabilities of groups, or are used for social scoring by governments and private actors. (The State of Global AI Regulations in 2023 E-Book)



AI Policy: The EU Example: The Digital Markets Act

- *Gatekeepers*: Here, gatekeepers are defined as providers of core platform services:
- Online intermediation services
- Online search engines
- Online social networking services
- Video-sharing platform services
- Number-independent interpersonal communication services
- Operating systems
- Cloud computing services
- Advertising services
- Web browsers
- Virtual assistants



AI Policy: The EU Example: The Digital Markets Act

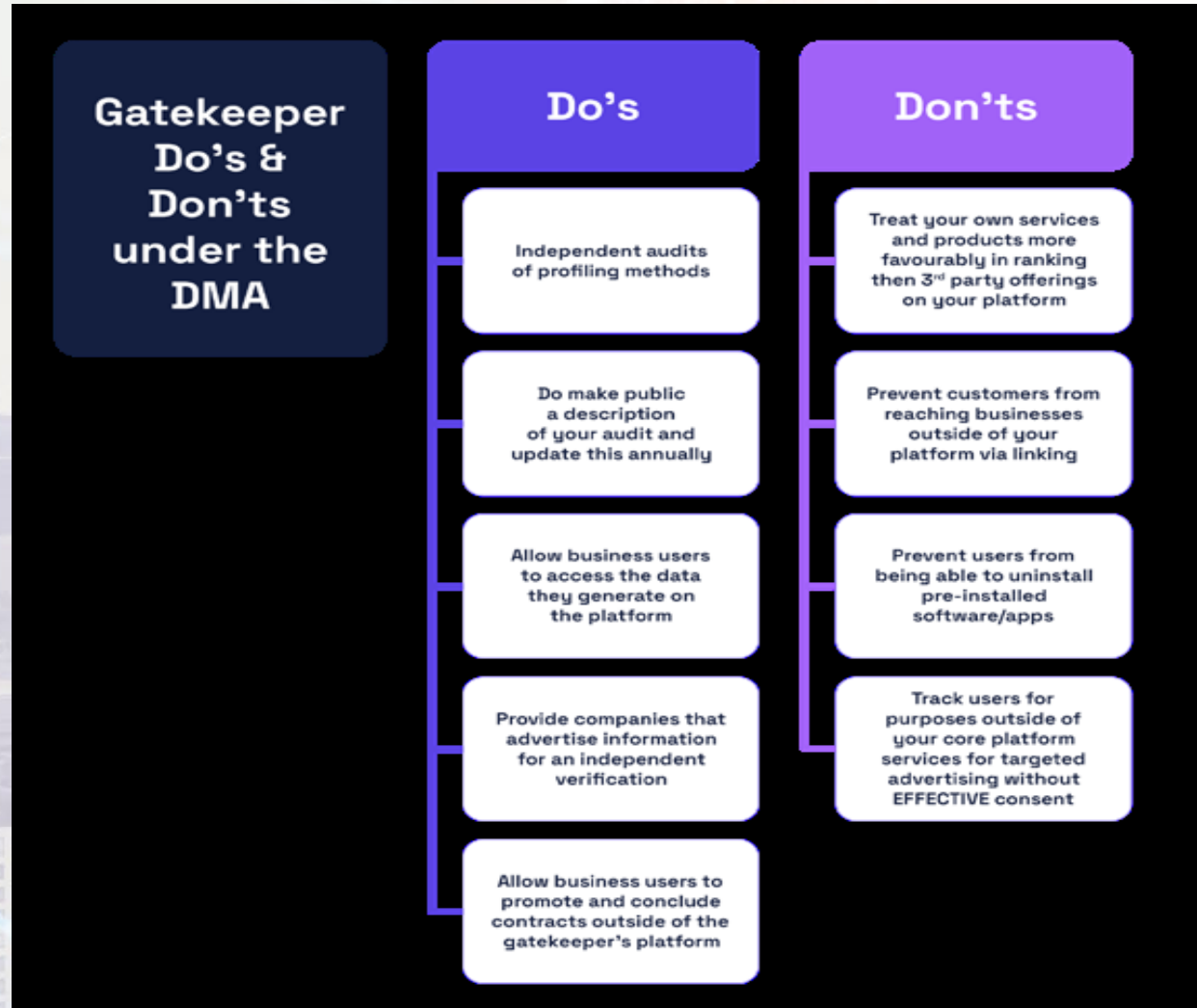
- *Criteria for Gatekeepers:*

1. Are of a size that impacts the internal market.
2. Have the control of an important gateway for business users towards final consumers.
3. Are in an entrenched and durable position.

Firms can appeal to be exempted based on extenuating circumstances, even if they meet these criteria.



