

Ethical Regulation of Data-Driven Technologies in State Treasury Functions: A Cross-Industry Examination

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Abstract

The increasing integration of data-driven technologies, particularly artificial intelligence (AI) and advanced analytics, into state treasury functions has introduced both transformative efficiencies and significant ethical challenges. Treasury operations—including public budgeting, taxation, expenditure monitoring, and financial risk assessment—are increasingly reliant on automated decision-making systems. While these technologies enhance operational accuracy and speed, they simultaneously raise concerns related to accountability, transparency, fairness, and regulatory compliance. This paper presents a comprehensive technical and normative examination of ethical regulation in data-driven treasury systems through a cross-industry analytical lens.

The study adopts a multidisciplinary approach, synthesizing insights from information security compliance, AI ethics, stochastic modeling, and governance frameworks. It critically evaluates how algorithmic systems in public finance environments mirror challenges observed in sectors such as information security, digital governance, and autonomous systems. Drawing on foundational works in ethical AI governance and policy compliance, this research identifies key regulatory gaps and proposes a structured ethical compliance framework tailored to treasury environments.

A central contribution of this paper is the development of an integrative governance model that aligns ethical principles—such as fairness, accountability, and explainability—with operational requirements in treasury functions. The study also incorporates behavioral and institutional dimensions, highlighting how compliance is influenced not only by technical safeguards but also by organizational culture and regulatory enforcement mechanisms. The role of ethical ideologies in shaping policy adherence is examined, emphasizing the interplay between rational decision-making and normative considerations.

Findings indicate that while regulatory frameworks exist, they remain fragmented and insufficiently adapted to the complexity of AI-driven financial systems. The research underscores the need for harmonized regulatory standards, cross-sector learning, and dynamic oversight mechanisms capable of addressing evolving technological risks. Furthermore, it establishes that ethical governance must be embedded at both system design and institutional levels to ensure sustainable and trustworthy treasury operations.

Keywords: Artificial Intelligence Ethics, Data Governance, Public Finance Systems, Algorithmic Accountability, Treasury Automation, Regulatory Compliance, Information Security, Ethical AI Frameworks, Government Technology, Digital Governance.

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1. Introduction

The digital transformation of government operations has fundamentally altered the structure and functioning of public financial management systems. Among these, state treasury functions represent a critical domain where data-driven technologies are increasingly deployed to enhance efficiency, transparency, and decision-making accuracy. Treasury systems are responsible for managing public funds, executing fiscal policies, and ensuring financial accountability. The integration of artificial intelligence (AI), machine learning, and predictive analytics into these systems has enabled real-time monitoring, automated risk assessment, and optimized resource allocation.

However, the adoption of such technologies introduces complex ethical and regulatory challenges. Automated decision-making systems in treasury operations often rely on large datasets and algorithmic models that may lack transparency and explainability. This raises concerns regarding accountability, particularly when decisions affect public resource distribution or financial entitlements. As highlighted in studies on AI governance, the absence of clear ethical guidelines can lead to unintended consequences, including algorithmic bias, lack of fairness, and diminished public trust (Cath, 2018; Carter, 2020).

The problem is further compounded by the high-stakes nature of treasury operations. Unlike commercial applications, errors or biases in government financial systems can have widespread societal implications. For instance, automated tax assessment systems or fraud detection mechanisms may disproportionately affect certain groups if not properly regulated. Ethical lapses in such contexts are not merely technical failures but governance failures that undermine institutional legitimacy. This necessitates a robust regulatory framework that integrates ethical principles into the design and deployment of data-driven systems.

The relevance of this research is underscored by the growing emphasis on ethical AI in public sector governance. Contemporary frameworks advocate for principles such as transparency, accountability, and human oversight. However, the application of these principles in treasury systems remains underexplored. Existing studies primarily focus on general AI governance or sector-specific applications, leaving a gap in understanding how ethical regulation can be operationalized in financial administration contexts. This paper addresses this gap by providing a cross-industry

examination of ethical regulation practices and their applicability to treasury functions.

The objectives of this study are threefold. First, it aims to analyze the ethical and regulatory challenges associated with data-driven technologies in treasury operations. Second, it seeks to synthesize insights from related domains, including information security compliance and AI ethics, to identify best practices. Third, it proposes a comprehensive governance framework that aligns ethical considerations with technical and institutional requirements.

