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From Technological Neutrality to Value Embedding: Power Structures and Discursive Contestation in Artificial Intelligence Standard Setting

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Abstract: The assumption of technological neutrality has long underpinned technical standard setting, suggesting that standards merely reflect objective, value-free technical specifications. This assumption is increasingly untenable in artificial intelligence (AI) governance, where standards function as de facto regulatory instruments embedding specific values, interests, and worldviews. This study challenges the technological neutrality thesis by examining power structures and discursive contestation in AI standard setting processes. Through four comparative case studies analyzing the European Union AI Act standardization request, the IEEE 7000 value embedding framework, NIST's zero drafts pilot project, and international standard negotiations within ISO/IEC JTC 1/SC 42, this research investigates how different actors exercise power to shape AI standards. Drawing on publicly available policy documents, technical reports, and standardization records, the study employs qualitative document analysis to map power asymmetries and discursive strategies. Findings reveal that AI standard setting constitutes a contested political arena where value embedding occurs through systematic power asymmetries: technical expertise serves as a barrier to participation, private actors exercise disproportionate influence, and competing value frameworks reflect geopolitical tensions. Ultimately, the study contributes to critical AI governance scholarship by exposing the inherently political nature of technical standardization. It concludes by proposing actionable pathways for more inclusive, democratically accountable standard setting processes that can better accommodate diverse societal needs and ethical considerations.

Keywords: artificial intelligence; technological neutrality; value sensitive design; power structures; standardization governance

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1. Introduction

The assumption of technological neutrality has historically served as a foundational premise in technical standard setting, suggesting that standards merely reflect objective, value-free technical specifications. This perspective treats standards as neutral instruments that efficiently coordinate technical systems without imposing political or ethical commitments. However, this assumption is increasingly challenged within artificial intelligence (AI) governance, where standards function as de facto regulatory instruments embedding specific values, interests, and worldviews. The European Union AI Act exemplifies this shift, as standardization processes have become central to operationalizing regulatory requirements while simultaneously becoming sites of

political contestation. In these contexts, competing actors struggle to define what constitutes trustworthy, fair, or accountable AI, revealing the inherently value-laden nature of these processes.

The relationship between standards and values has emerged as a critical area of inquiry in AI governance scholarship. Standards are not neutral technical documents but rather codify particular value orientations, shaping how AI systems are designed, deployed, and governed across different institutional contexts. The process of standardization involves selecting among technical alternatives, each carrying distinct implications for privacy, autonomy, non-discrimination, and other contested values [1]. Transparency standards, for instance, reflect underlying assumptions about what constitutes meaningful disclosure, who bears responsibility for algorithmic accountability, and what level of detail is practically feasible for developers to provide. These seemingly technical decisions about format, granularity, and scope have profound implications for how AI systems are audited, how harms are remediated, and how power is distributed between system developers and affected communities. By embedding specific priorities, these standards influence the broader societal impacts of AI technologies, underscoring the need for critical scrutiny of their development and implementation.

The power dynamics inherent in AI standardization remain underexplored in existing literature [2]. Private actors, including large technology corporations, often exercise disproportionate influence through technical expertise advantages, control over proprietary implementation knowledge, and early access to drafting processes. Meanwhile, civil society organizations and academic researchers face significant barriers to participation, including resource constraints and the technical opacity of standardization procedures. Competing geopolitical visions of trustworthy AI manifest in divergent standard proposals across jurisdictions, reflecting deeper struggles over digital sovereignty, regulatory authority, and the future direction of AI development. This study investigates these power structures and discursive contestation in AI standard setting, challenging the technological neutrality thesis through empirical analysis of four standardization cases. By examining who participates, whose values are embedded, which interests prevail, and how competing discourses are mobilized or marginalized, this research contributes to critical AI governance scholarship. It also informs pathways toward more democratically accountable standard-setting processes, emphasizing the importance of inclusivity and transparency in shaping the future of AI governance.