AI Policy: The EU Example: The Digital Markets Act

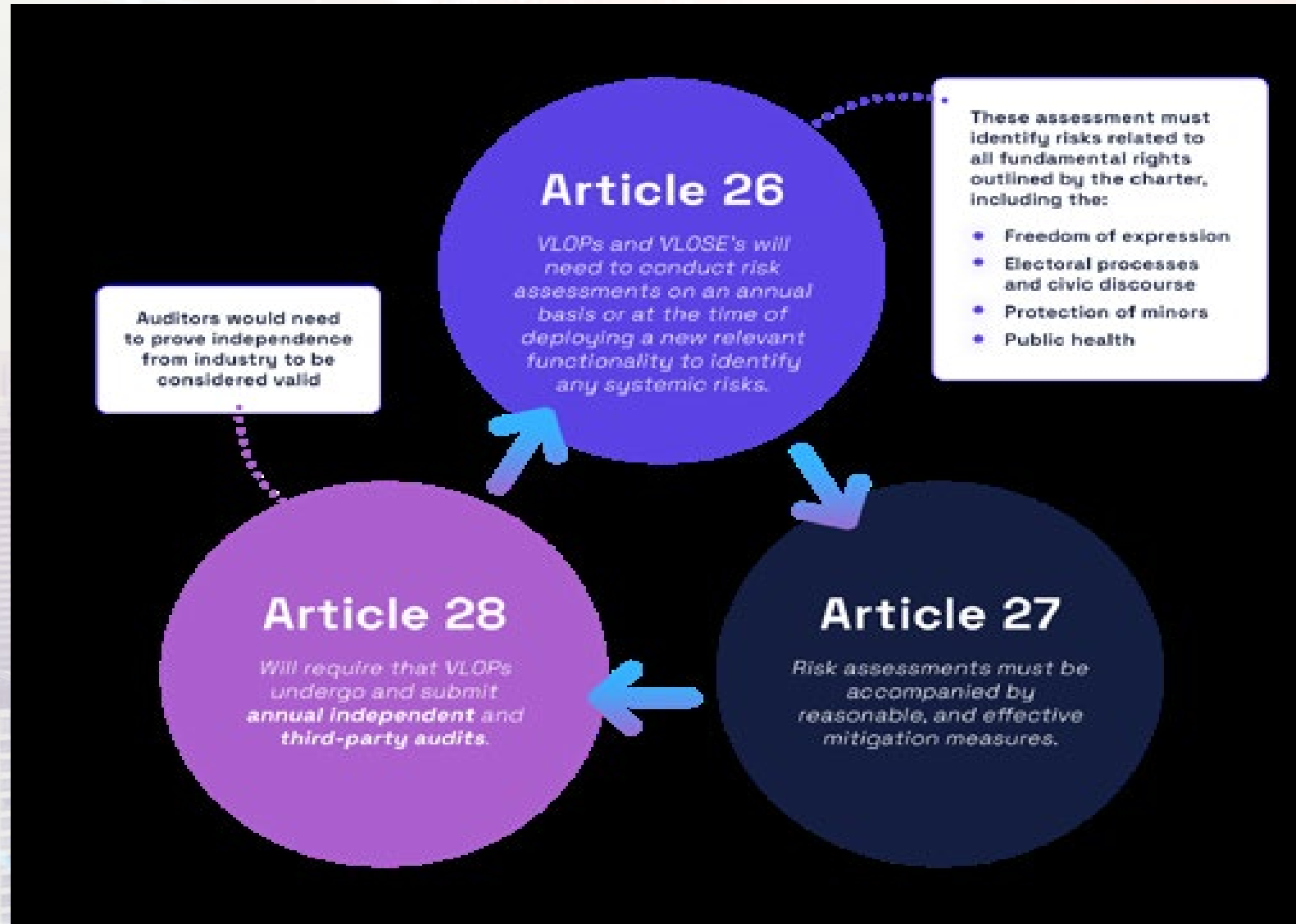


AI Policy: The EU Example: The Digital Services Act

- There is a specific focus on Very Large Online Platforms (VLOPs) and Very Large Online Search Engines (VLOSEs), where VLOPs have been defined as platforms that have over 45 million average monthly users in the EU.
- A risk governance approach underpins the EU Digital Services Act. It pertains to regulated responsibilities to address systemic issues such as disinformation, hoaxes and manipulation during pandemics, harm to vulnerable groups and other emerging societal harms. These issues are categorised as online harm/harmful content in the legislation and are governed by Articles 26, 27 and 28.



AI Policy: The EU Example: The Digital Services Act



AI Policy: Canada(Regis & Flood, 2021)

“ The key challenges and issues in this area are as follows:

- Canadian federalism, and Canada’s fragmented jurisdiction over health, complicates the governance of artificial intelligence (AI) in health care. The results are cascading layers of governance and regulation, and uncertainty as to whether the totality sufficiently regulates AI in health care settings.
- There is uncertainty as to key legal issues, including the legal requirements with respect to privacy and liability for AI-related injuries (e.g. the physician, the manufacturer of the AI technology, the hospital).
- Health Canada’s current device certification framework is unadapted for tools relying on ever-evolving algorithms and there is a need to design a new framework that is robust and yet flexible.
- The uptake of AI in health must be efficient and equitable. There is a need for clear guidance on best practices for fair processes for adoption of AI into health care system
- AI is often presented as potentially empowering patients in their interactions with health care providers and in managing their own health. The challenge is in creating the appropriate regulatory framework and guidance tools (for example educational and certification tools) to ensure that patients can safely use AI in the management/treatment of health needs.
- There are concerns over algorithmic bias that further disadvantage marginalized populations. Advanced AI are essentially “black boxes” that autonomously learn from the data they are fed. Issues such as bias therefore need to be addressed at the development stage, requiring computer scientists to use diverse datasets when training the algorithms. We accordingly need to establish and periodically review measures so AI tools are nondiscriminatory”



AI Policy: Canada(Regis & Flood, 2021)

- The role of Health Canada and the Medical Devices Regulations
- The Medical Device Bureau and the Digital Health Division
- “Regulatory sandboxes”
- Health Technology Assessment



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