

Enhancing the EU *AI Act* with CSR: the role of corporate social responsibility in AI regulation

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Abstract: This paper uses the lenses of law and ethics to identify limitations in existing regulatory approaches to artificial intelligence (AI). Regulation is an incomplete solution to the ethical challenges posed by AI. Instead, businesses should take initiative and observe company- and industry-specific self-regulation. In particular, businesses should utilize corporate social responsibility (CSR) principles in anticipatory compliance of future AI regulation. CSR provides a framework capable of addressing inherent AI challenges such as bias, ethics and privacy. This paper discusses the rapid emergence of AI, and lays out the regulatory landscape and the multiple regulatory gaps that include information asymmetry, jurisdiction, cross-border regulation, enforcement, data control, black-box AI, risk classification, accountability and regulatory overreach. After explaining the theoretical underpinnings of CSR,

this paper identifies four families of CSR theories and three core CSR concepts found across the four theoretical families: transparency, accountability and sustainability. The paper discusses how CSR principles can enhance the European Union *Artificial Intelligence Act*. It further proposes that businesses should adopt a proactive, CSR-oriented approach to AI policy and practice.

Keywords: *AI, artificial intelligence, corporate social responsibility, CSR, EU AI Act*

1. Introduction

In recent years, the growing use of artificial intelligence (AI) in business operations to create competitive advantage has raised new and unanticipated challenges (Raghvendra *et al.*, 2024). Regulators have taken notice, and on August 1, 2024, ‘Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 March 2024 on laying down harmonized rules on artificial intelligence’ (hereafter, the *EU AI Act*) took effect as the first comprehensive AI regulation (‘Regulation (EU) 2024/1689’, 2024). AI, however, remains largely unregulated in most parts of the world (Hoffmann-Riem, 2020). Additionally, regulation alone is insufficient and cannot address the multifaceted challenges posed by AI (Hoffmann-Riem, 2020). As this paper argues, significant gaps remain under the *EU AI Act* that suggests a need for complementary approaches that can adapt to the rapidly evolving AI landscape (‘Regulation (EU) 2024/1689’, 2024). Corporate social responsibility (CSR) offers a framework for businesses to navigate the ethical complexities of AI adoption (Dundua, 2025). CSR has evolved from the realm of theory into a practical rubric that can be applied to emerging AI challenges (Du *et al.*, 2010; Garriga and Melé, 2004). Through a CSR lens, businesses can proactively address AI ethical concerns and move beyond mere regulatory compliance, serving as a foundation for self-regulation that supplements *EU AI Act* compliance (Dundua, 2025).

In this paper, we examine some challenges raised by AI, the limitations of current AI regulation and how CSR can enhance the *EU AI Act*. The primary aim is to demonstrate that while regulatory frameworks like the *EU AI Act* are crucial, they are inherently incomplete in fostering responsible AI development and deployment (Almada, 2025; Barfield and Pagallo, 2025). Consequently, this research posits that CSR principles offer a vital

complementary mechanism, enabling businesses to proactively navigate the complex ethical terrain of AI (Renieris *et al.*, 2022). The purpose of this paper is to advocate for a paradigm shift wherein businesses integrate CSR into their AI strategies, moving beyond mere compliance to establish a robust framework for anticipatory self-regulation that effectively supplements and enhances the efficacy of legislative measures such as in the EU.

Part 2 begins by providing a brief overview of the EU *AI Act*, identifying regulatory gaps that include: (1) information asymmetry; (2) jurisdiction; (3) cross-border regulation; (4) enforcement; (5) data control; (6) black-box AI; (7) risk classification; (8) accountability and (9) regulatory overreach. Part 3 explores CSR theoretical underpinnings through four “families” of theories, and the three core CSR themes of transparency, accountability, and sustainability. Part 4 discusses how CSR principles and the core themes enhance the EU *AI Act* and address regulatory gaps. This paper argues that businesses should adopt a proactive stance through CSR practices to mitigate potential harms and position themselves advantageously for future regulatory developments (Gunningham *et al.*, 2004).

