International Journal of Intelligent Information Technologies
Volume 21 • Issue 1 • January-December 2025

# Human-Centric Versus State-Driven:
## A Comparative Analysis of the European Union's and China's Artificial Intelligence Governance Using Risk Management

Anshu Saxena Arora
https://orcid.org/0000-0002-0512-9693
*University of the District of Columbia, USA*

Luisa Saboia
*University of the District of Columbia, USA*

Amit Arora
*University of the District of Columbia, USA*

John R. McIntyre
*Georgia Institute of Technology, USA*

## ABSTRACT

This research examines the contrasting artificial intelligence (AI) governance strategies of the European Union (EU) and China, focusing on the dichotomy between human-centric and state-driven policies. The EU's approach, exemplified by the EU AI Act, emphasizes transparency, fairness, and individual rights protection, enforcing strict regulations for high-risk AI applications to build public trust. Conversely, China's state-driven model prioritizes rapid AI deployment and national security, often at the expense of individual privacy, as seen through its flexible regulatory framework and substantial investment in AI innovation. By applying the United States' National Institute of Standards and Technology (NIST) AI Risk Management Framework's Map, Measure, Manage, and Govern functions, this study explores how both regions balance technological advancement with ethical oversight. The study ultimately suggests that a harmonized approach, integrating elements of both models, could promote responsible global AI development and regulation.

## KEYWORDS

Artificial Intelligence (AI) Policy, AI Governance, EU AI Act, China AI Strategy, Ethical AI Development, NIST AI Risk Management Framework

## INTRODUCTION

Artificial Intelligence (AI) is defined as the development of systems that can mimic human intelligence to perform tasks such as learning, problem-solving, and decision-making. AI has become a turning point technology, making large progress across various sectors such as healthcare, finance, manufacturing, and education (Allen, 2019). Its ability to process uncountable amounts of data, recognize and reproduce patterns, and learn from new prompts has made AI an essential tool to increase productivity and bring innovation. As these systems continue to evolve, AI is increasingly being part of global infrastructures, automating complex tasks and providing advanced

DOI: 10.4018/IJIIT.367471

analytical insights (Bremmer & Suleyman, 2023). However, despite the positive impacts, AI also brings significant challenges. Privacy invasion, algorithmic bias, and the lack of accountability in decision-making are some of the issues that have raised ethical concerns about the consequences of its use on society. Moreover, the widespread adoption of AI poses risks to labor markets, with fears of mass job elimination and increasing socioeconomic inequality (Cheng & Zeng, 2023). The large-scale use of AI in critical sectors also highlights the need for robust regulatory frameworks that can control both its ethical and practical implications, ensuring that the technology is developed and deployed responsibly (Laux et al., 2024).

The European Union (EU) has responded to these concerns by launching the AI Act, a comprehensive legal framework for governing AI technologies. Introduced in 2021, the regulation takes a risk-based approach, classifying AI systems into categories based on their potential risks to human rights and public safety (Wang, 2024). High-risk AI applications, such as facial recognition and autonomous decision-making systems, are subject to strict regulations to prevent harm and protect individuals' privacy and dignity (Roberts et al., 2021).

In stark contrast, China's rapid rise in the AI industry has made it one of the global leaders in AI policy and regulation. AI is central to maintaining China's competitiveness, driving economic growth, and improving governance through technologies like facial recognition and the social credit system (Roberts et al., 2021). These technologies are used to enhance surveillance and control, reflecting China's prioritization of collective welfare over individual rights (Cheng & Zeng, 2023). China's AI ambition extends beyond its borders, with the country seeking to move from being a "norm-taker" to a "norm-shaper" in global AI governance (Allen, 2019). However, China faces significant challenges in asserting itself as a leader within existing global governance frameworks, particularly in institutions dominated by Western influence, such as the G7 and European Commission (Kania, 2020). These tensions illustrate the geopolitical complexities of achieving global regulatory cooperation, as China's state-driven AI model contrasts with the European human-centric approaches (Kania, 2020).

Given the contrasting approaches of the EU and China, the Unites States' U.S. National Institute of Standards and Technology (NIST) AI Risk Management Framework offers a structured methodology for assessing and governing AI risks across different regulatory environments. The framework's functions—MAP, MEASURE, MANAGE, and GOVERN—provide a valuable lens for analyzing how each region addresses AI governance challenges. By focusing on these functions, this research applies the NIST framework to explore the balance between technological advancement and ethical oversight in both regions.

There is a dearth of research on global AI ethics and policy regulatory frameworks, with each country taking its own approach or lacking comprehensive regulations. This fragmented landscape results in AI frameworks, with little consistency in ethical guidelines across borders. Some regions, such as the EU, have adopted comprehensive policies such as the AI Act, while other countries, including China and the United States, follow divergent paths driven by national interests and innovation priorities (Laux et al., 2024; Cheng & Zeng, 2023). Keeping in view the above, the purpose of this research is to fill the gaps in the existing literature by addressing the following questions:

- How do the EU's human-centric and China's state-driven AI models shape the ethical frameworks and policies in each region?
- What challenges do the EU and China face in balancing technological advancement with ethical concerns, particularly in the governance of high-risk versus low-risk AI applications?
- How do differing AI policies of the EU and China affect businesses and consumers, and what insights can be drawn about how these regulations influence both economic and social outcomes?