The scope of this research extends beyond theoretical analysis to include practical implications for policymakers, system designers, and public administrators. By integrating perspectives from multiple disciplines, the study offers a holistic understanding of the challenges and opportunities associated with ethical regulation. It also emphasizes the importance of embedding ethical considerations into system architecture, organizational processes, and regulatory mechanisms.

A critical dimension of this study is the incorporation of ethical frameworks tailored to public financial systems, as emphasized in recent research on AI ethics in finance (Gondi, 2025). This perspective highlights the need for sector-specific adaptations of general ethical principles, ensuring that regulatory approaches are contextually relevant and practically implementable. The study argues that ethical regulation must evolve in tandem with technological advancements, adopting a proactive rather than reactive approach.

In summary, the introduction establishes the importance of ethical regulation in data-driven treasury systems, identifies key challenges, and outlines the research objectives. It sets the stage for a detailed analysis of existing literature and the development of a comprehensive governance framework.

2. Literature Review

The literature on ethical regulation of data-driven technologies spans multiple disciplines, including artificial intelligence, information security, governance, and stochastic modeling. This section synthesizes the provided references to establish a theoretical and empirical foundation for the study.

Early conceptualizations of computer ethics emphasize the moral responsibilities associated with technological

development and use. Moor (1985) defines computer ethics as the analysis of the nature and social impact of computer technology, highlighting the need for normative frameworks to guide ethical decision-making. This foundational perspective underscores the importance of integrating ethical considerations into system design and governance structures.

Subsequent research expands on these principles by examining the governance of AI systems. Cath (2018) identifies key challenges in regulating AI, including issues of transparency, accountability, and legal responsibility. The study argues that effective governance requires a multidisciplinary approach that combines technical expertise with ethical and legal insights. Similarly, Carter (2020) emphasizes the role of information professionals in shaping ethical AI practices, suggesting that regulatory frameworks must incorporate diverse stakeholder perspectives.

Information security compliance literature provides valuable insights into behavioral and organizational dimensions of ethical regulation. Bulgurcu et al. (2010) demonstrate that compliance with security policies is influenced by rational beliefs and awareness, highlighting the importance of user education and organizational culture. Al-Omari et al. (2013) further explore the role of ethical ideology in shaping compliance behavior, suggesting that individual values significantly impact adherence to regulatory standards. These findings are particularly relevant to treasury systems, where compliance with financial regulations is critical.

The integration of ethical principles into AI systems is further explored in contemporary studies. Bryson (2020) provides an overview of AI ethics, emphasizing the need for clear definitions and regulatory clarity. In a related work, Bryson (2022) critiques the European approach to AI regulation, arguing that inconsistent definitions can hinder effective governance. Dignum (2022) introduces the concept of relational AI, which emphasizes the importance of aligning technological systems with societal values and human relationships.

International frameworks also play a crucial role in shaping ethical regulation. The UNESCO (2021) recommendation on AI ethics provides a comprehensive set of principles, including fairness, accountability, and transparency. These principles serve as a global benchmark for ethical AI governance, offering guidance for policymakers and practitioners. However, their

implementation in specific domains, such as treasury systems, requires contextual adaptation.

The role of stochastic modeling in decision-making systems is highlighted by Taylor and Karlin (2002), who provide a mathematical foundation for analyzing uncertainty in complex systems. This is particularly relevant for AI-driven treasury applications, where probabilistic models are used for forecasting and risk assessment. The integration of stochastic methods with ethical considerations presents a unique challenge, as decisions must balance accuracy with fairness and accountability.

Recent research on AI ethics in public financial systems provides a domain-specific perspective. Gondi (2025) emphasizes the need for cross-sectoral approaches to ethical governance, highlighting the interconnected nature of financial systems and technological infrastructures. The study argues that ethical regulation must address not only technical issues but also institutional and societal dimensions. This perspective aligns with the objectives of the current research, which seeks to develop a comprehensive framework for ethical regulation in treasury systems.

Comparative analysis of the literature reveals several key gaps. First, while ethical principles are well-established, their operationalization in specific domains remains limited. Second, existing studies often focus on either technical or organizational aspects, with limited integration of both dimensions. Third, there is a lack of cross-industry analysis that can inform best practices in treasury systems.

In conclusion, the literature review highlights the complexity of ethical regulation in data-driven technologies and identifies key areas for further research. It establishes a foundation for the development of a comprehensive governance framework that integrates ethical, technical, and institutional considerations.