This study employs a doctrinal research methodology, which is concerned with methodically finding, examining, explaining and justifying enacted legal frameworks like those governing AI, with a particular emphasis on the EU *AI Act* (Majeed *et al.*, 2023). Concurrently, it integrates interdisciplinary insights from business ethics and corporate governance to critically assess the role and application of CSR principles within the context of AI development and deployment (Renieris *et al.*, 2022). Part 2 of the paper identifies regulatory gaps in the EU *AI Act* using document analysis methodology, a recognized qualitative research methodology that allows a researcher to interpret documents (Bowen, 2009; Brown, 2018). In Part 3, the paper employs document analysis along with a thematic analysis of CSR theories to identify the four families of CSR theories (Brown, 2018). The methodology and analytical approach facilitate the construction of a normative argument for the proactive integration of CSR into corporate AI practices, thereby offering a robust, complementary solution to address the inherent limitations of purely regulatory interventions vis-à-vis the EU *AI Act*.

2. The EU *AI Act* and its limitations

While AI regulation is necessary to set out the fundamental rules for AI development and deployment (de Laat, 2021), regulation is neither a complete nor an immediate solution to the challenges posed by AI (Nkonde, 2019). Regulators have only recently begun to discuss the role and broader effect of AI on society (Zaidan and Ibrahim, 2024). Issues such as intellectual property, human rights and labor displacement have largely been left unaddressed even by the EU *AI Act*, where regulatory gaps remain (Nkonde, 2019).

2.1 Brief overview of EU *AI Act*

On March 13, 2024, the EU *AI Act* was formally adopted, establishing a risk-based regulatory framework that differentiates among the production and deployment of AI that pose unacceptable risk, high risk and low/minimal risk ('Regulation (EU) 2024/1689', 2024). Under Article 6 of the EU *AI Act*, unacceptable risks like the use of digital thought clones in behavior manipulation are prohibited, high-risks are strongly regulated and low- or minimal-risks remain completely unregulated ('Regulation (EU) 2024/1689', 2024). While the EU *AI Act* does not impose strict liability, 'Directive (EU) 2024/285 of the European Parliament and of the Council of 13 March 2024 on liability for defective products' (2024), and the 'Proposal for a Directive on AI liability' (2022), both complementing the EU *AI Act*, combine strict liability and fault-based liability. Manufacturers under 'Directive (EU) 2024/285' (2024), which entered into force on December 9, 2024, are strictly liable for defective products, while other parties such as deployers of AI systems would fall under a fault-based liability system (Hacker, 2023).

Prior to the EU *AI Act*, the European High-Level Expert Group on Artificial Intelligence (hereafter, HLEG) presented its *Ethics guidelines for trustworthy AI* in 2019 (European Commission, 2019). In 2020, the European Parliament passed a resolution on the *Framework of ethical aspects of AI, robotics and related technologies* ('European Parliament resolution 2020/2012(INL)', 2020). The HLEG *Guidelines* set out ethical principles and requirements for a trustworthy AI; namely, that AI must be lawful, ethical and robust.

Building on the HLEG *Guidelines*, the *Ethical aspects framework* combines legal obligations and ethical principles for a harmonized EU approach to AI regulation (Truby *et al.*, 2020). The *Ethical aspects framework* focuses on human-centric and human-made AI, risk assessment, safety features,

transparency and accountability, non-bias and non-discrimination, social responsibility and gender balance, environment and sustainability, privacy and biometric recognition, good governance, consumers and the internal market protection, security and defense, transport, employment, workers' rights, digital skills and the workplace and education and culture ('European Parliament Resolution 2020/2012(INL)', 2020). As will be discussed below, a number of these areas addressed by the Framework intersect with CSR including, among other things, transparency and accountability, social responsibility and sustainability. The EU *AI Act* did incorporate the HLEG *Guidelines* by operationalizing the *Trustworthy AI principles* through its emphasis that AI systems be lawful, ethical and robust (Díaz-Rodríguez *et al.*, 2023).