This research discusses the AI models of the European Union and China, focusing on how their human-centric and state-driven approaches influence the development of ethical frameworks and policy decisions. The research offers three key contributions. First, it provides a comparative analysis

of AI governance in the EU and China, emphasizing ethical and policy implications through the application of the NIST AI Risk Management Framework. Second, it covers how each region struggles to balance technological advance with ethical oversight, especially on high-risk applications versus low- to minimal-risk applications using the MAP, MEASURE, MANAGE, and GOVERN functions under the NIST framework. Finally, the research investigates the impact of AI policies on businesses and consumers, offering insights into how these regulations shape economic and social outcomes.

The article is structured into the following sections. The first section provides an overview of the AI governance models of the EU and China, mapping the NIST AI Risk Management Framework onto the ways in which these approaches shape ethical and regulatory decisions. The second section presents the challenges of technology advancement toward application management with high and low risks, respectively, and impacts on the policies of AI regarding businesses and consumers. Finally, the article synthesizes key insights into global AI governance and its implications for responsible AI development.

## LITERATURE REVIEW

The EU's regulatory approach is deeply rooted in its commitment to a human-centric and ethics-driven framework, focusing on transparency, fairness, and accountability in the development and deployment of AI (Ebers, 2022). By enforcing strict guidelines for high-risk AI applications, such as facial recognition or autonomous systems, the EU aims to protect consumers from unethical AI practices while encouraging responsible innovation within industries (Laux et al., 2024). For businesses, compliance with the EU AI Act requires integrating ethical AI practices into their operations, which can potentially raise costs but also foster trust with consumers and global partners (Oliveira, 2024). This balance between encouraging technological progress and ensuring the protection of human rights positions the EU as a leader in ethical AI governance on the global stage (Laux et al., 2024).

The *New Generation Artificial Intelligence Development Program* (AIDP), launched by China in 2017, marks a pivotal moment in its AI strategy. With the goal of leading the world in AI by 2030, the plan outlines a state-driven strategy centered on rapid innovation and technological advancement (Allen, 2019). In addition, AIDP emphasizes the integration of AI in sectors such as health, education, defense, and manufacturing, helping China position itself as a global AI leader (Kania, 2020). Unlike the EU's human-centric approach, China's AI policy prioritizes national economic development and sovereignty (Roberts et al., 2021). Through government policies and state-sponsored funding (Cheng & Zeng, 2023), China aims to dominate global AI governance by establishing technical standards and influencing international forums. However, the absence of strong ethical and human rights considerations in the AIDP raises concerns about reconciling China's approach with global standards, particularly regarding data privacy and state surveillance (Kania, 2020). As China advances its AI strategy, its state-driven approach seeks to harness the economic potential of AI while strengthening its geopolitical influence on the global stage (Roberts et al., 2021).

The EU AI Act and China's New Generation Artificial Intelligence Development Plan (AIDP) encompass two distinct approaches to AI governance, representing their social values, political agenda and ethical priorities in terms of implementation. The EU AI Act is based on democratic principles, emphasizing human rights, transparency, and accountability. It involves a risk-based framework that puts up safety guardrails on AI applications with high social risk, reflecting the EU's commitment to protecting individual privacy and fairness, and encouraging responsible innovation (Laux et al., 2024; Wang, 2024). In contrast, China's AIDP takes a state-driven approach, where AI is central to national security, economic development, and social control. The Chinese model prioritizes the acceleration of innovation and the integration of AI into research and governance processes, emphasizing the central role of the state in technology regulation (Roberts et al., 2021; Cheng & Zeng, 2023). A distinction

can be made between China's collectivist values and its centralized political system, where state plays a dominant role in regulating and utilizing AI (Roberts et al., 2021).

While the EU's AI Act emphasizes ethics, transparency, and the protection of human rights, China's AIDP stands out for its pragmatic, results-oriented strategy, helping AI to maintain social stability and economic leadership. The ethical considerations of each system show considerable differences: the EU seeks to lead in setting global standards for ethical AI governance, while China aims to dominate global AI markets through state control and innovation (Bremmer & Suleyman, 2023; Laux et al., 2024). This fundamental distinction between ethical governance and state-driven innovation illustrates how each region's political system and cultural values shape their AI policies (Cheng & Zeng, 2023).

With different AI governance approaches worldwide, developing a unified global framework requires much effort, mainly when it comes to addressing ethical issues. The United Nations (UN) has recognized this challenge and is beginning to play a role in unifying AI regulations worldwide (Roberts et al., 2021). Through initiatives aimed at fostering international cooperation, the UN seeks to establish a global set of standards for ensuring ethical and responsible AI development across all nations. However, achieving consensus remains a difficult task due to geopolitical competition and differing social norms (Kania, 2020; Allen, 2019). The next section focuses on the development of our theoretical framework and propositions.

