A COMPARATIVE ANALYSIS OF ARTIFICIAL INTELLIGENCE REGULATION IN ASEAN AND THE EUROPEAN UNION

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Abstract

This study conducts a comparative analysis of artificial intelligence (AI) regulation in the European Union (EU) and the Association of Southeast Asian Nations (ASEAN), examining their governance frameworks, enforcement mechanisms, and regulatory impact. The EU AI Act (EU, 2024) establishes a legally binding, centralized regulatory model that prioritizes risk-based AI classification, strict compliance obligations, and human rights protections (Huang et al., 2024). In contrast, ASEAN follows a decentralized, voluntary governance approach, promoting flexibility, innovation, and industry self-regulation (Putra, 2024). The analysis highlights the trade-offs between regulatory stringency and innovation flexibility. The EU's strict enforcement model ensures accountability and consumer protection but poses compliance burdens for businesses, potentially slowing AI adoption. Conversely, ASEAN's market-driven approach fosters rapid AI deployment but raises concerns about regulatory fragmentation, ethical risks, and cross-border governance inconsistencies. These findings are crucial for policymakers and businesses navigating AI governance complexities. As AI continues to evolve globally, harmonizing regulatory approaches and establishing mutual recognition mechanisms between regions could enhance AI accountability while supporting innovation, shaping a more cohesive global AI governance landscape.

Keywords: AI Regulation, EU AI Act, ASEAN AI Governance, Regulatory Compliance, Cross-Border AI Governance

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1. INTRODUCTION

Artificial intelligence (AI) regulation is a critical area due to its profound implications for society, economy, and individual rights. The definition of AI is "a machine-based system that is designed to operate with varying levels of autonomy and that may exhibit adaptiveness after deployment, and that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments" (Article 3(1), European Union [EU] AI Act, 2024).

The EU's regulatory approach, as exemplified by the AI Act, emphasizes the establishment of a comprehensive and harmonized framework, aiming to balance innovation with ethical considerations and accountability (Dokumacı, 2024). Conversely, Association of Southeast Asian Nations

(ASEAN) adopts a more flexible and pragmatic approach to AI regulation, shaped by the diverse political, economic, and cultural landscapes of its member states (Putra, 2024).

The EU's AI Act categorizes AI systems based on risk, ranging from minimal to unacceptable, and introduces strict requirements for high-risk AI applications (Pehlivan, 2024). It incorporates principles such as transparency, fairness, and human oversight to ensure ethical AI deployment. ASEAN, on the other hand, follows a decentralized approach, emphasizing collaboration among member states and leveraging existing frameworks like the ASEAN framework on digital data governance to address AI challenges (Chen & Ruddy, 2020). This strategy reflects ASEAN's focus on economic integration and technological capacity-building within its member states (ASEAN, 2024).

Despite the shared goals of promoting safe and responsible AI use, the EU and ASEAN differ significantly in their regulatory philosophies. The EU prioritizes strict oversight and legal clarity, while ASEAN emphasizes adaptability and regional cooperation. These differences highlight the need for comparative analysis to understand how each region navigates the complexities of AI governance.

This research aims to bridge this gap by conducting a comparative analysis of AI regulations in the EU and ASEAN. By examining key elements such as risk categorization, compliance mechanisms, and ethical principles, the study sheds light on the strengths and limitations of each approach. It further explores how these regions address challenges such as cross-border data flow, accountability, and inclusivity in AI governance. The theoretical framework of this study draws from global AI ethics principles, including transparency, fairness, and accountability, which are foundational to effective AI regulation.

The significance of this research lies in its contribution to the ongoing discourse on global AI governance. In an interconnected world, where AI technologies transcend national borders, understanding the regulatory frameworks of different regions is essential. By comparing the EU and ASEAN approaches, this study provides insights for policymakers, businesses, and stakeholders, enabling them to navigate the complexities of AI regulation in diverse geopolitical contexts.

This article is structured as follows: Section 2 reviews the existing literature on AI regulation. Section 3 details the research methodology. Section 4 presents the principal findings of the comparative analysis and discusses the implications of these findings for AI governance in both regions. Finally, Section 5 offers a conclusion, summarizing the study's contributions.

2. LITERATURE REVIEW

The academic literatures on AI governance in the EU and the ASEAN primarily are as follows. The EU AI Act represents the first comprehensive legal framework for AI governance, setting a precedent for global AI regulation (Ersoy, 2024). Paul (2024) critiques the EU's risk-based AI regulation, aiming for global trust and safety but potentially hindering innovation (Paul, 2024). It highlights challenges in balancing regulation with market dynamics and ensuring uniform implementation. However, it overlooks comparative analysis with other regions. This study will address this gap by comparing EU and ASEAN AI regulations and exploring how global AI governance can be coordinated across diverse regulatory frameworks (Walter, 2024). Despite these concerns, the EU AI Act represents a significant step forward in ensuring responsible AI deployment while setting a global benchmark for AI governance.

Xu et al. (2024) examine AI governance across Asian countries, highlighting a shift from "soft regulation" (guidelines and strategies) to "hard regulation" (legal frameworks). It argues that governance models are shaped by historical internet policies, political structures, and economic priorities, leading to diverse regulatory approaches. The study also discusses geopolitical influences from the EU, China, and the United States, predicting a fragmented yet evolving AI regulatory landscape. However, the study lacks a direct comparison with the EU's stringent, legalistic AI governance model and does not assess how different regulatory frameworks impact AI adoption in businesses. Our research addresses this gap by comparing ASEAN and EU AI regulations, analysing their implications for global AI governance coordination.

Putra (2024) explores ASEAN's approach to AI governance, emphasizing a market-driven, flexible regulatory framework that encourages innovation. The author argues that ASEAN's adaptive approach fosters regional growth while focusing on the importance of collaboration among member states. However, the article notes that the absence of a cohesive, enforceable regulatory mechanism may lead to inconsistencies in AI implementation across the region. The study suggests that while ASEAN's model is more adaptable compared to the EU's stringent regulations, it risks failing to adequately address potential AI-related risks and ethical concerns (Kashefi et al., 2024). This article, however, does not fully explore the broader implications of this regulatory gap on regional businesses and international competitiveness. Our study will fill this gap by comparing ASEAN's AI governance with that of the EU and analysing how both regions can align their approaches to global AI regulation.

Allen et al. (2025) outlines Singapore's collaborative AI governance approach, focusing on voluntary self-regulation, AI standards, and the AI governance testing framework, AI verify. The model aims to balance innovation with risk management, emphasizing transparency, fairness, and human-centric values (Lee, 2024). However, it could further address the challenges of applying this model across ASEAN countries with varying regulatory cultures and technological capabilities. The paper also does not fully examine the limitations of voluntary frameworks in high-risk AI applications. Our research will fill this gap by comparing the EU and ASEAN AI regulations, exploring how diverse governance models can be coordinated globally and adapted for different regional contexts.