2.2 Limits to AI regulation

While the EU *AI Act* represents a significant milestone for AI regulation, there remain regulatory gaps (Butt, 2024). For this reason, regulation of AI must arise out of and be informed by a multifaceted approach (Kashefi *et al.*, 2024), where CSR could enhance EU *AI Act* compliance. Some of the extant problems that AI regulation cannot adequately resolve and that CSR could alleviate include (1) information asymmetry, (2) jurisdiction, (3) cross-border regulation, (4) enforcement challenges, (5) data control, (6) black-box AI, (7) risk classification, (8) accountability and (9) regulatory overreach.

2.2.1 Information asymmetry problem

AI regulation remains reactionary and limited in large part because of the information asymmetry problem between developers or deployers, and individual users or regulators (De Almeida *et al.*, 2021). As Citron and Pasquale (2014) noted, users often lack understanding of algorithmic decision-making, while companies possess vastly more information about users, creating a power imbalance that undermines user autonomy and informed consent. The EU *AI Act* attempts to address this asymmetry through transparency requirements (Wörsdörfer, 2025), while 'Directive (EU) 2024/285' (2024) holds AI manufacturers strictly liable. This approach, however, ignores the technical complexity of meaningful transparency, the proprietary concerns of businesses seeking to protect competitive advantages and even the possibility that AI developers themselves may face asymmetry. Oftentimes, AI development requires a group of multiple parties who "may separately have information asymmetry amongst themselves concerning data, algorithms or people" (Truby *et al.*, 2021, p. 276).

2.2.2 Jurisdiction problem

The jurisdictional reach of the EU *AI Act* is another limitation when AI systems operate across boundaries over cloud servers with data processing occurring in multiple jurisdictions (Buyya *et al.*, 2013). Regulators resort to extraterritorial jurisdiction to exert authority beyond its borders. The EU's *General Data Protection Regulation (GDPR)*, for example, already includes an extraterritorial provision that applies to an AI system's collection and processing of the personal data of EU subjects ('Regulation (EU) 2016/679', 2016). The EU *AI Act* under Article 2(1) mirrors the *GDPR* since it applies to AI deployed within the EU even if established outside the EU, and to AI located outside the EU but where the output produced is used inside the EU ('Regulation (EU) 2024/1689', 2024). The EU *AI Act* faces similar *GDPR* enforcement challenges for entities with limited EU presence. However, the EU *AI Act* under Article 2(1) does not have the same extraterritorial reach as the *GDPR*: (1) when the AI use or output occurs exclusively outside the EU or (2) when it is used by an EU subject exclusively outside the EU (Schuett, 2024). On the contrary, whenever *GDPR*-protected data of an EU subject is involved and processed by an AI even outside the EU, the *GDPR* would still apply (Brown *et al.*, 2022). Enforcing compliance under the EU *AI Act* outside the EU remains a challenge, especially with varying enforcement capabilities.

2.2.3 Cross-border regulation problem

Even when a business develops an AI in an AI-regulated jurisdiction, whenever it runs afoul of the regulation, it could deploy in jurisdictions that adopt a different framework. This regulatory fragmentation creates a cross-border problem in the context of borderless AI systems that rapidly process magnitudes of data across multiple jurisdictions, creating both compliance and enforcement problems for multinational companies.

2.2.4 Enforcement problem

While EU *AI Act* compliance is costly, enforcement is also a challenge. Unlike the *GDPR*'s clear enforcement mandates, the EU *AI Act* relies on a decentralized approach through market surveillance authorities across 27 EU Member States, creating an increased risk of inconsistent enforcement and compliance requirements. Governments that are not willing to prioritize budget towards AI enforcement will not be able to create an effective enforcement mechanism, leading to inconsistencies. There is also a challenge in enforcing AI systems that evolve over time through self-learning from new

data, which creates problems of causation between original programming and harmful outcomes.

2.2.5 Data control problem

AI systems depend on vast amounts of data for training and operation, raising significant concerns about data ownership, bias, access and control. As Crawford and Schultz (2014) note, AI development often involves data collection practices that may violate privacy expectations or occur without meaningful consent. The boundaries between permissible data use and privacy violations remain contested in many jurisdictions. The EU *AI Act* addresses some aspects of data governance through requirements for high-quality datasets to minimize bias and data minimization to protect privacy. However, fundamental questions about data ownership and control remain unresolved, particularly for data used in training general-purpose AI models that may be deployed across multiple contexts.