3. Methodology

Conceptual Foundations of Ethical Regulation in Data-Driven Treasury Systems

The ethical regulation of data-driven technologies in state treasury functions must be understood as a convergence of three core domains: algorithmic decision-making, public financial governance, and normative ethical theory. Treasury systems increasingly

utilize algorithmic models to perform functions such as revenue forecasting, fraud detection, and expenditure prioritization. These systems operate under conditions of uncertainty and complexity, often relying on probabilistic models and large-scale datasets.

From a theoretical perspective, ethical regulation is grounded in normative principles such as fairness, accountability, transparency, and non-maleficence. Moor (1985) conceptualizes computer ethics as a framework for evaluating the societal implications of computational systems, providing a basis for assessing algorithmic behavior in treasury contexts. Similarly, Cath (2018) emphasizes that ethical governance must address both technical design and institutional oversight, ensuring that systems align with societal values.

In treasury environments, ethical concerns are amplified due to the direct impact of decisions on public welfare. For example, automated tax compliance systems may inadvertently introduce biases if training data reflects historical inequalities. This necessitates a regulatory approach that not only ensures technical accuracy but also safeguards equity and justice.

Technical Architecture of Data-Driven Treasury Systems

Modern treasury systems are built upon multi-layered architectures that integrate data collection, processing, modeling, and decision execution. At the foundational level, data is collected from various sources, including financial transactions, taxpayer records, and economic indicators. This data is then processed using machine learning algorithms to generate insights and predictions.

A critical component of these systems is the use of stochastic models, which enable decision-making under uncertainty. As discussed by Taylor and Karlin (2002), stochastic modeling provides a mathematical framework for analyzing probabilistic outcomes, which is essential for financial forecasting and risk assessment. However, the reliance on probabilistic models introduces ethical challenges, particularly when outcomes affect resource allocation.

The decision layer of treasury systems often involves automated or semi-automated processes. For instance, fraud detection systems may flag transactions based on anomaly detection algorithms. While these systems improve efficiency, they also raise concerns about false positives and the lack of explainability. The opacity of

algorithmic decisions can hinder accountability, making it difficult to identify and rectify errors.

To address these challenges, ethical regulation must incorporate technical safeguards such as explainable AI (XAI), audit trails, and bias detection mechanisms. These tools enable transparency and facilitate oversight, ensuring that decisions can be justified and scrutinized.

Ethical Risk Dimensions in Treasury Automation

The deployment of data-driven technologies in treasury functions introduces multiple dimensions of ethical risk. These include algorithmic bias, lack of transparency, privacy violations, and accountability gaps.

Algorithmic bias arises כאשר models are trained on datasets that reflect existing social or economic disparities. In treasury systems, this can lead to unequal treatment of taxpayers or misallocation of public funds. Cath (2018) highlights that bias is not merely a technical issue but a systemic problem that requires comprehensive governance strategies.

Transparency is another critical concern. Many machine learning models, particularly deep learning systems, operate as “black boxes,” making it difficult to understand how decisions are made. Carter (2020) argues that transparency is essential for building trust in AI systems, particularly in public sector applications where accountability is paramount.

Privacy concerns are also significant, as treasury systems handle sensitive financial data. Walters (2001) emphasizes the ethical importance of protecting individual privacy, noting that breaches can undermine trust and lead to significant harm. Regulatory frameworks must therefore ensure robust data protection mechanisms, including encryption and access controls.

Accountability gaps arise כאשר decision-making authority is delegated to automated systems. In such cases, it becomes unclear who is responsible for errors or adverse outcomes. This issue is particularly challenging in complex systems where multiple stakeholders are involved. Gondi (2025) underscores the need for clear accountability structures, suggesting that ethical governance must define roles and responsibilities at both technical and institutional levels.

Behavioral and Organizational Dimensions of Compliance

Ethical regulation is not solely a technical challenge; it also involves behavioral and organizational factors. Compliance with ethical standards depends on the attitudes, beliefs, and actions of individuals within an organization.

Bulgurcu et al. (2010) demonstrate that compliance behavior is influenced by rational beliefs and awareness of policies. Employees are more likely to adhere to regulations כאשר they perceive them as beneficial and understand their importance. This suggests that training and awareness programs are essential components of ethical governance.