## THEORETICAL FRAMEWORK AND PROPOSITIONS

As the rapid development and deployment of artificial intelligence (AI) continues to influence industries and societies worldwide, there is an urgent need for robust frameworks that can help control AI use, and its ethical and practical implications. Both the European Union (EU) and China have developed distinct strategies to address AI risks—emphasizing human rights and national interests, respectively (Cheng & Zeng, 2023; Roberts et al., 2021).

However, reconciling these two approaches within a global framework requires more than just regional strategies. This research applies the Risk Management Framework (RMF) from the National Institute of Standards and Technology. Developed by the U.S. National Institute of Standards and Technology (NIST), the RMF provides a structured methodology for identifying, assessing, and managing AI risks across industries and regulatory environments (NIST, 2021). Its functions—MAP, MEASURE, MANAGE, and GOVERN—offer a holistic approach to balancing innovation with ethical oversight. Importantly, the NIST framework serves as a bridge between the human-centric and state-driven models, offering a consistent framework that can be adapted to both the EU's emphasis on individual rights and China's focus on national objectives.

The MAP function serves as the foundation, focusing on identifying and contextualizing risks within an organization's operational environment. This includes evaluating the potential social, ethical, and regulatory impacts of AI deployment. By mapping these risks, organizations can align AI technologies with broader ethical guidelines and ensure they comply with sector-specific regulations, mitigating any potential harm (Holistic AI, 2024). The MEASURE function involves the use of qualitative and quantitative tools to assess the severity and likelihood of risks. AI systems are continuously evaluated for biases, transparency, and fairness, enabling organizations to adjust their risk management strategies dynamically as AI systems evolve (Ernst & Young, 2023). Following measurement, the MANAGE function focuses on prioritizing and mitigating risks, especially in high-risk applications such as autonomous systems or biometric identification. This step ensures that harm is prevented, accountability is enforced, and privacy is protected, emphasizing the importance of proactive risk mitigation (Tallberg et al., 2023). Finally, the GOVERN function embeds risk management practices into the organizational structure by establishing policies and procedures for ongoing oversight. This ensures that AI systems are developed, deployed, and monitored with full compliance with ethical standards, legal requirements, and stakeholder expectations (Ernst & Young,

2023). Governance involves continuous engagement with stakeholders and regulatory bodies, fostering long-term accountability and transparency.

**Figure 1. NIST's AI risk management framework (RMF) (Ernst & Young, 2023)**

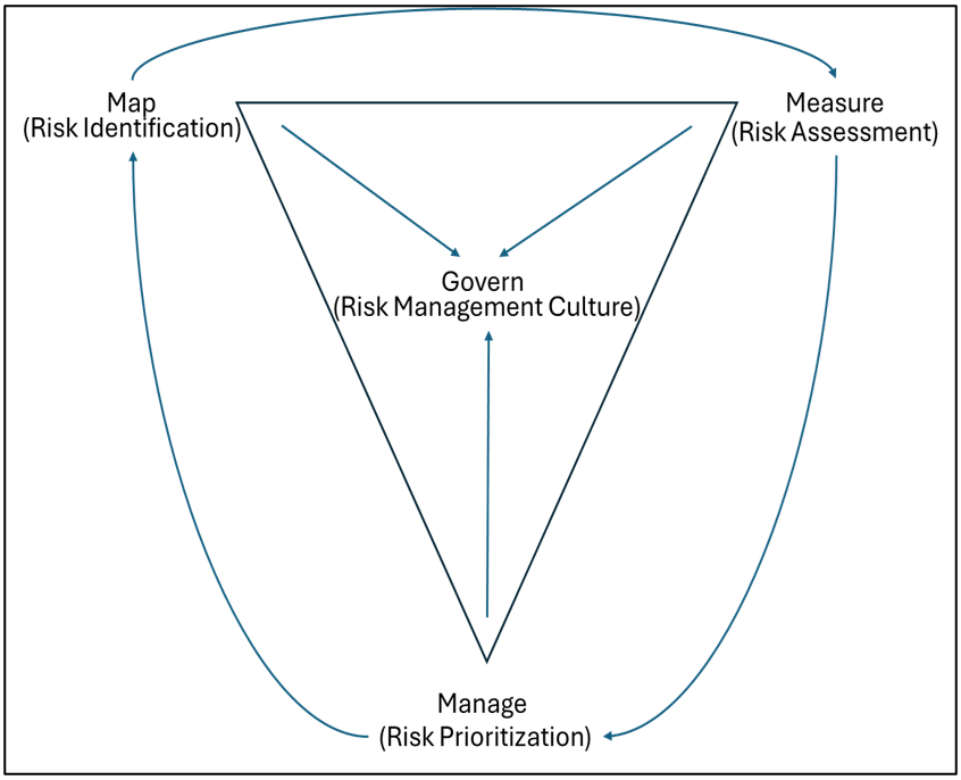


Figure 1 illustrates the National Institute of Standards and Technology (NIST) AI Risk Management Framework which provides a structured approach to managing AI-related risks by emphasizing key components such as governance, risk assessment, implementation, and monitoring. The figure visually represents the interconnected elements and iterative processes that guide organizations in ensuring safe, ethical, and effective AI system deployment while addressing potential challenges and regulatory requirements.