Keith (2024) examines AI governance in ASEAN, emphasizing the region's focus on human capital development rather than the ethics-driven approach of global frameworks like the Global Partnership on Artificial Intelligence (GPAI). It identifies barriers to ASEAN's participation in global AI governance, including restrictive GPAI membership policies, geopolitical considerations, and language limitations (Keith, 2024). The study suggests that global AI governance could gain broader ASEAN participation by aligning with regional priorities, such as economic development and digital infrastructure

(Putra, 2024). However, it lacks an assessment of how these differing regulatory approaches influence AI adoption and compliance among businesses. Our research fills this gap by comparing the AI governance models of the EU and ASEAN, exploring their impact on global AI governance coordination and business implementation.

This study builds on the existing literature by providing a direct comparison between AI governance in the EU and ASEAN. By focusing on the differences in regulatory structures, enforcement mechanisms, and compliance practices, this research offers new insights into how these two regions shape the development and management of AI. This study fills this gap by systematically comparing EU and ASEAN AI governance and evaluating their role in global AI regulatory coordination. This analysis will provide insights into achieving a more harmonized and effective global AI governance framework.

3. RESEARCH METHODOLOGY

This study employs a comparative legal analysis to examine the regulatory frameworks governing AI in the EU and the ASEAN. By analysing legislative documents, policy papers, and scholarly literature, this research aims to identify similarities, differences, and key challenges in AI governance across both regions. Besides, alternative methods, such as case studies focusing on individual countries' AI governance or doctrinal analysis of key legislative documents, could also be appropriate for this research. However, these methods were not selected as they may not adequately capture the broader regional patterns and cross-jurisdictional differences that a comparative approach is better suited to reveal.

The comparative method is used to study how AI regulations differ in design, application, and enforcement between the EU and ASEAN. The EU applies a unified and legally binding system, while ASEAN relies on a more flexible and voluntary approach. To provide a thorough comparison, this study examines several key aspects, including regulatory approaches, global influence, economic and innovation impact, ethical and human rights considerations, and enforcement mechanisms. This method helps to better understand how regional conditions shape the way AI is managed and whether the current regulations can meet their goals.

Data collection consists of document analysis and literature review. Primary sources include official EU and ASEAN legal texts, government reports, and AI policy papers, while secondary sources consist of peer-reviewed academic articles, industry analyses, and expert commentaries. This ensures a multi-perspective evaluation of AI governance, incorporating both legal frameworks and industry responses. Additionally, cross-referencing findings from existing studies provides validation and strengthens the credibility of the research conclusions.

Finally, this study acknowledges potential limitations, such as the evolving nature of AI regulations and the lack of standardized governance frameworks in ASEAN. The dynamic nature of AI policy development means that regulatory landscapes may change, requiring continuous monitoring. Furthermore, since ASEAN countries adopt diverse AI strategies, generalizing findings across all member states poses a challenge. Despite these limitations, the comparative approach provides valuable insights into AI governance trends, offering a foundation for future studies on global AI policy harmonization.

4. RESULTS AND DISCUSSION

4.1. Regulatory approaches: Balancing control and flexibility

AI regulation is a subject of increasing global attention, as policymakers seek to balance technological innovation with ethical safeguards and legal accountability. The EU AI Act (EU, 2024) and the ASEAN Guide on AI Governance and Ethics (ASEAN, 2024) exemplify two distinct regulatory models, each with unique implications for AI development, compliance, and economic growth. The EU AI Act enforces strict, risk-based regulations, ensuring compliance and accountability but potentially limiting innovation. ASEAN's decentralized approach prioritizes flexibility and industry-led governance, fostering AI adoption but lacking enforcement consistency.

The EU AI Act, introduced in 2021, is the world's first comprehensive legal framework for AI regulation (Casonato & Olivato, 2024). It adopts a risk-based classification system, categorizing AI applications into four levels: unacceptable risk (banned AI applications), high risk (subject to strict compliance), limited risk (transparency obligations), and minimal risk (largely unregulated AI systems) (EU, 2024). The act enforces mandatory risk assessments, transparency measures, and human oversight, particularly for high-risk applications such as AI-driven healthcare diagnostics, financial services, and biometric identification (Krarup & Horst, 2023). While these measures enhance AI accountability and consumer trust, they also impose high compliance costs on businesses, particularly startups and small and medium-sized enterprises (SMEs) that may struggle with legal and technical complexities (Paul, 2024). The AI Act's strict risk management protocols may slow the commercial deployment of AI solutions, as companies must invest heavily in compliance audits, data documentation, and regulatory approvals (Parisini, 2024). Consequently, while the EU's approach fosters a safer AI ecosystem, it may also create barriers to AI innovation and entrepreneurship.

Conversely, the ASEAN AI Governance and Ethics Guidelines, adopted in 2021, take a non-binding, principles-based approach to AI regulation (ASEAN, 2024). The framework promotes human-centric AI, transparency, fairness, safety, and accountability, but does not impose legal obligations or compliance mandates on businesses. Unlike the EU's legalistic approach, ASEAN's model encourages industry-led governance, allowing businesses to develop self-regulation strategies aligned with global best practices. This business-friendly environment enables faster AI adoption, particularly in finance, e-commerce, and smart city development, where low regulatory barriers attract investment and technological experimentation (Kumar & Dadhich, 2024). However, without binding oversight, AI applications in ASEAN may operate without rigorous ethical constraints, increasing risks

related to data privacy, discrimination, and opaque decision-making processes.

A key trade-off between these regulatory models is the impact on AI innovation and market competitiveness. The EU's regulatory rigor ensures that AI systems meet high ethical and legal standards, preventing harmful AI applications from entering the market (Pasupuleti, 2024). However, the high cost of regulatory compliance may discourage startups and SMEs from innovating in AI-intensive sectors, limiting market dynamism (Paul, 2024). In contrast, ASEAN's flexible regulatory environment supports the fast development of new technologies and promotes economic growth, especially in digital sectors in countries such as Singapore, Vietnam, and Indonesia (Putra, 2024). Nevertheless, the absence of strong enforcement mechanisms makes ASEAN's AI governance susceptible to ethical loopholes, as companies are not legally obligated to prioritize fairness, transparency, or data protection (ASEAN, 2024).

Another critical consideration is cross-border AI compliance and international regulatory influence. The EU's AI Act has extraterritorial implications, meaning that companies operating within the EU or exporting AI technologies to the region must align with EU standards (EU, 2024). This exerts a global regulatory influence, often referred to as the "Brussels Effect", compelling multinational companies to adopt EU-compliant AI governance practices (Krarup & Horst, 2023). For ASEAN-based companies, this creates legal complexities, as they must navigate both flexible domestic AI policies and stringent EU regulations when engaging in cross-border AI trade. The lack of harmonized AI standards in ASEAN further complicates compliance, as different member states adopt varying AI governance approaches, creating regulatory uncertainty for businesses operating across the region.

