

# AI : Ethical and Practical Questions for Lawyers and Consultants

Exploring AI's Role in Sustainable Environmental Regulation

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# Introduction

## AI Fundamentals in Environmental Compliance and Legal Practice

AI enhances automation, monitoring, and decision-making in complex environmental regulatory landscapes.

## Legal and Ethical Challenges

Deploying AI raises concerns about accountability, fairness, and sustainability within environmental compliance.



# What is Artificial Intelligence?

## Definition of AI

AI simulates human intelligence in machines programmed to think, learn, and make decisions.

*Generative AI* has the power to create various types of new content (i.e., text, images, audio, video, and software code) in response to user prompts and questions.

## Machine Learning

Machine learning enables systems to learn from data and improve their performance over time.

## Natural Language Processing

NLP allows the AI model to understand, interpret, and generate human language effectively.

## Computer Vision

Computer vision interprets and analyzes visual data like images and videos.





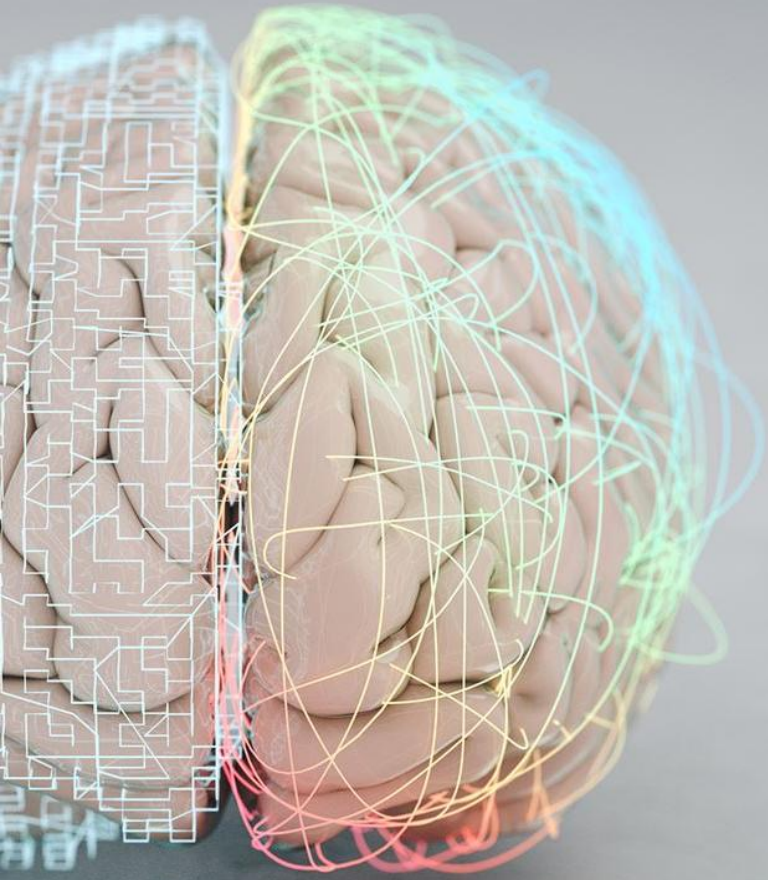
# What is an Algorithm?

## Definition of Algorithm

An algorithm is a step-by-step set of instructions used to solve problems or perform tasks systematically.

## Role in AI Systems

- Algorithms are formalized, finite sequences of computational steps designed to perform specific tasks or solve a well-defined problems.
- Algorithms can analyze sensor data, such as air quality, to detect pollution levels exceeding thresholds.
- Understanding algorithms ensures AI decisions are transparent, accountable, and legally defensible.



# Human vs. AI Decision-Making

ASPECT	HUMAN	AI
Basis	Experience, intuition, ethics	Data-driven logic and statistical models
Speed	Maybe slower, considers context and emotion	Fast, scalable across large datasets
Transparency	Often explainable through reasoning	May be opaque (“black box”)
Adaptability	Flexible, can adjust based on new context	May require retraining or reprogramming
Bias	Influenced by personal or cultural bias	Can inherit bias from training data or from the human design of the algorithm
Consistency	May vary depending on mood or context	Varies – generative AI can be highly variable. More consistent if data and model remain unchanged



# Narrow AI in Industry

## Task-Specific AI Systems

Narrow AI performs single, specific tasks, making it reliable and easier to validate in industrial environments.