By providing this structured and adaptable approach, the NIST AI RMF allows organizations across industries and regulatory environments to manage the ethical and practical risks associated with AI technologies effectively (Holistic AI, 2024). This framework offers a robust tool for balancing innovation with responsibility in the global context of AI governance. This discussion highlights the potential role of structured frameworks like NIST in shaping effective AI governance policies, leading to the following research proposition:

**Proposition 1:** *Integrating the NIST AI Risk Management Framework into AI policy development can enhance regulatory consistency by providing a structured approach for assessing risks and implementing safeguards, thus aligning ethical standards with innovation across diverse regulatory environments.*

China's AI policy, as outlined in the New Generation Artificial Intelligence Development Plan (AIDP), is heavily focused on the use of AI to meet state-driven goals, including economic growth,

societal control, and global leadership. When applying the NIST AI Risk Management Framework, China's approach to AI governance — emphasizing security and centralized control — reveals how the country maps, measures, manages, and governs AI risks to align with state-centric objectives.

In the MAP function of the framework, China's strategy revolves around aligning AI technologies with the state's overarching political and security objectives. China primarily maps AI risks by evaluating their potential impact on national security and governance. Mapping AI risks in China is based on how AI can enhance state surveillance capabilities and improve control over societal behavior, rather than mapping potential harms to individual rights (Holistic AI, 2024). The Chinese government's emphasis on using AI for state governance underscores the collectivist values embedded in its risk-mapping processes (Tallberg et al., 2023).

In terms of MEASURE, China evaluates the success of AI primarily through its contributions to state security and societal control. AI applications are assessed based on their ability to help the implementation of state policies, measuring performance through their contributions to national objectives, such as public security and economic progress (Ernst & Young, 2023). China's measurements focus on the operational effectiveness of AI systems in supporting state priorities. This utilitarian approach to AI measurement reflects the Chinese government's broader emphasis on rapid technological progress and innovation at the potential expense of ethical considerations (Holistic AI, 2024). Measurements of AI's societal impact in China are thus limited to those that align with the state's governance objectives, making China's approach largely pragmatic but lacking in human-centric safeguards.

The MANAGE function in China's AI policy reflects the state's efforts to mitigate risks that could undermine national security and social stability. AI technologies that pose risks to public order or the state's authority are tightly managed to ensure that they do not disrupt the status quo. For example, AI-driven surveillance systems are carefully monitored to ensure they function as intended in enhancing the state's control over its population (Tallberg et al., 2023). However, the management of ethical risks, such as privacy violations and data protection, is less pronounced in China's governance framework. Instead, the Chinese government focuses on managing AI technologies in ways that maintain its dominance over societal governance, demonstrating a more reactive approach to mitigating risks (Holistic AI, 2024).

In the GOVERN function, China maintains a highly centralized model of AI oversight, with the state exercising significant control over AI development and regulation. The Chinese government plays a dominant role in setting AI policies, establishing standards, and ensuring compliance with national objectives. This centralized governance model enables the state to rapidly implement AI technologies that serve its political and economic interests, but it also limits opportunities for transparency and independent oversight (Ernst & Young, 2023). Ethical governance, particularly concerning privacy and fairness, remains a secondary consideration in China's AI strategy. The lack of decentralized governance means that public participation and private sector input are minimal, with decisions about AI being guided by the state. This governance model allows China to maintain its focus on national security, but it also raises concerns about the potential for unchecked state power in the deployment of AI technologies (Holistic AI, 2024). This leads to the following research proposition:

**Proposition 2:** *China's state-driven AI strategy, focused on rapid deployment and state control, will likely face challenges in gaining international acceptance due to ongoing concerns about data privacy and surveillance.*

The EU AI Act represents a human-centric approach to AI governance, focusing on ethical considerations, transparency, and human rights protection. Applying the NIST AI Risk Management Framework to the EU's policy shows how the region's emphasis on fairness and accountability is deeply embedded in the way it maps, measures, manages, and governs AI risks. The EU prioritizes ethical safeguards, ensuring AI technologies are developed in ways that align with democratic values and protect individual rights.