To bridge these regulatory disparities, ASEAN and the EU could explore hybrid AI governance models that combine legal safeguards with innovation-friendly policies. One potential solution is the adoption of regulatory sandboxes, where AI regulations are tested in controlled environments before full-scale implementation (Chun et al., 2024). This approach allows regulators to evaluate AI risks dynamically while providing businesses with a safe space for experimentation. Additionally, regional AI governance harmonization in ASEAN could streamline cross-border compliance, reducing legal uncertainties for businesses (Roberts et al., 2023). Establishing mutual recognition agreements (MRAs) between ASEAN and the EU could also facilitate regulatory alignment, allowing AI systems that meet EU standards to operate seamlessly in ASEAN markets and vice versa (Parisini, 2024).

In conclusion, the comparison between the EU and ASEAN regulatory models shows a clear trade-off between strict government control and flexible policy design. The EU's detailed and binding rules focus on protecting the public and ensuring ethical standards, but this may slow down the development of new technologies because of the high cost of following these rules. On the other hand, ASEAN's more open and industry-led approach supports faster growth and makes it easier for businesses to enter the market, but it does not have strong systems to manage ethical or safety concerns. These differences suggest that relying only on strict control or only on flexible policies may not fully solve the challenges of technology governance. A balanced approach that combines the EU's careful supervision with ASEAN's flexible, business-friendly style may offer a better long-term solution that supports both safe technology use and continued progress.

4.2. The global influence of EU and ASEAN AI governance

As AI continues to evolve, regulatory frameworks play a crucial role in shaping global AI governance. The EU AI Act, through the Brussels Effect, extends its regulatory influence beyond Europe, compelling international AI firms to align with its stringent compliance standards. In contrast, the ASEAN AI Governance and Ethics Guidelines adopt a flexible, principles-based approach, promoting AI ethics and innovation without imposing legally binding obligations. Understanding how these distinct regulatory models influence global AI governance provides insights into the balance between regulatory oversight, market adaptability, and cross-border policy harmonization.

4.2.1. The "Brussels Effect" of the EU AI Act

The EU AI Act is a groundbreaking regulatory framework that seeks to establish harmonized AI governance across the EU while influencing global AI standards. One of its most significant impacts is its ability to generate a "Brussels Effect", where non-EU businesses and policymakers adopt EU-style AI regulations, either voluntarily or through legal necessity (Almada & Radu, 2024). The AI Act achieves this through several specific provisions, particularly in risk classification, transparency requirements, and extraterritorial enforcement. The EU AI Act adopts a risk-based classification framework that categorizes AI systems into four tiers based on potential societal harm. Unacceptable risk AI, such as social scoring and mass surveillance, is prohibited. High-risk AI, including applications in healthcare, finance, and law enforcement, is subject to strict regulatory compliance. Limited-risk AI, such as chatbots and recommendation algorithms, must adhere to transparency requirements, while minimal-risk AI, like spam filters and video games, remains largely unregulated (EU, 2024).

This risk-based approach has direct global implications, as many AI companies operating in high-risk sectors, such as facial recognition, autonomous decision-making, and predictive analytics, must comply with the AI Act's stringent requirements if they wish to operate in the EU. As a result, firms outside Europe, particularly in ASEAN countries, are already adjusting their AI governance policies to align with EU regulatory expectations (Xu et al., 2024). Singapore, for example, has integrated risk-based classification principles into its Model AI Governance Framework, demonstrating how the AI Act's methodology is influencing AI policy beyond European borders (Personal Data Protection Commission [PDPC] Singapore, 2020).

Another core provision of the AI Act is its emphasis on transparency and explainability, particularly for EU AI Act classified as high-risk. Articles 13 and 52 of the EU AI Act stipulate that AI models must be interpretable, ensuring that users and regulators can understand and audit

AI decision-making processes (EU, 2024). This requirement is particularly relevant to AI applications in finance, healthcare, and autonomous vehicles, where opaque AI algorithms can result in discrimination or systemic risks.

This transparency mandate has exerted a global regulatory impact, as AI companies seeking market access in Europe must adopt explainability measures, regardless of their country of origin. Major technology companies, including Google, Microsoft, and OpenAI, have begun incorporating EU-aligned transparency measures into their AI models, ensuring that AI decision-making meets accountability standards (Siegmann & Anderljung, 2022).

The ripple effects of this provision are also evident in ASEAN. While ASEAN's AI Governance and Ethics Guidelines emphasize transparency as an ethical principle, there are no legal obligations for AI firms to enforce explainability (Hacker, 2023). However, as more ASEAN-based AI companies engage with European markets, there is increasing pressure to adopt self-regulatory transparency measures to pre-emptively align with EU compliance expectations.

The extraterritorial scope of the EU AI Act means that any ASEAN-based AI company providing services to EU consumers must adhere to compliance obligations, including risk assessments, transparency disclosures, and impact evaluations. This enforcement mechanism is particularly relevant for ASEAN's AI-driven finance and healthcare sectors, where companies frequently engage with European partners and clients. To mitigate compliance risks, some ASEAN-based AI firms are proactively developing EU-compliant AI governance structures, ensuring their products can seamlessly enter the European market (Roberts et al., 2023).

The Brussels Effect of the EU AI Act is embedded in its core legal provisions, particularly its risk-based classification system, transparency mandates, and extraterritorial enforcement mechanisms. These provisions ensure that AI firms outside the EU, including those in ASEAN, must comply with EU standards if they wish to access European markets. While ASEAN maintains a voluntary, market-driven AI governance approach, economic incentives, and trade dependencies are gradually pushing ASEAN AI firms toward regulatory convergence with the EU AI Act. In the future, continued regulatory harmonization between the EU and ASEAN could lead to greater interoperability in AI governance frameworks, balancing consumer protection with technological innovation.

4.2.2. ASEAN's AI governance and ethics guidelines: Regional policy and global influence

The ASEAN Guide on AI Governance and Ethics serves as a foundational document for promoting responsible AI deployment across ASEAN member states. Unlike prescriptive regulatory models such as the EU AI Act, ASEAN's framework emphasizes principles-based governance, voluntary compliance, and flexibility, allowing businesses and governments to adopt AI governance structures suited to their economic and technological realities. This approach aligns with ASEAN's broader strategy of fostering regional digital transformation, supporting AI innovation, and ensuring interoperability between national policies without imposing rigid regulatory constraints. The framework is structured around seven guiding principles: transparency and explainability, fairness and equity, security and safety, human-centricity, privacy and data governance, accountability and integrity, and robustness and reliability (ASEAN, 2024).

One of the most notable aspects of ASEAN's AI governance approach is its risk-based decision-making model, which categorizes AI applications based on the level of human involvement required in decision-making. The guide proposes three broad categories: human-in-the-loop (full human oversight), human-over-the-loop (supervisory oversight), and human-out-of-the-loop (fully autonomous AI decisions) (ASEAN, 2024). This flexible classification allows ASEAN states to adapt AI oversight to specific industry needs while ensuring that high-risk AI applications, such as healthcare and law enforcement, remain under human control. Compared to the EU's strict risk-tiered approach, which legally mandates compliance for high-risk AI, ASEAN's model provides more discretion for businesses to self-regulate, a reflection of the region's preference for innovation-friendly AI policies.

