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Regulating AI as a Structural Determinant of Health

Cason D. Schmit, JD

Assistant Professor

Department of Health Policy and Management

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TEXAS A&M UNIVERSITY

School of Public Health

- What is artificial intelligence (AI)?
- Why should public health professionals care about AI governance?
- What are the different approaches to AI governance?
- How can public health experts improve the public health relevance of existing AI governance efforts?

What is Artificial Intelligence (AI)

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- AI system is*
 - “an engineered or machine-based system that can, for a given set of **human-defined objectives**, generate outputs such as **predictions, recommendations, or decisions** influencing real or virtual environments. AI systems are designed to operate with varying levels of autonomy (Adapted from: OECD Recommendation on AI:2019; ISO/IEC 22989:2022).”

***No universally recognized definition of AI**

NIST AI Risk Management Framework: Second Draft August 18, 2022

AI: a Structural Determinant of Health

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- AI will affect virtually all facets of everyday life. It can:
 - Identify social media content likely to prolong engagement
 - (and add to alarming mental health challenges and despair among youth).
 - Identify consumers likely to successfully repay bank loans
 - (and exacerbate disparities in wealth and homeownership).
 - Aid employers in identifying productive job candidates
 - (and systematically discriminate against minority applicants).
 - Automate many tasks that require substantial human effort
 - (and eliminate employment opportunities).
 - Create new sharable content and media
 - (incl. deepfake videos designed to deceive individuals and communities).
 - Predicting where crimes might occur and who might commit them
 - (and exacerbate existing biases and inequities reflected in existing data).

AI plays a significant role in controlling economic, political, or social determinant of health.

- AI will affect virtually all facets of everyday life. It can:
 - Identify social media content likely to prolong engagement
 - (and **FIX** alarming mental health challenges and despair among youth).
 - Identify consumers likely to successfully repay bank loans
 - (and **FIX** disparities in wealth and homeownership).
 - Aid employers in identifying productive job candidates
 - (and **NOT** discriminate against minority applicants).
 - Automate many tasks that require substantial human effort
 - (and **FIX** employment opportunities).
 - Create new sharable content and media
 - **Flag** deepfake videos designed to deceive individuals and communities).
 - Predicting where crimes might occur and who might commit them
 - (and **reduce** existing biases and inequities reflected in existing data).

AI plays a significant role in controlling economic, political, or social determinant of health.

- Potential Public Health Applications
 - Support surveillance
 - Precision public health
 - Learning Health Systems
 - Optimize resource allocation
- Of course, public health information infrastructure has a long way to go before it can capitalize on AI's promise

Challenges Regulating AI

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- Creating a legal definition for AI
 - The “AI Effect” – where past “AI” applications are no longer considered “AI” once commonplace.
- Pacing problem
 - Technological development *FAR* outpaces regulators’ ability to update statutes or regulations
 - EX: “The faster cycles of innovation and the speed of change for medical device software would benefit from a new regulatory approach.” U.S. Food & Drug Administration (FDA) (2022)
 - How do we know how to maximize benefits or minimize risks when we do not know what the benefits and risks of future AI applications are?
- Expertise

- Two broad approaches for AI governance
 - Traditional or “Hard” Laws
 - Statutes and Regulations
 - These are the bread and butter of public health law
 - Soft Laws
 - Voluntary rules or standards that are created to guide practices within an industry or sector
 - Less common in public health law

Pros and Cons with Hard and Soft Law Governance of Emerging Technology

- Traditional (Hard) Laws

- Pros

- Enforcement

- Cons

- Insufficient expertise
 - Inflexible, blunt
 - Slow to adapt

- Soft Laws

- Pros

- Available Expertise
 - Flexibility
 - Quick to adapt

- Cons

- Enforcement

- Collaborative Governance
 - Governments incorporating soft law standards and guidance into a hard law regulatory framework.
 - With collaborative governance, government regulators have added hard law carrots and sticks to soft law standards.

Example: Collaborative Governance

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- **The Joint Commission (TJC)**—both state and federal regulators incorporate TJC accreditation status for a variety of functions.
 - Texas exempts TJC-accredited hospitals from annual inspections,
 - The federal Medicare statute permits CMS to deem certain accredited healthcare facilities as compliant with Medicare certification requirements.