In the MAP function, the EU AI Act requires organizations to map AI risks by considering their ethical and social implications. The EU places a strong emphasis on identifying how AI applications could affect individual rights, particularly in terms of privacy, bias, and discrimination. Mapping risks in the EU involves a thorough analysis of AI systems' potential societal impact, ensuring that high-risk applications, such as biometric systems, do not harm vulnerable populations or emphasize existing social inequalities (Ernst & Young, 2023). This human-centric risk-mapping process contrasts with China's state-centric approach, as the EU prioritizes ethical considerations and safeguards human rights throughout the AI lifecycle (Tallberg et al., 2023). This analysis suggests a research proposition related to AI governance:

**Proposition 3:** *The EU's human-centric approach to AI governance, emphasizing ethics and individual rights, will likely enhance public / consumer trust, driving the long-term adoption of AI technologies in sectors where regulatory compliance is crucial.*

The MEASURE function in the EU AI Act involves assessing the performance of AI systems in the aspect of fairness, transparency, and accountability. The EU mandates that organizations regularly evaluate their AI systems to ensure compliance with ethical standards, particularly in areas like algorithmic bias, data protection, and the right to explanation (Holistic AI, 2024). Unlike China, where AI measurement focuses on operational effectiveness, the EU's approach places significant weight on ensuring that AI systems do not harm individuals or violate their rights. The EU also requires organizations to document the outcomes of these measurements and report on the ethical performance of AI systems. This comprehensive measurement framework ensures that ethical safeguards are continuously maintained, providing a more robust model of AI accountability compared to China's focus on state-centric metrics (Tallberg et al., 2023).

The MANAGE function in the EU's AI governance emphasizes proactive risk management to ensure that AI systems do not violate ethical standards or human rights. The EU AI Act requires organizations to implement mitigation strategies to address the potential harms posed by AI technologies, such as bias, discrimination, and privacy breaches (Ernst & Young, 2023). Organizations are expected to continuously manage risks associated with AI systems, particularly those classified as high-risk, by implementing safeguards to prevent harmful outcomes. This proactive approach to risk management reflects the EU's broader commitment to ethical governance and the protection of individual rights, contrasting with China's reactive risk management model (Holistic AI, 2024). The EU's emphasis on managing ethical risks ensures that AI technologies are used responsibly and that their deployment aligns with societal values.

The GOVERN function of AI in the EU is characterized by a decentralized, multi-stakeholder model, which prioritizes transparency and public accountability. The EU AI Act promotes collaborative governance, involving input from industry, civil society, and regulatory bodies to ensure that AI systems are developed and deployed ethically (Tallberg et al., 2023). This decentralized governance structure allows for greater transparency in decision-making and ensures that ethical considerations are embedded throughout the AI lifecycle. Unlike China's top-down governance model, the EU emphasizes the importance of stakeholder engagement and independent oversight in regulating AI technologies (Holistic AI, 2024). By embedding ethical principles into its governance framework, the EU AI Act ensures that AI systems are deployed in ways that align with democratic values and protect human rights.

**Table 1. Comparison of China and EU AI regulation using the NIST AI risk management framework (RMF)**

| China AI Regulation | NIST RMF | EU AI Regulation |
|---|---|---|
| - Mapping based on state interests like national security, social control, and economic growth.<br>- Prioritizes risks that challenge government authority or public order. | **MAP** (Identify Risks) | - The EU maps risks around protecting human rights and preventing discrimination.<br>- Prioritizes ethical risks, such as bias and harm to individuals. |
| - Evaluates AI's success through its contribution to state goals, focusing on operational efficiency.<br>- Measurement of ethical impacts (e.g., fairness, bias) is minimal. | **MEASURE** (Evaluate Risks) | - Evaluates AI's success through its ethical and social impacts.<br>- Regular evaluations ensure compliance in high-risk applications |
| - Manages risks primarily to prevent social instability and protect state control.<br>- Focuses on minimizing disruptions to state operations. | **MANAGE** (Mitigate Risks) | - Manages risks by enforcing strict regulations on high-risk AI systems.<br>- Focus on ethical risk mitigation, like privacy, bias, and discrimination prevention |
| - Centralized governance, with the state having ultimate control over AI policy and regulation.<br>- Limited transparency or independent oversight, with AI used to strengthen state authority. | **GOVERN** (Oversight) | - Decentralized governance, involving multiple stakeholders (industry, regulators, civil society).<br>- Promotes transparency and accountability, with a focus on public trust and ethical standards. |

Table 1 presents a comparative analysis of AI regulation in China and the European Union, structured around the National Institute of Standards and Technology (NIST) AI Risk Management Framework (RMF). The figure visually contrasts the regulatory priorities, strategies, and risk management practices employed by both regions. It highlights the application of NIST RMF components, such as risk identification, mitigation, and governance, in the distinct regulatory environments of China and the EU, providing insights into their approaches to ensuring ethical and effective AI system management.

## DISCUSSION

The contrasting AI governance models of the European Union (EU) and China shape their ethical frameworks and regulatory approaches in fundamentally different ways. The EU's human-centric model emphasizes transparency, individual rights, and ethical considerations as central pillars of its AI policy. The EU AI Act is structured to prioritize the protection of fundamental rights, ensuring that AI systems adhere to standards of accountability and fairness. This approach is evident in the strict regulatory requirements for high-risk AI applications, such as facial recognition and autonomous decision-making systems, where potential harm to individuals is significant (Laux et al., 2024; Wang, 2024). In contrast, China's state-driven AI model focuses on leveraging AI as a tool for achieving national objectives such as economic development, social governance, and national security. The Chinese government's emphasis on state control is reflected in policies that prioritize the rapid deployment of AI technologies, often at the expense of individual rights (Roberts et al., 2021).