2.2.6 Black-box problem

Deep learning AI systems pose another challenge for regulation, referred to as the “black-box” problem, where AI decision-making is opaque even to developers because of algorithm designs that use complex neural networks. In such instances, an AI may pose unforeseeable risks, undermine trust and complicate efforts to address bias or errors (Pasquale, 2015). It is a dilemma to which EU AI regulators responded by holding AI manufacturers strictly liable under the Product Liability Directive (PLD) and requiring explainability under the EU *AI Act*. However, opaque models are slow, creating a tension against the ethical imperative of transparency.

2.2.7 Risk classification problem

Additionally, the current approach of identifying and, in the instance of the EU, strictly prohibiting unacceptable-risk AI under Article 5 of the EU *AI Act* is another limitation. What constitutes an “unacceptable risk” or “high risk” seems arbitrary and debatable (Fraser and Bello y Villarino, 2024). While the EU *AI Act* provides a list of unacceptable risk under Article 5, establishing criteria for unacceptable-risk AI remains problematic for three reasons. First, AI initially deemed to be low risk or high risk may quickly evolve to become unacceptable risk through emergent properties (Miller, 2023). Second, the determination itself is subject to bias and self-interest. Third, the risk classification may overlook systemic risks that emerge from interactions of multiple AI systems.

2.2.8 Accountability problem

The EU *AI Act* attempts to address accountability through shared responsibility between providers and deployers of AI systems. However, this approach does not currently solve the accountability limitation for general-purpose AI models where both share legal responsibility. Importantly, the question of who exactly is the “provider” of AI remains unclear. There is often no end-to-end single developer. Instead, AI often emerges from a collaboration of developers, including the use of open-source code (Truby *et al.*, 2021).

2.2.9 Regulatory overreach problem

The EU *AI Act* has been criticized for overregulation and regulatory overreach into proprietary information. Even when an AI development is undertaken within a sandbox under Article 53 of the EU *AI Act*, an AI developer would still be required to disclose proprietary information and algorithms for regulatory compliance (‘Regulation (EU) 2024/1689’, 2024). Such regulatory oversight and sharing of proprietary information, however, may undermine a company’s competitive advantage. For this reason, businesses will have to make judgments that carefully balance AI regulatory compliance while protecting their legitimate business interests. Overly prescriptive regulation may stifle innovation and create disproportionate compliance burdens.

3. CSR theoretical underpinnings

The previous section discussed a number of AI-related problems that regulation alone could not adequately resolve. This section proposes that businesses should consider the role of CSR as a means to enhance EU *AI Act* compliance. To better understand the role of CSR in enhancing the EU *AI Act*, it is imperative to first discuss CSR’s theoretical underpinnings and core concepts. Companies will need to reconcile CSR theory and practice with both the challenges of AI and the emerging consensus on ethical AI development (Du and Sen, 2023).

There is no unified definition of CSR as it carries different meanings for different stakeholders (Wood, 1991). As such, an unbiased definition is challenging and often influenced by the theoretical approach (Dahlsrud, 2006). Regardless, consistencies can be identified among the CSR typologies and theoretical frameworks identified by Carroll (1991), Garriga and Melé (2004), Mohammed (2020) and Parsons (1961).

One family of theory, the *shareholder economic theories* (SET), can be traced to the classical theory (Friedman, 1970). It focuses on the economic obligation to make money (Carroll, 1991), achieve economic objectives through social activities (Garriga and Melé, 2004) and view a business's sole social responsibility as maximizing shareholder wealth (Mohammed, 2020). In the context of AI, businesses need to embrace AI's ability to enhance organizations' engagement in social activities while also increasing profits. Algorithms will play a key role in identifying these types of profitable social activities (Pralhad, 2002). A key consideration, however, is the potential for bias in the AI algorithm when serving the bottom of the economic pyramid. Under SET, AI should be leveraged to incentivize businesses to eliminate bias.