Policy Innovations

- Quasi-governmental AI regulator
 - CD Schmit, MJ Doerr, JK Wagner. “Leveraging IP for AI Governance.” Science. 2023; 379(6633): 646-648. DOI: 10.1126/science.add2202.



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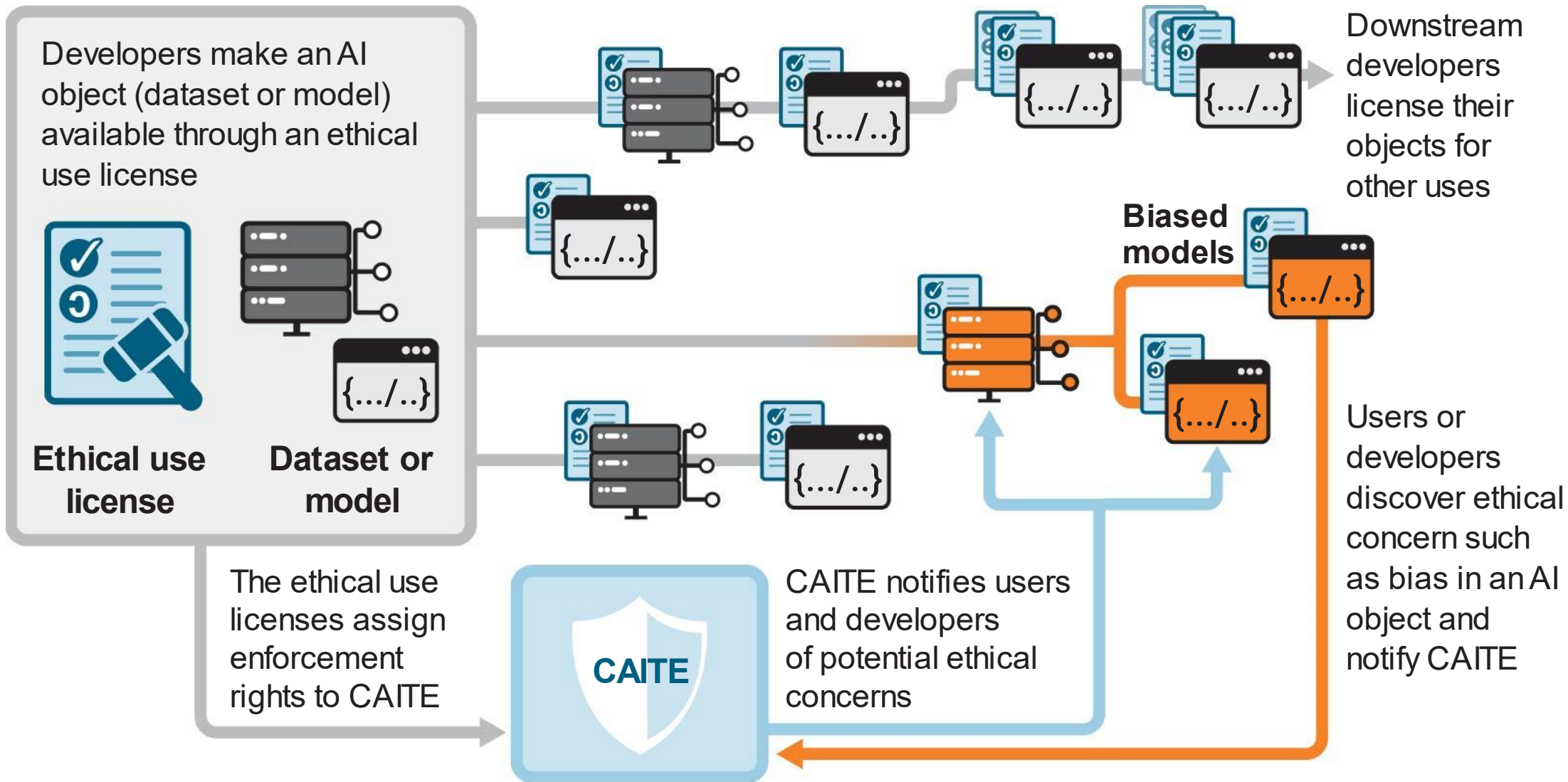
Leveraging IP for AI governance

Copyleft AI with Trusted Enforcement (CAITE) can support an adaptable soft law approach for ethics in AI

[C. D. SCHMIT](#), [M. J. DOERR](#), AND [J. K. WAGNER](#) [Authors Info & Affiliations](#)