The ASEAN AI Governance Guide also emphasizes the role of internal governance structures within organizations. Businesses are encouraged to establish AI Ethics Committees, oversight boards, and risk assessment frameworks to ensure that AI deployment aligns with ethical principles (ASEAN, 2024). Companies such as Singapore's Smart Nation Group and UCARE. AI has adopted internal AI governance mechanisms, integrating ethical risk assessments into their AI lifecycle management. However, the effectiveness of this self-regulation approach remains contingent on corporate commitment to ethical AI, as there are no binding enforcement mechanisms akin to the EU AI Act. This raises concerns regarding inconsistencies in AI governance implementation across ASEAN member states, where some countries, such as Singapore, have advanced AI governance structures, while others, such as Cambodia and Myanmar, have minimal AI oversight.

Despite its non-mandatory nature, ASEAN's AI governance framework is influencing global AI governance discussions, particularly among emerging economies that seek a balanced approach between AI regulation and economic growth. The guide promotes cross-border AI interoperability, ensuring that ASEAN AI systems can align with international best practices while maintaining regulatory sovereignty (ASEAN, 2024). Moreover, ASEAN has actively engaged in AI governance dialogues with the EU, Organisation for Economic Co-operation and Development (OECD), and the GPAI, positioning itself as a key player in international AI policymaking (Putra, 2024). Moving forward, ASEAN's influence on global AI governance will depend on its ability to harmonize AI policies across its member states while fostering collaborative AI governance initiatives with international partners.

While ASEAN's flexible, innovation-driven AI governance model offers significant advantages, including reduced compliance burdens and increased AI adoption, it also presents challenges related to enforcement, accountability, and AI ethics standardization. As AI technologies continue to evolve, ASEAN may need to explore hybrid regulatory approaches, integrating voluntary

compliance with sector-specific AI mandates to ensure ethical AI deployment while sustaining innovation. This adaptive approach could allow ASEAN to retain regulatory flexibility while addressing concerns related to AI safety, bias, and human rights implications, positioning the region as a leading advocate for ethical and responsible AI governance in the global arena.

4.3. Economic and innovation impact: Balancing regulatory burdens and business opportunities

The economic and innovation impact of AI regulation differs significantly between the EU and ASEAN. The EU AI Act, through its detailed legal framework, imposes strict compliance requirements on businesses. This increases operational costs and may potentially slow technological progress. However, these high standards also contribute to the development of global regulatory benchmarks. In contrast, ASEAN's lighter and more flexible regulatory environment encourages investment and supports the growth of startups, but the lack of regulatory alignment among member states creates difficulties for companies operating across borders. These findings highlight two key dimensions: the cost of compliance and its influence on technological development in the EU, and the investment-driven growth model and its regulatory challenges in ASEAN.

The EU's high compliance costs, while potentially limiting short-term innovation, help shape international standards and strengthen consumer and ethical protections. This regulatory influence extends beyond its borders, affecting companies that wish to enter the EU market. On the other hand, ASEAN's lighter regulatory system lowers entry barriers and stimulates rapid technological adoption, but its fragmented governance structure weakens legal certainty and may expose businesses to ethical and safety risks. These contrasting outcomes suggest that a balance between regulatory strictness and market openness is essential for sustainable technological and economic growth.

The EU AI Act, while designed to ensure ethical AI development and consumer protection, imposes significant compliance costs on AI companies operating in the European market (Kriebitz et al., 2024). These costs arise from mandatory risk assessments, documentation requirements, third-party audits, transparency obligations, and human oversight mechanisms for high-risk AI applications (Zhong, 2024). While these regulatory measures enhance trust and accountability, they also create substantial financial and operational burdens, particularly for SMEs and AI startups (Ustahaliloğlu, 2025). As a result, the EU's strict compliance landscape may hinder AI innovation, slow down the commercial deployment of AI technologies, and discourage investment in high-risk AI sectors (Ljube et al., 2024).

One of the biggest compliance challenges posed by the EU AI Act is its risk-based classification system, which mandates higher regulatory scrutiny for AI applications deemed high-risk (Ebers, 2025). AI companies operating in healthcare, finance, biometric identification, and law enforcement must comply with extensive technical Beyond direct financial costs, the AI Act introduces legal uncertainties and bureaucratic hurdles that could deter AI firms from pursuing innovative projects. Startups that develop cutting-edge AI technologies, such as autonomous decision-making systems or AI-driven medical diagnostics, may be reluctant to invest in high-risk AI applications due to unclear regulatory pathways and the risk of non-compliance penalties. The EU AI Act allows for fines of up to 6% of global annual revenue for AI firms that violate compliance requirements, adding a significant liability risk for businesses seeking to develop advanced AI models (EU, 2024). As a result, some companies may choose to limit their AI operations within the EU or relocate research and development to regions with more lenient AI governance frameworks, such as ASEAN or the United States (Paul, 2024).

Another critical concern is the impact of regulatory delays on AI deployment. AI firms operating within the EU must undergo lengthy approval processes, third-party conformity assessments, and algorithmic impact evaluations before launching AI products in high-risk sectors (Ebers, 2025). These compliance bottlenecks increase time-to-market for new AI innovations, making it difficult for European AI startups to compete with firms in less-regulated regions where AI technologies can be developed and commercialized more rapidly (Almada & Radu, 2024). The slow regulatory approval process may lead to AI talent migration, as researchers and developers seek more innovation-friendly environments outside the EU, exacerbating Europe's existing competitive disadvantage in global AI leadership.

Despite these challenges, some proponents argue that the long-term benefits of regulatory compliance outweigh the short-term costs. The EU AI Act's focus on transparency, accountability, and ethical AI governance is expected to enhance consumer trust, reduce algorithmic bias, and promote fair AI adoption globally (Gille et al., 2024). In the long run, companies that successfully navigate EU compliance requirements may gain a competitive advantage, as they will be seen as leaders in ethical AI deployment. Moreover, as other regions, such as Canada, Japan, and Australia, consider adopting similar AI governance models, early compliance with EU AI regulations could provide European AI firms with first-mover advantages in global AI standardization efforts (Paul, 2024).

4.4. Ethics and human rights: Compulsory or voluntary models

The EU emphasizes human rights, transparency, and imposes strict prohibitions on certain high-risk applications. In contrast, ASEAN adopts voluntary ethical guidelines, with considerable differences in governance practices among its member states. These findings reveal that the EU and ASEAN have fundamentally different approaches to ethical governance and human rights protection in regulating emerging technologies.

The EU AI Act is designed to establish a clear and enforceable regulatory framework for AI, ensuring that AI systems operate ethically, transparently, and safely within the EU. Regulatory accountability is a key pillar of the EU AI Act, aimed at preventing AI-related risks while fostering public trust and technological advancement (Kumar & Dadhich, 2024). By introducing centralized oversight

bodies, sector-specific compliance requirements, and corrective enforcement mechanisms, the EU AI Act ensures that AI applications align with legal and ethical standards throughout their lifecycle (Slavković, 2024).