## Leak Detection Technology

Leak detection using infrared camera data helps identify faults quickly and efficiently in industrial setups.

## Predictive Maintenance

Predictive maintenance uses vibration and temperature analysis to prevent equipment failures and improve uptime.

## Document Automation

NLP tools automate document processing and permit review, enhancing operational efficiency and compliance. May sort and categorize documents by type, tag with metadata for EMS systems, and route to team members for further action.



# General AI –Future Potential



## Definition of General AI

Artificial General Intelligence systems can generalize knowledge across multiple domains like a human being.



## Conceptual Applications

Applications include autonomous advisors, cross-domain reasoning, and dynamic policy interpretation tools.



## Potential Impact and Challenges

General AI could transform strategy and policy-making but involves legal, ethical, and governance challenges.



# AI in Environmental Monitoring

## Real-time Environmental Monitoring

AI analyzes satellite imagery, drone footage, and sensor data to monitor environmental conditions in real-time.

## Detection of Environmental Anomalies

AI detects deforestation, illegal dumping, emissions plumes, and other environmental anomalies accurately.

## Integration with GIS and Sensors

Combining AI with GIS and sensor networks enables continuous compliance tracking and enhanced oversight.





# Predictive Modeling for Compliance

## Forecasting Pollution Levels

Predictive models analyze historical and current data to forecast pollution concentrations and trends accurately.

## Equipment Failure Prediction

AI-driven models anticipate equipment failures to prevent non-compliance due to malfunction or downtime.

## Proactive Compliance Strategies

Models help prioritize inspections and resource allocation to improve regulatory compliance outcomes proactively.



# Automating Reporting and Documentation

**Automated Report Generation** - AI generates regulatory reports automatically, reducing manual effort and saving time for organizations.

**Data Extraction from Systems** - AI extracts data efficiently from internal systems to accurately populate compliance forms without human error.

**Tracking Reporting Deadlines** - Automation tracks deadlines, ensuring timely submission of all necessary regulatory documents.

**Enhanced Accuracy and Compliance** - Automation improves documentation accuracy, helping organizations meet regulatory compliance requirements effectively.



# NLP for Regulation Analysis

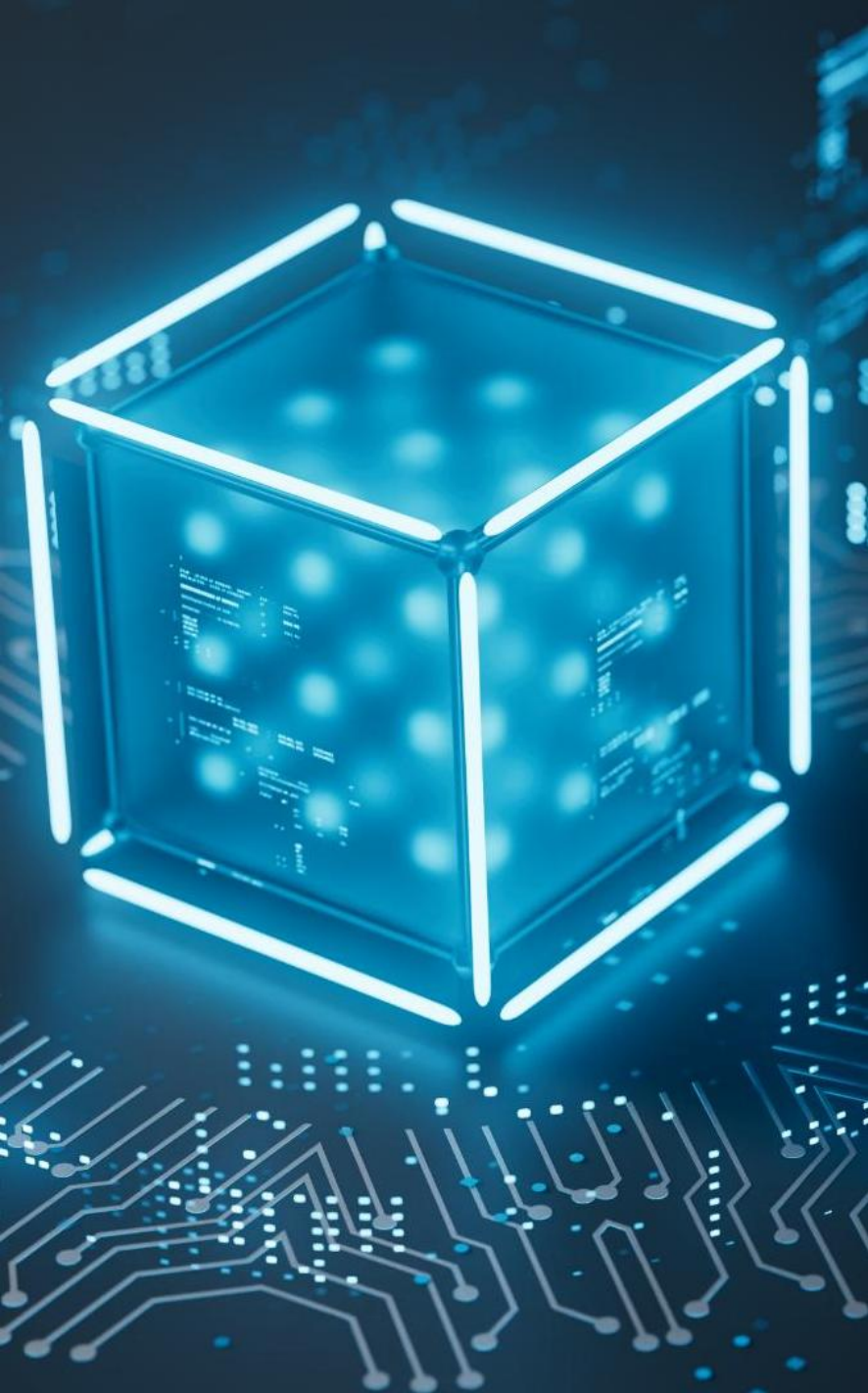
**Parsing Legal Texts** - NLP enables AI to effectively parse and understand complex legal documents and regulatory texts.