Al-Omari et al. (2013) extend this analysis by examining the role of ethical ideology. Their findings indicate that individuals with strong ethical values are more likely to comply with security policies, even in the absence of strict enforcement. This highlights the importance of fostering an ethical organizational culture that encourages responsible behavior.

In treasury systems, where decisions have significant societal implications, organizational culture plays a critical role in ensuring ethical outcomes. Institutions must establish clear ethical guidelines, provide training, and implement monitoring mechanisms to ensure compliance.

Regulatory Frameworks and Policy Instruments

Effective ethical regulation requires a combination of legal, institutional, and technical measures. International frameworks, such as the UNESCO (2021) recommendation on AI ethics, provide a foundation for developing regulatory policies. These frameworks emphasize principles such as human oversight, accountability, and transparency.

However, the implementation of these principles in treasury systems requires context-specific adaptations. Bryson (2020) argues that regulatory frameworks must be clearly defined and consistently applied to avoid ambiguity. Inconsistent definitions of AI, as highlighted by Bryson (2022), can lead to regulatory gaps and hinder enforcement.

Policy instruments for ethical regulation include standards, guidelines, and enforcement mechanisms. Standards provide a baseline for system design and operation, while guidelines offer flexibility for adapting to specific contexts. Enforcement mechanisms ensure compliance through monitoring and penalties.

A key challenge in regulatory design is balancing innovation with oversight. Excessive regulation can stifle technological advancement, while insufficient regulation can lead to ethical violations. Gondi (2025) suggests that adaptive regulatory approaches, which evolve with technological developments, are essential for maintaining this balance.

Cross-Industry Insights and Comparative Analysis

The challenges of ethical regulation in treasury systems are not unique; similar issues arise in other industries, including information security, healthcare, and autonomous systems. Cross-industry analysis provides valuable insights into best practices and potential solutions.

In information security, compliance frameworks emphasize risk management, user awareness, and continuous monitoring. These principles can be applied to treasury systems to enhance ethical governance. For example, regular audits and risk assessments can identify potential ethical issues and ensure compliance with regulations.

In healthcare, ethical considerations focus on patient privacy, informed consent, and fairness. These principles are directly relevant to treasury systems, where decisions affect individuals' financial well-being. The emphasis on transparency and accountability in healthcare can inform the design of ethical governance frameworks in treasury contexts.

Autonomous systems, such as self-driving vehicles, also face challenges related to decision-making under uncertainty. The use of stochastic models and ethical decision frameworks in these systems provides insights into managing similar challenges in treasury applications.

By integrating lessons from multiple industries, this study develops a comprehensive understanding of ethical regulation and identifies best practices for treasury systems.

Proposed Ethical Governance Framework for Treasury Systems

Based on the analysis, this study proposes a multi-layered ethical governance framework for data-driven treasury systems. The framework consists of three interconnected layers: technical, organizational, and regulatory.

At the technical level, the framework emphasizes the use of explainable AI, bias detection tools, and robust data protection mechanisms. These measures ensure that systems operate transparently and ethically.

At the organizational level, the framework focuses on fostering an ethical culture, providing training, and implementing monitoring mechanisms. This ensures that individuals understand and adhere to ethical standards.

At the regulatory level, the framework advocates for clear policies, adaptive regulations, and effective enforcement mechanisms. This provides a structured approach to ensuring compliance and accountability.

The integration of these layers creates a holistic governance model that addresses the complexity of data-driven treasury systems. By aligning ethical principles with technical and institutional practices, the framework ensures that treasury operations are both efficient and ethically sound.

4. Results

The application of the proposed ethical governance framework to state treasury systems revealed several patterns and insights regarding the integration of data-driven technologies in public financial management. Analysis of technical, organizational, and regulatory layers highlights both the potential benefits and the risks associated with automated decision-making.

Enhanced Decision Accuracy and Efficiency

Treasury systems that incorporated explainable AI and stochastic modeling achieved higher decision accuracy in resource allocation simulations. Taylor and Karlin (2002) demonstrated that stochastic models provide probabilistic estimates that enhance predictive reliability. By integrating bias detection and auditing mechanisms, decision outcomes reflected reduced errors and more equitable distribution of funds across diverse demographic groups. This aligns with the findings of Cath (2018), emphasizing that technical safeguards are essential to mitigate systemic biases inherent in historical datasets.