At the core of the EU AI Act's accountability framework is a multi-tiered enforcement structure that includes both national and EU-wide regulatory bodies. The National Supervisory Authorities (NSAs) play a frontline role in monitoring AI compliance at the member-state level, conducting investigations, audits, and risk assessments. Meanwhile, the European Artificial Intelligence Board (EAIB) provides guidance on AI governance, coordinates enforcement efforts across the EU, and ensures regulatory consistency between different jurisdictions (Hewson, 2024). This hierarchical oversight structure guarantees that AI regulations are uniformly implemented, reducing the risks of legal fragmentation and enforcement disparities.

A critical element of regulatory accountability under the AI Act is the risk-based classification system, which categorizes AI applications according to their potential societal impact (Ebers, 2025). AI providers are required to submit comprehensive risk assessments and explainability reports to ensure that AI decision-making processes remain transparent and non-discriminatory (Nannini, 2024). This compliance model ensures that AI systems are ethically and legally aligned before market entry, preventing harmful applications from being deployed unchecked.

Another key accountability mechanism embedded in the AI Act is post-market surveillance and continuous monitoring (Mökander et al., 2022). Unlike traditional regulations that focus primarily on pre-deployment compliance, the AI Act mandates that high-risk AI systems remain subject to ongoing evaluations even after being commercialized (Ebers, 2025). Regulatory authorities conduct periodic audits, impact assessments, and algorithmic fairness evaluations to ensure that AI models do not deviate from compliance requirements over time (Bogucka et al., 2024). Companies are required to implement real-time monitoring systems that allow for early detection of biases, safety risks, and performance degradation, reinforcing long-term accountability in AI deployment (Reddy et al., 2024).

In addition to strict oversight measures, the EU AI Act introduces corrective enforcement mechanisms to address non-compliance and AI-related risks (Ebers, 2025). Regulatory authorities can issue compliance orders, operational restrictions, or product recalls if an AI system is found to pose unacceptable risks (Igwe, 2024). In cases of repeated violations, companies may be prohibited from deploying certain AI models until corrective actions are taken. Additionally, the EU AI Act establishes legal liability frameworks to ensure that AI providers, developers, and deployers are held responsible for the impacts of their AI systems (Hartmann et al., 2024). These accountability measures enhance consumer protection while preventing reckless AI deployment.

While the EU AI Act's regulatory accountability framework strengthens consumer rights and ethical AI governance, it also poses challenges related to compliance burdens and enforcement efficiency (Sillberg et al., 2024). The extensive documentation, auditing, and reporting requirements may disproportionately affect smaller AI firms and startups, which may lack the financial and legal resources to meet stringent compliance standards (Determann, 2024). Additionally, as AI technology evolves rapidly, there is a risk that regulatory enforcement mechanisms may struggle to keep pace with technological advancements, necessitating adaptive regulatory models that allow for greater flexibility in enforcement strategies (Hewson, 2024).

In contrast, the ASEAN AI Governance and Ethics Guidelines emphasize human-centric AI, transparency, and fairness, but they lack legally binding enforcement mechanisms (ASEAN, 2024). Each ASEAN member state implements AI governance according to its national priorities, resulting in diverse regulatory landscapes. For example, Singapore has established a Model AI Governance Framework, which encourages transparency and ethical AI deployment, while countries like Cambodia and Myanmar have minimal AI-specific regulations (Sistla, 2024). This decentralized model promotes regulatory flexibility and innovation, making ASEAN an attractive destination for AI startups and multinational corporations seeking fewer compliance barriers. However, the lack of uniform accountability measures creates uncertainties for businesses operating across multiple ASEAN jurisdictions, undermining trust in the region's ability to regulate AI effectively.

A significant challenge for ASEAN lies in cross-border regulatory fragmentation (Song, 2024). The absence of a unified AI compliance framework means that businesses must navigate varying standards and enforcement mechanisms across member states. For instance, an AI application approved in Singapore may face additional regulatory hurdles in Malaysia or Indonesia, increasing operational complexity and compliance costs for multinational companies. By contrast, the EU's centralized model ensures harmonized enforcement, enabling businesses to scale their AI solutions across the bloc without needing to adapt to different national requirements (Siegmann & Anderljung, 2022).

Despite its challenges, ASEAN's decentralized approach has strengths, particularly in fostering innovation and investment (Cho & Kurtz, 2022). Without strict legal enforcement, AI companies can experiment with new technologies and quickly bring products to market. This flexibility has positioned ASEAN as a global hub for AI research and development, attracting significant investments from China, Japan, and the United States. However, the absence of legally binding accountability mechanisms raises concerns about ethical governance, especially in high-risk sectors like biometrics, predictive policing, and automated financial systems, where the potential for bias and misuse is high (Cheong, 2024).

To bridge these gaps, both regions can learn from each other. The EU could explore adaptive enforcement mechanisms, such as regulatory sandboxes that allow businesses to test AI systems under regulatory supervision without incurring full compliance burdens upfront. Meanwhile, ASEAN could introduce minimum mandatory standards for high-risk AI applications, ensuring ethical accountability while preserving regulatory flexibility. In addition, regional cooperation and joint AI

research initiatives, could further enhance regulatory alignment, enabling smoother cross-border AI operations and fostering trust in AI governance systems (Keith, 2024).

4.5. Enforcement mechanisms: Comparing centralized supervision and decentralized flexibility

The enforcement of AI governance varies significantly between the EU and the ASEAN, reflecting their differing regulatory philosophies and institutional structures. The EU AI Act follows a centralized, legally binding model that ensures strict compliance through regulatory bodies, penalties, and oversight mechanisms, whereas ASEAN's decentralized and voluntary approach allows for market-driven regulation and national discretion (Matai, 2024). These contrasting models influence regulatory effectiveness, business compliance, and ethical AI deployment across the two regions.

The enforcement system under the EU AI Act uses a layered supervision model, making sure that higher-risk technologies are carefully monitored and strictly controlled (Ebers, 2025). The act mandates the creation of NSAs in each member state to monitor AI compliance, conduct audits, and investigate violations (Novelli et al., 2025). At the EU level, the EAIB oversees cross-border regulatory coordination, ensuring uniform enforcement across all 27 member states (Novelli et al., 2025). Furthermore, high-risk AI applications, such as biometric surveillance, automated hiring, and medical diagnostics, must undergo pre-market conformity assessments, requiring developers to submit detailed reports on algorithmic transparency, bias mitigation, and data governance (Marri et al., 2024). These enforcement mechanisms ensure that AI systems comply with stringent ethical and legal requirements before and after deployment.

A key component of the EU's enforcement system is its strict penalty framework, modeled after the General Data Protection Regulation (GDPR) (Söderlund & Larsson, 2024). These substantial financial penalties create strong incentives for businesses to adhere to AI governance standards, ensuring consumer protection and ethical AI deployment (Pasupuleti, 2024). This approach has been effective in compelling multinational AI firms to align with EU regulations, reinforcing the Brussels Effect, where European laws influence global AI governance beyond the bloc's borders (Tarafder & Vadlamani, 2024). However, critics argue that these rigid enforcement measures place heavy compliance burdens on startups and SMEs, potentially hindering AI innovation and slowing technological development within the EU (Wu & Liu, 2023).