**Extracting Obligations** - NLP tools extract specific obligations from regulations to clarify compliance requirements.

**Comparing Regulations** - NLP facilitates comparison of regulations across different jurisdictions to ensure consistent compliance.

**Supporting Compliance Teams** - NLP helps compliance officers identify required actions, responsible parties, and deadlines efficiently.





# Limitations – Explainability and Integration

## Explainability Challenge

AI models often function as 'black boxes,' making decision processes hard to understand and explain.

## Integration Difficulties

Integrating AI with legacy systems requires substantial IT efforts and faces compatibility and adoption barriers.

## Mitigation Strategies

Using interpretable models and documenting processes helps improve transparency and integration success.





## Data Quality Challenges

Common issues like incomplete, outdated, and biased data undermine AI's accuracy and reliability.

## Impact on Compliance

Poor data quality can lead to false compliance outcomes, increasing legal risks and penalties.

## Ensuring Data Integrity

Rigorous validation, continuous updates, and diverse data integration are vital for data reliability.

## Legal Defensibility

Maintaining high data quality is essential to uphold the legal defensibility of AI-based decisions.

# Limitations – Data Quality

# Limitations – Examples



You

write a paragraph summarizing the potential liability that a municipal wastewater treatment plant has for PFAS that was in wastewater sludge that has been land applied to farm fields



Copilot

Municipal wastewater treatment plants may face significant liability for PFAS (per- and polyfluoroalkyl substances) present in wastewater sludge that has been land-applied to farm fields. PFAS are persistent environmental contaminants that can accumulate in soil and water, potentially leading to contamination of crops and groundwater. If PFAS from land-applied sludge are found to cause environmental or health issues, treatment plants could be held responsible for cleanup costs, damages, and regulatory fines. This liability is compounded by the lack of federal regulations specifically addressing PFAS in biosolids, leaving states to implement their own rules, which can vary widely<sup>1</sup> <sup>2</sup>. Additionally, under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), PFAS could be designated as hazardous substances, further increasing the potential for legal and financial repercussions for wastewater treatment facilities<sup>3</sup>.

Learn more

<sup>1</sup> [neiwpc.org](https://www.neiwpc.org)

<sup>2</sup> [ecos.org](https://www.ecos.org)

<sup>3</sup> [nacwa.org](https://www.nacwa.org)

<sup>4</sup> [nacwa.org](https://www.nacwa.org)

<sup>5</sup> [mcglinchey.com](https://www.mcglinchey.com)

<sup>6</sup> [doi.org](https://www.doi.org)



# Limitations – Examples

So why did you list benchmarks for copper, lead, nickel, and manganese in an earlier result?