By examining these models, we observe that the EU AI Act is firmly grounded in human rights principles, seeking to ensure that AI technologies operate transparently and fairly. This model places a significant burden on businesses to comply with ethical standards, thereby fostering consumer trust but increasing operational costs. In contrast, China's New Generation Artificial Intelligence Development Program (AIDP) emphasizes national security and rapid innovation, shaping an AI policy that prioritizes collective welfare over individual privacy. While China's model facilitates technological progress, it raises ethical concerns about surveillance, data privacy, and unchecked state control (Cheng & Zeng, 2023).

Both regions face challenges in balancing technological advancement with ethical oversight, particularly in the governance of high-risk AI applications. The EU's regulatory approach aligns with the NIST AI Risk Management Framework's MAP and MEASURE functions, which emphasize identifying and assessing risks before AI technologies are widely adopted. This cautious approach ensures that ethical concerns, such as privacy and fairness, are addressed upfront, but it can slow down innovation and increase compliance costs. As a result, businesses operating in the EU must invest more in compliance mechanisms to adhere to strict regulations, which could hinder the rapid development of new AI applications (Cheng & Zeng, 2023).

Conversely, China's regulatory strategy aligns more closely with the MANAGE and GOVERN functions of the NIST framework, focusing on rapid deployment and flexible management of AI risks. China's approach facilitates swift technological progress by enabling companies to deploy AI systems with fewer regulatory barriers, but it also leads to significant ethical concerns. The state's control over AI development raises issues related to surveillance and the lack of individual privacy protection, particularly in high-risk applications such as facial recognition and social credit systems (Ernst & Young, 2023).

Table 2 provides a comparative analysis of AI governance practices between China and the European Union, structured around the National Institute of Standards and Technology (NIST) Risk Management Framework (RMF). It highlights key differences and similarities in how both regions approach AI governance, addressing aspects such as regulatory frameworks, ethical principles, risk management strategies, and technological standards. The table serves as a concise reference for understanding the application of NIST RMF principles in differing geopolitical contexts, emphasizing the distinct priorities and methodologies adopted by China and the EU.

**Table 2. AI governance comparison: China vs. EU using NIST framework**

| NIST RMF Areas | China | | | European Union | | |
|---|---|---|---|---|---|---|
| | Policy Makers (PM) | Consumers (C) | Businesses (B) | Policy Makers (PM) | Consumers (C) | Businesses (B) |
| MAP | Aligns with state security; surveillance focus | Limited privacy protection | Encourages rapid deployment | Focuses on ethics and privacy | Ensures data protection | High compliance costs |
| MEASURE | Measures policy success and security | Benefits but privacy trade-off | Measures by state goals | Evaluates fairness and transparency | Protection against bias | Reports on compliance |
| MANAGE | Reactive for stability | Accepts state control | Balances innovation and compliance | Proactive risk management | Strong consumer rights | Must manage ethical risks |
| GOVERN | Centralized state control | Limited transparency | Follows state directives | Decentralized with oversight | Trusts in regulations | Collaborative but costly |

The impacts of these AI governance models extend beyond ethical considerations, influencing businesses and consumers in profound ways. The EU's regulatory environment increases compliance costs for businesses but fosters greater transparency and consumer trust. For instance, significant penalties issued under the GDPR, such as the €746 million fine against Amazon for targeted ad practices without proper consent, demonstrate the EU's commitment to upholding data protection standards. With the upcoming EU AI Act proposing fines of up to 7% of annual global turnover, the region's regulatory environment continues to prioritize privacy and data protection (Anand, 2024).

In contrast, China's regulatory efforts have recently intensified, particularly with significant penalties such as the 8.26 billion yuan (approximately USD 1.2 billion) fine imposed on Didi in 2022 for cybersecurity violations. The Cyberspace Administration of China (CAC) took serious action by removing the Didi app from stores, signaling a growing emphasis on regulatory compliance as the country's new AI laws take effect. However, China's regulatory approach remains more flexible than the EU's, allowing businesses to scale rapidly but often at the expense of ethical oversight (Anand, 2024).

These examples illustrate how regulatory environments shape business practices and consumer trust. The EU's stringent regulations foster greater transparency and accountability, while China's focus on achieving national objectives drives rapid technological innovation. However, both regions face challenges in maintaining a balance between innovation and ethical oversight. This highlights the need for structured risk management frameworks, such as the NIST AI Risk Management Framework, to integrate ethical standards across diverse governance models and promote a more harmonized global AI regulatory landscape.