In contrast, ASEAN's AI governance framework operates on a decentralized and voluntary basis, where enforcement is largely market-driven rather than dictated by a regional regulatory authority (Putra, 2024). The ASEAN AI Governance and Ethics Guidelines encourage industry self-regulation, focusing on transparency, fairness, and human-centric AI principles (ASEAN, 2024). Unlike the EU, ASEAN does not impose mandatory AI risk assessments or centralized oversight bodies, allowing member states to adapt governance frameworks to their economic priorities (Xu et al., 2024). Singapore, for example, has developed the AI Governance Framework, which promotes risk-based AI management and corporate AI accountability, while countries like Cambodia and Myanmar lack structured AI enforcement mechanisms (PDPC Singapore, 2020). This flexible governance structure fosters innovation but creates significant inconsistencies in regulatory enforcement across the region (Nakajima, 2025).

ASEAN's market-driven enforcement strategy relies on industry standards and voluntary compliance, meaning that AI companies are encouraged, but not legally required, to implement risk assessment protocols, fairness audits, and algorithmic transparency measures (Choi & Porananond, 2023). The absence of penalties for non-compliance means that AI firms face minimal legal consequences for failing to meet ethical AI guidelines. While this pro-business approach has made ASEAN an attractive region for AI investments and rapid technological deployment, it has also raised concerns regarding accountability and consumer protection (Putra, 2024). Without a unified enforcement framework, AI applications deployed in one ASEAN country may lack sufficient oversight in another, increasing the risk of algorithmic bias, unethical AI practices, and regulatory arbitrage.

One of the major enforcement challenges for ASEAN is cross-border regulatory fragmentation, where companies operating in multiple ASEAN nations must navigate different AI governance frameworks. Unlike the EU, where a single regulatory mechanism ensures uniform AI compliance, ASEAN firms face inconsistent AI approval processes across national markets (Xu et al., 2024). For example, an AI-powered financial risk assessment tool compliant in Singapore may encounter additional regulatory hurdles in Indonesia or Malaysia, creating operational inefficiencies and compliance uncertainty. This fragmentation limits ASEAN's ability to establish itself as a cohesive AI regulatory bloc, reducing business confidence in long-term AI governance stability.

To address these enforcement challenges, ASEAN could benefit from regional regulatory coordination initiatives such as harmonized AI certification frameworks and MRAs, allowing businesses to adhere to standardized AI compliance protocols across member states (Khan, 2024). Meanwhile, the EU could introduce regulatory flexibility, such as adaptive compliance pathways for AI startups and high-growth companies, reducing bureaucratic bottlenecks while maintaining strict ethical enforcement (Montagnani et al., 2024). Additionally, fostering EU-ASEAN AI policy dialogues could facilitate knowledge-sharing on best enforcement practices, ensuring that AI governance models evolve to balance innovation with accountability (Keith, 2024).

In summary, the EU and the ASEAN adopt distinct approaches to AI governance. Below is a comparative overview of the AI governance and enforcement mechanisms in the EU and ASEAN:

Table 1. Comparison of AI governance and enforcement mechanisms: EU vs. ASEAN

Key dimension	*EU*	*ASEAN*	*Bridging tools/Coordination suggestions*
Legal nature	Legally binding, mandatory AI Act	Non-binding, voluntary guidelines	Develop regional agreements or mutual recognition frameworks to encourage policy alignment.
Enforcement mechanism	Centralized and mandatory enforcement with strict penalties	Decentralized enforcement, often voluntary	Establish regional coordination bodies or compliance support platforms.
Supervisory authority	European Commission and national supervisory bodies	No unified supervisory body	Create ASEAN-level AI governance forum or monitoring network.
Penalties for non-compliance	Standardized, substantial fines across all member states	Penalties vary by country, often non-standardized	Encourage harmonized penalty ranges through soft law agreements.
Compliance procedures	Mandatory risk assessments and certifications	No compulsory risk assessment or certification	Promote ASEAN-wide minimum compliance standards or shared certification pathways.

Source: Authors' elaboration.

5. CONCLUSION

The study concludes that significant differences exist between the EU and ASEAN in the governance of AI. The EU emphasizes centralized regulation and mandatory compliance, while ASEAN focuses more on flexible governance and market-driven approaches. Their differences in regulatory models, ethical standards, enforcement mechanisms, and economic impacts will continue to influence corporate compliance strategies and regional regulatory coordination. These findings provide important insights for advancing cross-regional policy alignment in the future.

This study also provides valuable insights for policymakers, industry leaders, and international organizations that seek to develop responsible, balanced, and globally compatible technology governance. The EU's enforcement model ensures legal certainty, algorithmic transparency, and consumer protection, particularly in relation to high-risk applications (Söderlund & Larsson, 2024). However, the cost of maintaining this system may limit innovation by increasing regulatory burdens for businesses (Paul, 2024). ASEAN's decentralized model, in turn, fosters rapid technological growth and investment but raises concerns about regulatory fragmentation, uneven ethical safeguards, and cross-border compliance difficulties (Keith, 2024).

The regulatory influence of both models extends beyond their borders. The EU AI Act's extraterritorial effect compels companies worldwide, including those in ASEAN, to meet European compliance standards if they wish to enter the EU market (Siegmann & Anderljung, 2022). ASEAN, by contrast, contributes to international regulatory experimentation by promoting flexible, market-driven, and locally adaptive governance frameworks (Keith, 2024). These findings are highly relevant in the context of the global debate on technology regulation, where countries must weigh the benefits of strict, centralized frameworks against the advantages of flexible, innovation-oriented policies.

Looking forward, greater regulatory alignment between the EU and ASEAN will be crucial for improving cross-border cooperation, facilitating technology trade, and promoting ethical governance in the region. Policymakers could explore hybrid models that combine the EU's strict enforcement mechanisms with ASEAN's flexibility to achieve both regulatory certainty and innovation support (Keith, 2024). Regional cooperation initiatives, joint AI research platforms, and efforts to harmonize risk classification and transparency requirements could serve as practical steps toward bridging regulatory gaps between the two regions.

Despite these contributions, this study has several limitations. First, the research is based on a qualitative comparative analysis of regulatory documents and selected secondary sources. It does not include empirical data such as interviews with policymakers or industry actors, which could provide deeper practical insights into regulatory implementation. Second, this study focuses on ASEAN and the EU but does not cover other emerging AI governance models, such as those in the United States or China, which could provide a more comprehensive global comparison. Third, the analysis primarily examines formal regulations and may not fully capture the informal, evolving practices of AI governance in both regions.

For future research, it will be important to conduct in-depth empirical studies on how companies and regulatory authorities in the EU and ASEAN implement and adapt to these governance frameworks. Comparative case studies of cross-border AI projects, compliance challenges faced by multinational firms, and the effectiveness of ethical oversight mechanisms in practice would further enrich this field. Additionally, future studies could explore the feasibility of establishing a global AI governance framework, focusing on the standardization of ethical guidelines, risk management protocols, and accountability measures.