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● Ethical concern, e.g., bias ● Ethical uses



Benefits of Our Approach

- Traditional (Hard) Laws

- Pros

- Enforcement

- Soft Laws

- Pros

- Available Expertise
- Flexibility
- Quick to adapt

- International
 - European Union AI Act (under deliberation; HARD*)
 - Risk-based framework
 - Rules are more stringent for more risky AI applications
 - China
 - “Global AI Governance Initiative”
 - “healthy, orderly and safe” development of AI
- United Nations
 - High-Level Advisory Body on Artificial Intelligence
 - UN Tech Envoy is convening a Multistakeholder Advisory Body on AI to explore Global AI Governance Frameworks (SOFT without enforceable treaty).

<https://www.europarl.europa.eu/news/en/headlines/society/20230601STO93804/eu-ai-act-first-regulation-on-artificial-intelligence>

<https://www.scmp.com/news/china/diplomacy/article/3238360/belt-and-road-forum-china-launches-ai-framework-urging-equal-rights-and-opportunities-all-nations>

<https://www.un.org/techenvoy/ai-advisory-body>

- United States (federal)
 - NIST AI Risk Management Framework (SOFT)
 - White House Blueprint for an AI Bill of Rights (SOFT)
 - Biden-Harris Admin. “Secures Voluntary [AI] Commitments” 7/21/2023 (SOFT)
 - FDA Marketing Submission Recommendations for a Predetermined Change Control Plan for AI/ML-Enabled Device Software Functions (Draft guidance; SOFTISH)
 - (Bill) American Data Privacy and Protection Act, 117th Congress (2021-2022) (Not under active consideration; HARD)

Current AI Governance Efforts

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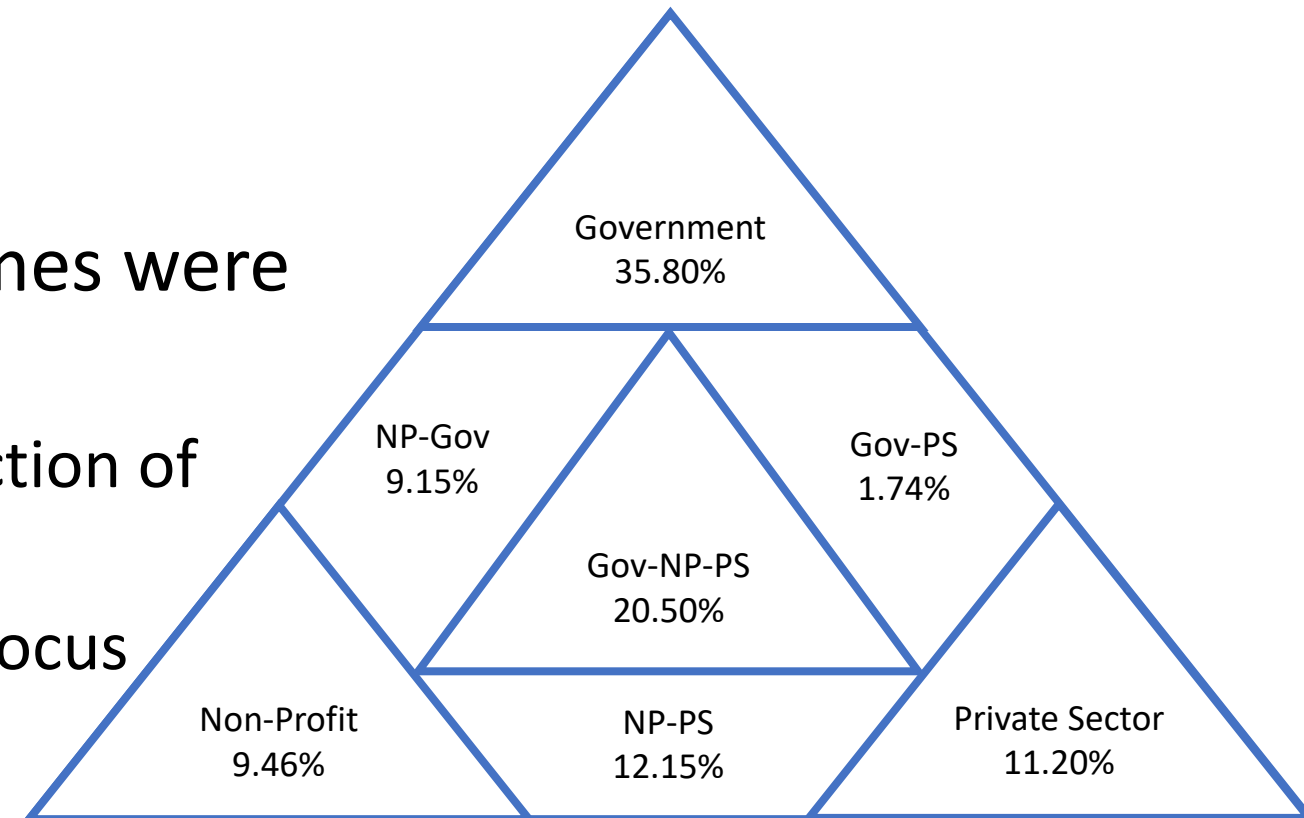