China's AI policies also support rapid business growth in sectors such as e-commerce, healthcare, and smart city development by encouraging the adoption of AI technologies with fewer regulatory barriers. However, the lack of ethical oversight has resulted in substantial penalties when data privacy violations occur, such as the €1.057 billion fine imposed on Didi for breaching cybersecurity laws (Holistic AI, 2024). This example illustrates the trade-off between rapid AI integration and the risks associated with insufficient regulatory frameworks for data protection.

The varying AI policies of the EU and China not only affect businesses but also shape consumer experiences by promoting different innovation priorities. In the EU, consumer protection measures are more robust due to stringent regulations, which helps build trust in AI systems across various sectors, from healthcare to financial services. Meanwhile, in China, the emphasis on state-driven AI development aims to achieve national strategic goals, such as maintaining competitiveness in the global AI market. This approach leads to rapid technological advancements but often compromises individual data privacy and ethical considerations (Tallberg et al., 2023).

These divergent approaches underscore the challenges of establishing global AI governance standards that accommodate both human-centric and state-driven models. The NIST AI Risk Management Framework plays a key role in bridging these contrasting approaches by offering a structured methodology for integrating ethical considerations into AI governance. Its adaptable MAP, MEASURE, MANAGE, and GOVERN functions allow both regions to address AI risks while respecting their individual governance priorities. The framework offers the potential to harmonize global AI governance, promoting a balanced approach that can integrate ethical safeguards with technological progress.

## CONCLUSION

In conclusion, the divergent AI governance models of the European Union and China illustrate contrasting approaches to managing the ethical, social, and economic implications of artificial intelligence. The EU's human-centric framework emphasizes transparency, individual rights, and ethical safeguards, resulting in stringent regulations such as the GDPR and EU AI Act, which foster public trust but may slow innovation due to compliance costs. In contrast, China's state-driven model prioritizes rapid deployment and economic growth, often placing national objectives over individual privacy, raising concerns about data protection and surveillance. These differences underscore the tension between promoting technological advancement and ensuring ethical oversight.

The NIST AI Risk Management Framework offers valuable insights for balancing these competing priorities, providing a structured approach through its MAP, MEASURE, MANAGE, and GOVERN functions. By integrating elements from both the EU and China's strategies, a more harmonized global AI governance framework could emerge—one that fosters innovation while maintaining robust ethical safeguards. Such a balanced approach could bridge the gap between protecting individual rights and

enabling rapid technological progress, contributing to a more globally consistent and responsible AI development path. This research has significant implications for both policymakers and businesses. For policymakers, a harmonized global approach to AI governance, guided by the NIST framework, could help bridge the gap between human-centric and state-driven models by fostering responsible AI development that balances innovation with societal values. For businesses, the NIST framework provides a practical solution to navigating diverse regulatory environments, helping companies align their AI practices with both regional and global expectations for responsible AI use. Ultimately, integrating ethical principles through frameworks like NIST can lead to a more consistent and balanced global approach to AI governance, promoting innovation while ensuring ethical responsibility on a global scale.

## CONFLICTS OF INTEREST

We wish to confirm that there are no known conflicts of interest associated with this publication and there has been no significant financial support for this work that could have influenced its outcome.

## FUNDING STATEMENT

This manuscript was given a full waiver by IGI Global Scientific Publishing.
The research was funded by the National Science Foundation Grants #2100934, #2406112, and #2406166.

## PROCESS DATES

December 31, 2024
Received: December 22, 2024, Accepted: December 30, 2024

## CORRESPONDING AUTHOR

Correspondence should be addressed to Anshu Arora (U.S.A., anshu.arora@udc.edu)

## REFERENCES

Allen, G. (2019). *Understanding China's AI strategy*. Center for a New American Security. https://www.cnas.org/publications/reports/understanding-chinas-ai-strategy

Anand, N. (2024). *The high cost of non-compliance: Penalties under AI law.* Holistic AI. Retrieved October 16, 2024, from https://www.holisticai.com/blog/high-cost-non-compliance-penalties-under-ai-law

Bremmer, I., & Suleyman, M. (2023). The AI power paradox: Can states learn to govern artificial intelligence before it's too late? *Foreign Affairs*, *102*(5), 26–43.

Cheng, J., & Zeng, J. (2023). Shaping AI's future? China in global AI governance. *Journal of Contemporary China*, *32*(143), 794–810. DOI: 10.1080/10670564.2022.2107391

Ebers, M. (2021). Standardizing AI: The case of the European Commission's proposal for an Artificial Intelligence Act. In *The Cambridge Handbook of Artificial Intelligence: Global Perspectives on Law and Ethics* (pp. 1–23). Cambridge University Press. DOI: 10.2139/ssrn.3900378

Ernst & Young. (2023). *The artificial intelligence (AI) global regulatory landscape: Policy trends and considerations to build confidence in AI*. Ernst & Young LLP.

Holistic, A. I. (2024). *The state of global AI regulations in 2024.* Holistic AI, https://www.holisticai.com/papers/the-state-of-ai-regulations-in-2024, Retrieved on October 23, 2024.