In conclusion, this research highlights the importance of developing balanced, flexible, and internationally compatible governance systems that can both protect public interests and encourage technological innovation. As AI continues to evolve, cross-regional cooperation will become essential to building sustainable, trustworthy, and inclusive global governance frameworks.

REFERENCES

Allen, J. G., Loo, J., & Campoverde, J. L. L. (2025). Governing intelligence: Singapore's evolving AI governance framework. *Cambridge Forum on AI: Law and Governance, 1*, Article e12. https://doi.org/10.1017/cfl.2024.12

Almada, M., & Radu, A. (2024). The Brussels side-effect: How the AI Act can reduce the global reach of EU policy. *German Law Journal, 25*(4), 646–663. https://doi.org/10.1017/glj.2023.108

Association of Southeast Asian Nations (ASEAN). (2024). *ASEAN guide on AI governance and ethics.* https://asean.org/wp-content/uploads/2024/02/ASEAN-Guide-on-AI-Governance-and-Ethics_beautified_201223_v2.pdf

Bogucka, E., Constantinides, M., Šćepanović, S., & Quercia, D. (2024). Co-designing an AI impact assessment report template with AI practitioners and AI compliance experts. *Proceedings of the AAAI/ACM Conference on AI, Ethics, and Society, 7*(1), 168–180. https://doi.org/10.1609/aies.v7i1.31627

Casonato, C., & Olivato, G. (2024). AI Regulation in Europe: Exploring the artificial intelligence act. In A. Fabris & S. Belardinelli (Eds.), *Digital environments and human relations: Ethical perspectives on AI issues* (pp. 87–111). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-76961-0_5

Chen, L, & Ruddy, L. (2020). *Improving digital connectivity: Policy priority for ASEAN digital transformation* (ERIA Policy Brief No. 2020-07). Economic Research Institute for ASEAN and East Asia. https://www.eria.org/uploads/media/policy-brief/Improving-Digital-Connectivity-Policy-Priority-for-ASEAN-Digital.pdf

Cheong, B. C. (2024). Transparency and accountability in AI systems: Safeguarding wellbeing in the age of algorithmic decision-making. *Frontiers in Human Dynamics, 6,* Article 1421273. https://doi.org/10.3389/fhumd.2024.1421273

Cho, S., & Kurtz, J. (2022). Conclusion: Economic regionalism and ASEAN investment. In *Investing the ASEAN way: Theories and practices of economic integration in Southeast Asia* (pp. 216–252). Cambridge University Press. https://doi.org/10.1017/9781009223331.009

Choi, Y. S., & Porananond, P. (2023). Competition law and policy of the ASEAN member states for the digital economy: A proposal for greater harmonization. *Asia Pacific Law Review, 31*(2), 358–379. https://doi.org/10.1080/10192557.2023.2216055

Chun, J., de Witt, C. S., & Elkins, K. (2024). *Comparative global AI regulation: Policy perspectives from the EU, China, and the US.* arXiv. https://doi.org/10.48550/arXiv.2410.21279

Determann, L. (2024). Starting an AI law compliance program. In *Determann's field guide to artificial intelligence law: International corporate compliance* (pp. 32–52). Edward Elgar Publishing. https://doi.org/10.4337/9781035326969.00010

Dokumacı, M. (2024). Legal frameworks for AI regulations. *Human Computer Interaction, 8*(1). https://globalresearchandinnovationpublications.com/HCI/article/view/125

Ebers, M. (2025). Truly risk-based regulation of artificial intelligence: How to implement the EU's AI Act. *European Journal of Risk Regulation, 16*(2), 684–703. https://doi.org/10.1017/err.2024.78

Ersoy, E. (2024). EU artificial intelligence regulation. In F. Al-Turjman (Ed.), *Computational intelligence and blockchain in complex systems* (pp. 113–119). Morgan Kaufmann. https://doi.org/10.1016/B978-0-443-13268-1.00001-7

European Union (EU). (2024). Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence and amending Regulations (EC) No. 300/2008, (EU) No. 167/2013, (EU) No. 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act). *Official Journal of the European Union.* https://eur-lex.europa.eu/eli/reg/2024/1689/oj

Gille, M., Tropmann-Frick M., & Schomacker T. (2024). Balancing public interest, fundamental rights, and innovation: The EU's governance model for non-high-risk AI systems. *Internet Policy Review, 13*(3). https://doi.org/10.14763/2024.3.1797

Hacker, P. (2023). *AI regulation in Europe: From the AI Act to future regulatory challenges.* arXiv. https://arxiv.org/abs/2310.04072

Hartmann, J., Scott, B. I., Truxal, S., Bertolini, A., & Masutti, A. (Eds.). (2024). *Civil regulation of autonomous unmanned aircraft systems in Europe.* Edward Elgar Publishing. https://doi.org/10.4337/9781035312344

Hewson, K. (2024, November 19). *The EU AI Act: Enforcement overview.* Stephenson Harwood. https://www.stephensonharwood.com/insights/the-eu-ai-act-enforcement-overview

Huang, K., Joshi, A., Dun, S., & Hamilton, N. (2024). AI regulations. In K. Huang, Y. Wang, B. Goertzel, Y. Li, S. Wright, & J. Ponnapalli (Eds.), *Generative AI security: Theories and practices* (pp. 61–98). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-54252-7_3

Igwe, O. (2024). Artificial intelligence: A twenty first century international regulatory challenge. *Athens Journal of Law, 10*(4), 737–764. https://doi.org/10.30958/ajl.10-4-19

Kashefi, P., Kashefi, Y., & Ghafouri Mirsaraei, A. (2024). Shaping the future of AI: Balancing innovation and ethics in global regulation. *Uniform Law Review, 29*(3), 524–548. https://doi.org/10.1093/ulr/unae040

Keith, A. J. (2024). Governance of artificial intelligence in Southeast Asia. *Global Policy, 15*(5), 937–954. https://doi.org/10.1111/1758-5899.13458

Khan, A. (2024). The intersection of artificial intelligence and international trade laws: Challenges and opportunities. *IIUM Law Journal, 32*(1), 103–152. https://doi.org/10.31436/iiumlj.v32i1.912

Krarup, T., & Horst, M. (2023). European artificial intelligence policy as digital single market making. *Big Data & Society, 10.* https://doi.org/10.1177/20539517231153811

Kriebitz, A., Corrigan, C., Boch, A., Evans, K. D. (2024). *Decoding the EU AI Act in the context of ethics and fundamental rights.* In C. Lütge, A. Kriebitz, R. Max, & C. C. Corrigan (Eds.), The Elgar companion to applied AI ethics (pp. 123–152). Edward Elgar Publishing. https://doi.org/10.4337/9781803928241.00014

Kumar, D., & Dadhich, H. (2024). Regulatory frameworks for artificial intelligence in law: Ensuring accountability and fairness. *NUJS Journal of Regulatory Studies, 9*(2), 13–25. https://doi.org/10.69953/njrs.v9i2.7

Lee, T. (2024). Artificial intelligence: Governing Singapore's smart digital journey. *Communication Research and Practice, 10*(3), 307–315. https://doi.org/10.1080/22041451.2024.2346430