- United States (Enacted state laws)
 - No general AI legislation
 - Categories of AI legislation
 - AI as part of data protection/privacy laws
 - CA, CO, CT, DE, IN, MT, OR, TN, TX, UT, VA
 - Specific AI applications (e.g., hiring, advertising, profiling)
 - CO, CT, DE, GA, IL, MT, NY, OR, TN, TX, UT, VA
 - AI committee, task force, resolutions
 - AL, CT, HI, IN, TX
 - AI is not a person
 - ND

<https://epic.org/the-state-of-state-ai-laws-2023/>

<https://www.federalregister.gov/documents/2022/08/22/2022-17752/trade-regulation-rule-on-commercial-surveillance-and-data-security>

- Soft Law
 - Gutierrez and Marchant (2021) systematic review of 638 soft law frameworks.
- 5 out of 78 identified themes were health related
 - Present in only a small fraction of identified frameworks
 - **None** had a public health focus



How Can PH Perspectives Improve AI Governance?

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- Social determinants of Health
- Harm Reduction
- Public Health Ethical Principles
 - Common Good Benefits
 - Equity
- One Health
- Health in All Policies

- **AI Governance Challenge:** Assessing the risks of harm from bias, discrimination, inequity, and civil liberty infringements from AI applications.
- Recognizing the impact of social, environmental, and political factors on the health of communities radically reframes the AI risk assessment calculations.
- Useful to understand that the risks of certain AI harms (e.g., race-based discrimination, inequity) have adverse impacts that extend to the health and wellbeing of entire communities and populations.
 - Existing scientific knowledge of social determinants of health is essential to operationalize fairness in AI

- **AI Governance Challenge:** Unavoidable risks
- Harm reduction could be an important guiding principle for AI soft law standards for risks that are difficult to eliminate.
- For example: enforcement discretion or regulatory “safe harbor” for developers that adhere to current “soft law” standards for responsible AI development.
 - Scalable standards from garage developers to global corporations.
 - Provides flexibility to innovate while enabling protections from the greatest risks.

- **AI Governance Challenge:** Protections that Balance Population-Scale Harms & Benefits
- Traditional information technology regulatory approaches (e.g., notice and consent for privacy protection) are likely to be highly deficient to protect against AI harms
- Public health has developed an ethical framework for addressing activities that have population-level effects

- **AI Governance Challenge: AI Disrupting System Dynamics**
- One Health represents the idea that humans are intimately connected to—and their health is intrinsically intertwined with—that of non-human animals, plants, and the environment.
- Deliberately approaching AI through use of a One Health lens could enable a meaningful recognition of an international human right to health by enabling integrated, transformative policy interventions to impel responsible AI across diverse sectors of society (and diverse data ecosystems) and better address complex health threats.

- **AI Governance Challenge: Addressing AI as a Determinant of Health**
- Health in All Policies is a collaborative approach that factors public health considerations in policy development and decision making. The Health in All Policies approach—which “identifies the ways in which decisions in multiple sectors affect health, and how better health can support the achievement of goals from multiple sectors”—is highly relevant for AI policy development that primarily exists outside health sectors.²⁸ As is, the population health impact of AI appears to be largely absent from the 638 soft law AI frameworks analyzed by Gutierrez and Marchant.²⁵

- AI governance is a pressing public health issue
- Public health perspectives are essential to ensure that AI social benefits are maximized and risks are minimized
- AI governance developed without public health participation could impede public health AI applications and deny governments the legal tools to manage a structural determinant of health.

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