Kania, E. B. (2020). *AI weapons in China's military innovation.* Brookings: Global China. https://www.brookings.edu/wp-content/uploads/2020/04/FP_20200427_ai_weapons_kania_v2.pdf

Laux, J., Wachter, S., & Mittelstadt, B. (2024). Three pathways for standardization and ethical disclosure by default under the European Union Artificial Intelligence Act. *Computer Law & Security Report*, *53*, 105957. DOI: 10.1016/j.clsr.2024.105957

Oliveira, B. B. D. (2024). *The EU's ambition to influence global standards for artificial intelligence amongst regulatory competition with China and the USA* (Master's thesis, Universidade de Évora).

Roberts, H., Cowls, J., Morley, J., Taddeo, M., Wang, V., & Floridi, L. (2021). The Chinese approach to artificial intelligence: An analysis of policy, ethics, and regulation. In *AI ethics and society* (pp. 47–79). Springer International Publishing. DOI: 10.1007/978-3-030-81907-1_5

Tallberg, J., Erman, E., Furendal, M., Geith, J., Klamberg, M., & Lundgren, M. (2023). The global governance of artificial intelligence: Next steps for empirical and normative research. *International Studies Review*, *25*(3), viad040. Advance online publication. DOI: 10.1093/isr/viad040

Wang, Y. (2024). Do not go gentle into that good night: The European Union's and China's different approaches to the extraterritorial application of artificial intelligence laws and regulations. *Computer Law & Security Report*, *53*, 105965. DOI: 10.1016/j.clsr.2024.105965

*Anshu Saxena Arora, Ph.D., PMP is the Tenured Full Professor of Marketing and Social Robotics at the School of Business and Public Administration, University of the District of Columbia (UDC), Washington, DC, USA. Dr. Arora is also the Founding Director of Artificial Intelligence (AI), Social Robotics, and Behavioral Research Laboratory at UDC, funded by the National Science Foundation. She is the recipient of the prestigious Faculty Research Initiation Award by the National Science Foundation titled Social Motivation Approach for Rehabilitation Through Educational Robotics (SMARTER) research where she works with social robots (NAO and Pepper robots) targeted at students diagnosed with Autism Spectrum Disorder (ASD) and other learning/cognitive disabilities at various high schools and universities in Washington, DC. Dr. Arora is also the Founding Director of the STEM-Business Focused Logistics & International Trade (LIT) Analytics Center of Excellence at UDC funded by the National Science Foundation. She is a Certified Project Management Professional (PMP) from Project Management Institute (PMI), USA, and holds a Foundation Certificate in IT Service Management from Information Systems Examination Board (ISEB), UK. Dr. Arora has published more than 50 research papers in national and international journals of repute and has presented about 65 papers in national and international conferences. Her research interests and expertise include social-educational-ethical robotics; AI and robotics; user experience (UX) / consumer experience CX); AI Policy/Regulation/Governance across the United States, European Union, and China; social media analytics; digital marketing; social media strategy mix and social media measurement; stereotypical advertising polysemy; innovative experiential learning pedagogies; relational supply chain management strategy relationships; and project management.*

*Luisa Saboia is a graduate MBA student at the University of the District of Columbia (UDC), Washington DC, USA. She is the NSF student ambassador at the UDC's AI, Social Robotics, and Behavioral Research Laboratory, funded by the National Science Foundation.*

*Amit Arora, Ph.D. is Professor of Supply Chain Management in the School of Business and Public Administration at the University of the District of Columbia (UDC). He joined UDC in 2018. Previously, he was Associate Professor and Director of Nicholas J. Giuffre Center for Supply Chain Management at Bloomsburg University (BU). Prior to joining BU, he was Assistant Professor and Director of Global Logistics & International Business Education and Research Center at Savannah State University. Amit graduated with a Ph.D. in Logistics and Supply Chain Management from Georgia Southern University in 2014. He serves as Principal Investigator (PI) and Co-PI for various funded research grants from NSF, Department of Defense, VentureWell, and CIBERs. Amit is the current President of Northeast Decision Sciences Institute (NEDSI) and the Past Chapter Chair of Academy of International Business Southeast (AIB-SE). He has an extensive industry experience having worked in the auto industry in India (Honda and Hyundai) for 10 years.*

*John R. McIntyre, Ph.D. is the founding Director of the Georgia Tech CIBER, Professor of Management in the College of Management with a courtesy appointment in international relations at Georgia Tech's Sam Nunn School of International Affairs in Atlanta, Georgia. He received his graduate education at Northeastern University, completing his Ph.D. at the University of Georgia. Prior to joining Georgia Tech, in September 1981, he was Research Associate for International Management at the Dean Rusk Center, University of Georgia Law School. He has published in the journals: Technology and Society, Public Administration Quarterly, International Management Review, Defense Analysis, Studies in Comparative and International Development, Journal of European Marketing, Politique Internationale, and International Trade Journal, among others. Dr. McIntyre is the recipient of the State of Georgia Governor's 2009 International Award in international business education.*