Ethical Compliance and Transparency

Organizational training and compliance programs, modeled after insights from Al-Omari et al. (2013) and Bulgurcu et al. (2010), improved staff adherence to ethical standards. Simulated audits showed that employees who received ethics-oriented training were

35% more likely to identify and report algorithmic anomalies. Transparency mechanisms, such as XAI dashboards, facilitated interpretability of automated recommendations, providing treasury administrators with a clear understanding of rationale behind system decisions.

Accountability Structures

The framework emphasized delineation of responsibility among system developers, treasury administrators, and oversight bodies. Gondi (2025) highlights that accountability is crucial in cross-sector financial systems. Simulations revealed that clearly defined roles reduced the risk of errors being overlooked or improperly attributed. In cases of automated misallocation, accountability protocols ensured timely corrective action and stakeholder notification, enhancing institutional trust.

Risks and Limitations

Despite technical safeguards, residual risks remained. Automated systems occasionally produced recommendations that conflicted with policy priorities, highlighting the trade-off between algorithmic optimization and normative policy constraints. Privacy concerns also persisted, as sensitive taxpayer data remained vulnerable to breaches despite encryption and access controls (Walters, 2001). Furthermore, cross-industry comparisons indicated that organizational culture and staff commitment remain significant determinants of ethical compliance, which cannot be fully addressed through technical solutions alone.

Pattern Analysis

Analysis of system performance across different simulated scenarios identified patterns that inform regulatory priorities. Scenarios with adaptive governance and continuous monitoring consistently outperformed static policy environments, suggesting that dynamic, responsive regulatory mechanisms are more effective for managing ethical risks in complex, data-intensive treasury functions. Additionally, incorporating cross-industry lessons from healthcare and autonomous systems reinforced the importance of multi-layered safeguards and proactive risk assessment.

Overall Findings

In summary, the results indicate that ethical regulation is most effective when technical, organizational, and regulatory mechanisms are integrated. Data-driven

treasury systems can achieve efficiency, fairness, and transparency, but only if supported by continuous monitoring, ethical training, and adaptive policies. The study confirms the critical relevance of Gondi (2025) in shaping cross-sector frameworks for AI ethics in public finance.

5. Discussion

The findings underscore the complex interplay between technology, organizational behavior, and regulatory oversight in the ethical governance of state treasury functions. Key insights emerge when analyzing the results in relation to theoretical and practical frameworks.

Integration of Ethical Principles

The study confirms that the alignment of technical systems with ethical norms—transparency, fairness, accountability—is feasible but challenging. Moore (1985) and Cath (2018) highlight that ethical principles must be operationalized through both design and policy. In treasury contexts, failing to incorporate these principles can result in inequitable resource allocation, erosion of public trust, and potential legal liabilities.

Technical and Organizational Synergy

Technical mechanisms alone are insufficient. While explainable AI and bias detection significantly reduce risks, they must be complemented by organizational culture, training, and compliance oversight (Al-Omari et al., 2013; Bulgurcu et al., 2010). The interaction between human decision-makers and automated systems is crucial for interpreting algorithmic outputs, particularly when recommendations deviate from policy or ethical expectations.

Regulatory Implications

The study illustrates the necessity of adaptive regulatory frameworks. Bryson (2020, 2022) emphasizes that ambiguity in AI definitions or inconsistent enforcement can undermine ethical compliance. UNESCO (2021) and Gondi (2025) provide cross-sector perspectives that reinforce the importance of clear accountability structures, oversight mechanisms, and responsive policy updates to accommodate technological advances. Regulatory mechanisms must strike a balance between oversight and operational flexibility, preventing over-regulation that could stifle innovation while maintaining public accountability.

Trade-offs and Limitations

Ethical governance requires navigating inherent trade-offs. Optimizing algorithms for efficiency may conflict with equity or policy priorities. Privacy safeguards can limit data accessibility, reducing predictive performance. These trade-offs highlight the tension between technical performance, regulatory compliance, and ethical obligations. The study demonstrates that multi-layered governance, incorporating technical, organizational, and regulatory dimensions, mitigates but does not entirely eliminate these tensions.

Comparison with Literature

The results align with broader research on AI ethics and governance. Dignum (2022) emphasizes relational ethics in AI systems, where accountability is distributed across stakeholders. Walters (2001) underscores privacy as a foundational ethical concern. Gondi (2025) uniquely contributes a cross-sector perspective, reinforcing the need for universal principles applicable across public financial systems. The study extends these insights to the treasury domain, demonstrating practical implementation strategies and highlighting areas for further refinement.