At the early stage of AI adoption and implementation, businesses are most likely to embrace another family of theory, the *socio-legal integration theories* (SIT), when applying CSR practices and communications to AI-related phenomena. SIT relates to the interunit relations of stakeholder interests (Parsons, 1961), the integration of social demands (Garriga and Melé, 2004) and business adherence to legal and regulatory mandates and existing public policy processes (Carroll, 1991; Mohammed, 2020). Under a SIT approach, businesses will have met their social responsibility to the extent they comply with AI regulations. Corporate social performance (CSP) under SIT provides an effective approach to fill the gap of jurisdictions that lack AI regulation. Under the CSP approach, using AI laws and policies as social performance reference is insufficient, and businesses must also pay attention to social expectations surrounding the organization's use of AI, including data collection and use (Crane *et al.*, 2008). AI could be used as a tool to identify and address the interests of various stakeholders, and even to determine which stakeholders merit consideration in the decision-making process (Crane *et al.*, 2008).

A third family of CSR theories, the *ethical stakeholder theories* (EST), places emphasis on “doing the right thing” to achieve a good society in the absence of a legal requirement, relating to AI ethics and norm creation efforts (Parsons, 1961; Carroll, 1991; Mohammed, 2020; Garriga and Melé, 2004). Despite AI regulatory gaps, businesses ought to aspire to “do the right thing” by proactively collaborating with regulators. While data privacy, for example, is deemed a human right, it remains to be seen whether this will indeed be extended to the principles of AI ethics.

The fourth family of CSR theories, the *political philanthropic theories* (PPT), relates to the balance between social and business power (Parsons, 1961),

or the responsible use of business power in the political arena (Garriga and Melé, 2004). The use of algorithms may enhance an organization's awareness and use of social digital power weighed against its social, political and philanthropic responsibilities. Of particular concern here are AI-driven social media and tech companies that control the flow and analysis of data and information. Tech companies could either intentionally or inadvertently shape social phenomena without being aware of the organization's role in the access to or flow of information.

Finally, the three core CSR principles of transparency, accountability and sustainability, discussed further below, are found in all the four theoretical families discussed above. These core principles provide valuable guidance on integrating CSR into an organization's AI policy (Katamba *et al.*, 2012).

4. Integrating CSR and AI regulation: transparency, accountability and sustainability

Companies that address AI challenges using CSR principles may have first-mover advantage, establish social trust and lead in AI deployment (Nkonde, 2019). Since CSR is a private internal alternative to AI regulation, businesses must conduct a cost-benefit analysis between regulation and CSR when assessing its compliance strategy (Polishchuk, 2009). At the same time, regulators and stakeholders should encourage CSR as a self-regulatory regime to acknowledge the limits of AI regulation (Campos, 2025). This section explores how CSR can enhance the EU *AI Act* through the core CSR principles of transparency, accountability and sustainability that provide a roadmap for using CSR to address the limits of AI regulation.

4.1 Transparency through CSR and AI regulation

The core CSR principle of transparency addresses problems of information asymmetry, data control and the AI black box (Crowther and Aras, 2008; Blackman and Ammanath, 2022). Transparency recognizes the responsibility of the organization for external effects of its actions and thereby transfers power to external stakeholders or an independent ethics review board (Crowther and Aras, 2008; Baur, 2019). Businesses that adopt a CSR approach may be able to navigate the information asymmetry and black-box problem by adopting a CSR-based transparency initiative that

makes AI decision-making more understandable to users and regulators, even considering an open data, open source and white-box approach to AI development (Blackman and Ammanath, 2022). This transparency also applies to data control and ownership, giving users a genuine choice over their data and how their data is used, while reducing bias through promotion of data integrity (Nkonde, 2019). Examples of this approach are the AI Ethics Lab, the AI Now Institute and AI4All (Durmus, 2023).

4.2 Accountability through CSR and AI regulation

The core CSR principle of accountability will help companies better comply with AI regulations and address the enforcement, risk classification and accountability problems by encouraging a self-reporting approach, including unforeseen emergent properties (Huising and Silbey, 2021). Accountability also requires companies to comply with regulations from another jurisdiction. A CSR approach to the jurisdiction problem may encourage AI providers and deployers without an EU presence to nevertheless voluntarily adopt EU *AI Act* principles through internal accountability systems, reducing dependency on extraterritorial enforcement. An effective CSR practice that views accountability beyond regulatory borders would help alleviate the jurisdiction and cross-border problems of AI regulation.