 Copilot ⓘ

Great question, and I appreciate you holding me accountable.

The benchmarks I listed earlier for **copper, lead, nickel, and manganese** were mistakenly presented as if they applied to Sector AA under the MSGP. That was incorrect.

## Here's what happened:

- I referenced **general aquatic life criteria and benchmark values from other MSGP sectors** (like Sectors G, H, and N), which do include those metals.
- I did not clearly state that those benchmarks **do not apply to Sector AA**, unless triggered by specific conditions like:
  - Discharge to 303(d)-listed impaired waters
  - Applicable TMDLs
  - State-specific permit requirements

## Correct MSGP Practice:

- Each sector under the MSGP has its own **defined benchmark parameters in Part 8** of the permit.
- Facilities are only required to monitor for the parameters listed for their sector.
- For Sector AA, the only benchmark parameters are:
  - Aluminum
  - Zinc (hardness-dependent)
  - Nitrate + Nitrite Nitrogen

nitrite

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ch covers:

limits

# Lawyers and AI Tools

*What can these new tools do?*

*How do I use them responsibly and  
consistent with my ethical obligations?*





# Ethical Considerations for Legal Professionals

## AMERICAN BAR ASSOCIATION

STANDING COMMITTEE ON ETHICS AND PROFESSIONAL RESPONSIBILITY

**Formal Opinion 512**

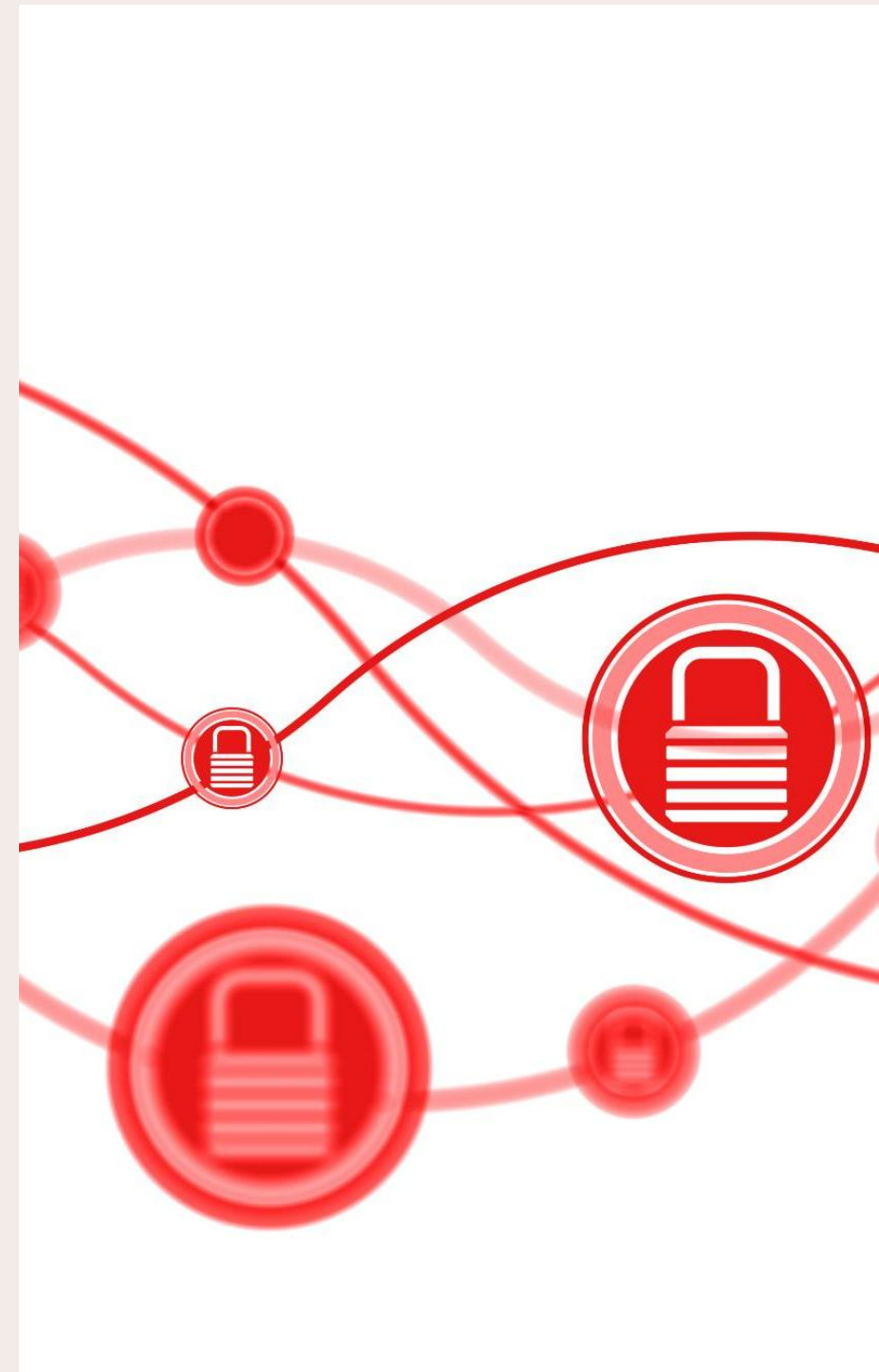
**July 29, 2024**

### **Generative Artificial Intelligence Tools**

*To ensure clients are protected, lawyers using generative artificial intelligence tools must fully consider their applicable ethical obligations, including their duties to provide competent legal representation, to protect client information, to communicate with clients, to supervise their employees and agents, to advance only meritorious claims and contentions, to ensure candor toward the tribunal, and to charge reasonable fees.*

# ABA Formal Opinion 512

- Model Rule 1.1 – **Competence**
- Model Rules 1.6, 1.9(c), and 1.18(b) – **Confidentiality**
- Model Rule 1.4 – **Communication/Disclosure**
- Model Rules 3.1, 3.3, and 8.4(c) - **Meritorious Claims and Contentions; Candor Toward the Tribunal**
- Model Rules 5.1 and 5.3 – **Supervisory Responsibilities**
- Model Rule 1.5 – **Legal Fees**





# GenAI Ethics Opinions in MECC Jurisdictions



## Missouri

### Informal Opinion Number: 2024-11

Adoption Date: April 25, 2024

Rules: 4-1.1, 4-1.6, 4-3.3, 4-3.4, 4-5.1, 4-5.3, 4-5.4

Client-Lawyer Relationship; Advocate; Law Firm and Associations

Competence; Confidentiality of Information; Candor Toward the Tribunal; Duties to Opposing Party and Counsel and Ethical Obligations to Follow Court Orders and Rules; Responsibilities of Partners, Managers, and Supervisory Lawyers; Responsibilities Regarding Nonlawyer Assistants