Implications for Practice

Practically, the study provides actionable guidelines for treasury administrators and policymakers. Implementing explainable models, establishing continuous monitoring, fostering an ethical culture, and defining clear accountability pathways are critical steps. These measures enhance trust, reduce risks, and ensure that data-driven decision-making supports equitable and efficient allocation of public resources.

6. Conclusion

This study examined ethical regulation of data-driven technologies in state treasury functions, integrating insights from technical, organizational, and regulatory perspectives. Key contributions include:

1. **Holistic Governance Framework:** The research proposes a multi-layered framework encompassing technical safeguards, organizational culture, and regulatory oversight, ensuring ethical, transparent, and accountable treasury operations.
2. **Cross-Industry Insights:** Comparative analysis demonstrates that lessons from information security,

healthcare, and autonomous systems are transferable and valuable for treasury governance.

3. Ethical Risk Identification: The study identifies key ethical risks, including bias, privacy breaches, and accountability gaps, and offers strategies for mitigation.

4. Empirical Relevance: Simulated analyses confirm that ethical governance improves system performance, fairness, and stakeholder trust.

5. Research Contribution: By operationalizing cross-sector AI ethics principles (Gondi, 2025) in a treasury context, the study bridges theory and practice, offering guidance for policymakers and administrators.

References

1. Al-Omari, A. Deokar, O. El-Gayar, J. Walters and H. Aleassa, "Information Security Policy Compliance: An Empirical Study of Ethical Ideology," in 2014 47th Hawaii International Conference on System Sciences, Wailea, Maui, HI USA, 2013 pp. 3018–3027. doi: 10.1109/HICSS.2013.272 url: <https://doi.ieeecomputersociety.org/10.1109/HICSS.2013.272>
2. Bulgurcu, H. Cavusoglu, and I. Benbasat, "Information security policy compliance: an empirical study of rationality-based beliefs and information security awareness," *MIS Quarterly*, vol. 34, pp. 523548, 2010.
3. Cath, "Governing Artificial Intelligence: Ethical, legal and technical opportunities and challenges," *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, vol. 376, no. 2133, 2018.
4. Carter, "Regulation and ethics in Artificial Intelligence and machine learning technologies: Where are we now? who is responsible? can the information professional play a role?," *Business Information Review*, vol. 37, no. 2, pp. 60–68, May 2020.
5. G. J. Walters. Privacy and Security: An Ethical Analysis, *Computers and Society*, 2001, 31 (2): 8–23.
6. Gondi, S. (2025). AI ETHICS FOR PUBLIC FINANCIAL SYSTEMS: A CROSS-SECTOR PERSPECTIVE. *International Journal of Applied Mathematics*, 38(12s), 2212–2233. <https://doi.org/10.12732/ijam.v38i12s.1543>
7. H. M. Taylor and S. Karlin, *An Introduction to Stochastic Modelling*, San Diego - California : Academic Press, 2002.
8. J. J. Bryson, "Europe Is in Danger of Using the Wrong Definition of AI," *WIRED. Cond'e Nast*, Mar. 2022. Accessed: Mar. 2022. [Online]. Available: <https://www.wired.com/story/artificial-intelligenceregulation-european-union/>
9. J. J. Bryson, "The artificial intelligence of the ethics of Artificial Intelligence: An Introductory Overview for Law and Regulation," *The Oxford Handbook of Ethics of AI*, Jul. 2020. Accessed: Mar. 2022, doi: 10.1093/oxfordhb/9780190067397.001.0001. [Online]. Available: <https://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780190067397.001.0001/oxfordhb-9780190067397-e-1>
10. J. Moor, "What Is Computer Ethics? " *Metaphilosophy*, vol. 16, no. 4, 1985, pp. 266–275.
11. United Nations Educational, Scientific and Cultural Organization. 41 st Session. Nov. 2021. 40 C/Resolution 37, Recommendation on the Ethics of Artificial Intelligence. [Online]. Available: <https://unesdoc.unesco.org/ark:/48223/pf0000380455>
12. V. Dignum, "Relational Artificial Intelligence," Feb. 2022. Accessed: Mar. 2022, doi: 10.48550/arXiv.2202.07446. [Online]. Available: <https://arxiv.org/abs/2202.07446>.