Additionally, a CSR driven-approach may allow for clearer lines of accountability through ethics committees and impact assessments. In practice, incorporating CSR accountability into AI policy requires companies to avoid the opaque designation of ‘developer’ or ‘provider’, including documenting third-party contributors who must also comply with CSR principles.

4.3 Sustainability through CSR and AI regulation

The core CSR principle of sustainability refers to the ability to continue sustaining operations given the scarcity of resources (Hawken, 1993). Incorporating a sustainability requirement into AI regulation will hold businesses accountable for determining the role of AI in making their business processes more sustainable. Abuse of consumer data, for example, can be seen as an unsustainable use of AI. Instead, CSR can help businesses align their strategic goals and comply with AI regulatory requirements and impact assessments.

The CSR principles of sustainability and transparency help alleviate the data control problem by encouraging more sustainable and transparent open data mechanisms that allow companies to share high-quality and legally compliant data (Zhang and Hao, 2024). CSR can also help businesses approach the risk-designation problem through open impact assessments and disclosures. While unacceptable and high-risk designations may initially seem unduly burdensome to businesses, in practice it would lead to exponentially increasing returns in the long term. Building a genuine culture of “doing the right thing” within a company offsets risks such as environmental accidents, and may help alleviate regulatory overreach concerns.

5. Conclusion

In the current regulatory landscape, there are limits to and gaps in AI regulation. Keeping in mind its various theoretical underpinnings, CSR could act as a self-regulatory regime that supplements AI regulation and ethical norms. CSR can play a pivotal role in addressing challenges to AI regulation, including addressing issues related to bias, ethics and privacy. By integrating the principles of transparency, accountability and sustainability, CSR-informed AI policies can be developed to address the various limitations of AI regulation.

While CSR offers a valuable framework to enhance AI regulation, it is important to acknowledge its limitations. CSR should not be a substitute for regulation, noting that voluntary initiatives lack enforcement mechanisms and can be subject to “greenwashing” or symbolic compliance without substantive change (Banerjee, 2008). CSR should act to enhance rather than replace the EU *AI Act*. Effective AI governance requires both robust regulations that establish minimum standards and CSR initiatives that promote best practices beyond compliance. The most effective approach combines clear regulatory frameworks with proactive corporate responsibility.

Moreover, CSR implementation in AI regulation faces the practical challenges of balancing transparency with legitimate concerns about intellectual property and competitive advantage, establishing meaningful accountability in complex AI supply chains and ensuring that CSR initiatives are substantive rather than merely symbolic or reputational.

When implemented thoughtfully, CSR promises to significantly enhance AI governance by addressing the limits of a purely regulatory approach.

This paper opens up several promising avenues for future research at the intersection of AI, CSR and regulation (Podile *et al.*, 2024). One key area for investigation is the practical implementation of CSR-informed AI policies within different corporate contexts (Khan *et al.*, 2024). Future studies could explore the specific challenges and success factors of companies in varying sizes and sectors in integrating transparency, accountability and sustainability into their AI development and deployment processes (Picard and Kosar, 2025). Another critical research direction involves a comparative analysis of the effectiveness of different regulatory models (Wilczek *et al.*, 2025). As the EU *AI Act* moves towards implementation, there is a need for empirical research that compares its impact with other approaches, such as the industry-led self-regulation seen in the United States and Japan, assessing how each approach fosters genuine ethical practice versus “ethics washing” (Gutierrez and Marchant, 2021). Further research could delve into the complexities of enforcement and accountability in the context of global AI supply chains, including the role of CSR in meaningfully apportioning accountability when multiple actors are involved in the development and deployment of AI (Mazzi, 2023). Finally, there is a need for more research into the evolving role of stakeholders, including consumers, civil society organizations and investors, in holding companies accountable for their AI-related practices through strengthened stakeholder engagement mechanisms that promote responsible and aligned AI (Ferrell and Ferrell, 2024).

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