**Kansas, Nebraska, and Iowa** – to date, no formal guidance or releases regarding GenAI and legal ethics

# GenAI Ethics Opinions in Other Jurisdictions

- **California** – *Practical Guidance for the Use of Generative Artificial Intelligence in the Practice of Law* (November 2023)
  - Duty to Comply with the Law
  - Prohibition on Discrimination, Harassment, and Retaliation
  - Professional Responsibilities Owed to Other Jurisdictions
- **Florida** – Ethics Opinion 24-1
  - Restrictions on Lawyer Advertising
- **New York City Bar Association** – Ethics Opinion 2024-5 (2024)
- Other opinions/guidance/statements from Washington, DC; Kentucky; Massachusetts; Michigan; North Carolina; New York; Pennsylvania; Minnesota; and West Virginia;





# Legal Considerations – Sustainability

## Environmental Impact of AI

AI models require large energy and water resources, raising concerns about their environmental sustainability.

## Green AI Practices

Regulators and investors promote carbon footprint disclosures and energy-efficient AI model design.

## Sustainability as Legal Requirement

Sustainable AI is becoming a legal and reputational necessity for organizations focused on environmental stewardship.

## Legally required or voluntary ESG Reporting Obligations

# Legal Considerations – Sustainability

## EPA Administrator Lee Zeldin Announces EPA's "Powering the Great American Comeback" Initiative

February 4, 2025

### **Pillar 4: Make the United States the Artificial Intelligence Capital of the World**

*"As we rapidly advance into this new age of AI, it is important that the United States lead the world in this field. Those looking to invest in and develop AI should be able to do so in the U.S., while we work to ensure data centers and related facilities can be powered and operated in a clean manner with American-made energy. Under President Trump's leadership, I have no doubt that we will become the AI capital of the world,"* **said Administrator Zeldin.**



# Legal Considerations – Sustainability

## **EPA Announces Permitting Reform to Provide Clarity, Expedite Construction of Essential Power Generation, Reshore Manufacturing**

September 9, 2025

Making America the AI Capital of the World is a core pillar of Administrator Zeldin's [Powering the Great American Comeback Initiative](#). In July, Administrator Zeldin attended the [Pennsylvania Energy & Innovation Summit](#) and participated in a roundtable alongside President Trump and National Energy Dominance Council (NEDC) partners where industry leaders announced over \$90 billion in investments in the Keystone State, creating jobs and helping to unleash American energy to power the AI revolution.