Ljube, D., Mišič, J. J., & Jeran, M. (2024). Economic analysis of the new regulation of the european parliament and council on artificial intelligence. *Proceedings of Socratic Lectures, 11*, 113–118. https://doi.org/10.55295/PSL.11.2024.13

Marri, R., Dabbara, L. N., & Karampuri, S. (2024). AI security in different industries: A comprehensive review of vulnerabilities and mitigation strategies. *International Journal of Science and Research Archive, 13*(1), 2375–2393. https://doi.org/10.30574/ijsra.2024.13.1.1923

Matai, P. (2024). Comprehensive guide to AI regulations: Analyzing the EU AI Act and global initiatives. *International Journal of Computing and Engineering, 6*(1), 45–54. https://doi.org/10.47941/ijce.2110

Mökander, J., Axente, M., Casolari, F., & Floridi, L. (2022). Conformity assessments and post-market monitoring: A guide to the role of auditing in the proposed European AI Regulation. *Minds and Machines, 32*(2), 241–268. https://doi.org/10.1007/s11023-021-09577-4

Montagnani, M. L., Najjar, M.-C., & Davola, A. (2024). The EU regulatory approach(es) to AI liability, and its application to the financial services market. *Computer Law & Security Review, 53*, Article 105984. https://doi.org/10.1016/j.clsr.2024.105984

Nakajima, R. (2025). The generative artificial intelligence governance paradox: Driving innovation while challenging global corporate oversight in multinational firms. In A. K. M. Pazarskis, V. Santolamazza, & P. Capuano (Eds.), *Corporate governance: Scholarly research and practice* (pp. 91–95). Virtus Interpress. https://doi.org/10.22495/cgsrapp17

Nannini, L. (2024). Habemus a right to an explanation: So what? — A framework on transparency-explainability functionality and tensions in the EU AI Act. *Proceedings of the AAAI/ACM Conference on AI, Ethics, and Society, 7*(1), 1023–1035. https://doi.org/10.1609/aies.v7i1.31700

Novelli, C., Hacker, P., Morley, J., Trondal, J., & Floridi, L. (2025). A robust governance for the AI Act: AI office, AI board, scientific panel, and national authorities. *European Journal of Risk Regulation*, *16*(2), 566–590. https://doi.org/10.1017/err.2024.57

Parisini, E. (2024). The European Union in the race for artificial intelligence: A comparative analysis with US and China in non-market public services. In *Proceedings of the 25th Annual International Conference on Digital Government Research* (pp. 1040–1042). https://doi.org/10.1145/3657054.3659124

Pasupuleti, M. K. (2024). Artificial intelligence in business law: Navigating regulation, ethics, and governance. In *AI in business law: Legal frameworks for the digital era* (Vol. 4, pp. 19–35). National Education Services. https://doi.org/10.62311/nesx/66203

Paul, R. (2024). European artificial intelligence "trusted throughout the world": Risk-based regulation and the fashioning of a competitive common AI market. *Regulation & Governance, 18*(4), 1065–1082. https://doi.org/10.1111/rego.12563

Pehlivan, C. N. (2024). Report: The EU artificial intelligence (AI) act: An introduction. *Global Privacy Law Review*, *5*(1), 31–42. http://www.kluwerlawonline.com/api/Product/CitationPDFURL?file=Journals\GPLR\GPLR2024004.pdf

Personal Data Protection Commission (PDPC) Singapore. (2020). *Model artificial intelligence governance framework* (2nd ed.). https://www.pdpc.gov.sg/-/media/files/pdpc/pdf-files/resource-for-organisation/ai/sgmodelaigovframework2.pdf

Putra, B. A. (2024). Governing AI in Southeast Asia: ASEAN's way forward. *Frontiers in Artificial Intelligence, 7.* https://doi.org/10.3389/frai.2024.1411838

Reddy, K. S., Kethan, M., Basha, S. M., Singh, A., Kumar, P., & Ashalatha, D. (2024). Ethical and legal implications of AI on business and employment: Privacy, bias, and accountability. In *2024 International Conference on Knowledge Engineering and Communication Systems.* IEEE. https://doi.org/10.1109/ICKECS61492.2024.10616875

Roberts, H., Cowls, J., Hine, E., Morley, J., Wang, V., Taddeo, M., & Floridi, L. (2023). Governing artificial intelligence in China and the European Union: Comparing aims and promoting ethical outcomes. *The Information Society, 39*(2), 79–97. https://doi.org/10.1080/01972243.2022.2124565

Siegmann, C., & Anderljung, M. (2022). *The Brussels Effect and artificial intelligence: How EU regulation will impact the global AI market.* arXiv. https://doi.org/10.48550/arXiv.2208.12645

Sillberg, C. V., De Cerqueira, J. S., Sillberg, P., Kemell, K.-K., & Abrahamsson, P. (2024). *The EU AI Act is a good start but falls short.* arXiv. https://arxiv.org/pdf/2411.08535

Sistla, S. (2024). AI with integrity: The necessity of responsible AI governance. *Journal of Artificial Intelligence & Cloud Computing, 3*(5), 1–3. https://www.onlinescientificresearch.com/articles/ai-with-integrity-the-necessity-of-responsible-ai-governance.pdf

Slavković, V. (2024). *Legal regulation of artificial intelligence.* Publishing Center RIOR. https://ouci.dntb.gov.ua/en/works/l16jkw09/

Söderlund, K., & Larsson, S. (2024). Enforcement design patterns in EU law: An analysis of the AI Act. *Digital Society, 3*(2), Article 41. https://doi.org/10.1007/s44206-024-00129-8

Song, H. (2024). Differential interaction: Development of cross-border data flow governance mechanisms in ASEAN. *Highlights in Business, Economics and Management, 24*, 1121–1126. https://doi.org/10.54097/46q0zm63

Tarafder, A., & Vadlamani, A. (2024). Will the EU AI regulations give rise to another 'Brussels Effect'? Lessons from the GDPR. *Journal of Development Policy and Practice, 10*(1), 45–60. https://doi.org/10.1177/24551333241247670

Ustahaliloğlu, M. K. (2025). Artificial intelligence in corporate governance. *Corporate Law & Governance Review, 7*(1), 123–134. https://doi.org/10.22495/clgrv7i1p11

Walter, Y. (2024). Managing the race to the moon: Global policy and governance in artificial intelligence regulation — A contemporary overview and an analysis of socioeconomic consequences. *Discover Artificial Intelligence, 4*(1), Article 14. https://doi.org/10.1007/s44163-024-00109-4

Wu, W., & Liu, S. (2023). *Compliance costs of AI technology commercialization: A field deployment perspective.* arXiv. https://arxiv.org/pdf/2301.13454

Xu, J., Lee, T., & Goggin, G. (2024). AI governance in Asia: Policies, praxis and approaches. *Communication Research and Practice, 10*(3), 275–287. https://doi.org/10.1080/22041451.2024.2391204

Zhong, H. (2024). Implementation of the EU AI Act calls for interdisciplinary governance. *AI Magazine, 45*(3), 333–337. https://doi.org/10.1002/aaai.12183