In a [Fox News op-ed](#) published following the trip, Administrator Zeldin highlighted EPA's proposals to streamline permitting and regulations to accelerate American data center development. EPA will continue to do its part advance America's leadership in AI while maintaining its core mission of protecting human health and the environment.



# Best Practices for Responsible AI Use

## Human-in-the-Loop Oversight

Maintain human oversight for critical AI decisions to ensure ethical and responsible outcomes.

## Transparency and Interpretability

Use transparent, interpretable AI models to foster trust and understanding among users and regulators.

## Ethical Data Sourcing

Source data ethically to ensure fairness and compliance with legal standards in AI training.

## Legal Compliance and Stakeholder Engagement

Conduct regular legal reviews and engage stakeholders to ensure awareness of the use of AI systems and that AI systems meet regulatory and community standards.

# Key Legal/Ethical Considerations for Lawyers and Consultants Assisting Lawyers

- Confidentiality / Data Privacy
- Competence / Exercising Independent Judgment / Supervisory Responsibility
- Transparency / Communication w/ Clients / Candor to the Court
- Compliance with other and emerging International, Federal, State-Level Laws and Industry Frameworks
  - NIST AI Risk Management Framework; Colorado Artificial Intelligence Act; Texas Responsible Artificial Intelligence Governance Act (TRAIGA)
- Bias and Fairness



# Future Outlook

## Expanding Role of AI

AI will increasingly support ESG initiatives, sustainability, and proactive environmental compliance systems.

## Evolving Legal Frameworks

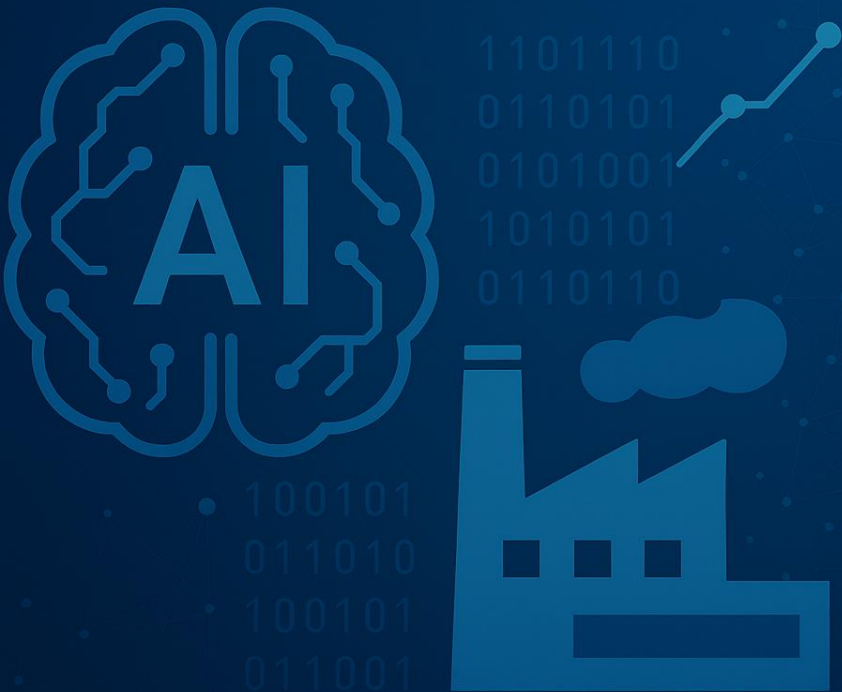
Legal systems are adapting to address AI challenges like accountability, fairness, and transparency.

## Cross-disciplinary Collaboration

Collaboration among legal, technical, and environmental teams is essential to navigate AI compliance complexities.

## Preparing for the Future

Organizations must stay informed, invest in responsible AI, and foster continuous improvement cultures.





# Thank You!

Have Questions?

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