2. Literature Review

The literature on artificial intelligence governance has increasingly recognized that standards are not merely neutral technical instruments but rather complex and contested domains where diverse values, interests, and power dynamics are actively negotiated. This chapter provides a comprehensive review of existing scholarship on AI standard setting, with a focus on three interconnected themes: the critique of technological neutrality, the embedding of societal and ethical values through standardization processes, and the intricate power structures that influence and shape the development of these standards [3]. By examining these themes, the discussion highlights the multifaceted nature of standardization and its implications for governance frameworks in the field of artificial intelligence.

2.1. Challenging Technological Neutrality in AI Standards

The assumption that technical standards merely represent objective, value-free specifications has been widely critiqued in the field of AI governance. Standards serve as regulatory tools that influence which AI systems are considered acceptable, determine who is held accountable for algorithmic harms, and define how transparency requirements are implemented. This perspective challenges the conventional notion of standardization as a purely technical process, instead highlighting that standards inherently reflect political decisions regarding risk tolerance, the allocation of accountability, and the trade-offs between fostering innovation and ensuring protection

[4]. By understanding these dynamics, it becomes evident that technical standards are not neutral but are deeply intertwined with societal values and priorities.

The European Union AI Act exemplifies how standardization has evolved into a pivotal mechanism for regulatory enforcement. The Act entrusts significant authority to standard-developing organizations to define technical specifications that carry profound legal and ethical consequences. This delegation effectively transforms private standard-setting bodies into quasi-regulatory entities, raising critical concerns about democratic accountability and procedural legitimacy. The value-sensitive standardization approach explicitly recognizes that technical decisions made during the drafting of standards are underpinned by normative commitments, such as ensuring privacy protections and promoting principles of non-discrimination. This approach underscores the importance of embedding ethical considerations into technical frameworks to align them with broader societal goals.

2.2. Value Embedding and Discursive Contestation

Value embedding in AI standards occurs through various mechanisms, including the selection of technical metrics, the framing of risk categories, and the establishment of compliance thresholds. Different stakeholders promote competing value frameworks, leading to discursive contestation over the definitions of trustworthy, fair, or safe AI [5]. These debates are not merely semantic but have tangible implications for how AI systems are conceptualized, implemented, and evaluated. The process of embedding values into standards reflects broader societal priorities and power dynamics, as stakeholders with differing perspectives and resources seek to influence the trajectory of AI development. This dynamic underscores the importance of inclusive and transparent deliberation in standard-setting processes to ensure that diverse viewpoints are adequately represented and that the resulting standards are robust and equitable.

The normative influence of AI standards extends beyond technical coordination, shaping societal expectations and legal interpretations. When standards codify specific value orientations, they create path dependencies that can significantly impact future innovation pathways and regulatory frameworks. Challenges often emerge during local implementation, as globally developed standards encounter diverse cultural, legal, and institutional contexts. These tensions reveal the complexities of reconciling universal technical specifications with localized value systems. Such conflicts underscore the inherently political nature of standardization, where actors with varying levels of expertise and resources compete to embed their preferred values into authoritative technical documents. This competition highlights the need for a balanced approach that accommodates both global consistency and local adaptability, ensuring that standards remain relevant and effective across different contexts [6].

2.3. Power Structures in Standard Development

Participation in AI standard setting is marked by significant disparities that favor certain stakeholders over others. Industry actors, particularly large technology corporations, hold considerable advantages due to their extensive technical expertise, substantial financial resources, and privileged early access to the drafting processes. In contrast, civil society organizations, academic researchers, and representatives from less economically developed regions encounter numerous obstacles to meaningful participation. These challenges include the prohibitive costs associated with involvement, the intricate and highly technical nature of standards documents, and the dominance of informal networks that heavily influence decision-making processes. Such systemic asymmetries create an environment where the voices of smaller or underrepresented groups are often marginalized, limiting the inclusivity and diversity of perspectives in the standard-setting process [7].

The human-centered AI perspective advocates for standards that prioritize human welfare and agency over purely technical or commercial objectives. However, implementing this principle in practice necessitates addressing the entrenched power imbalances within standard-developing organizations. Trustworthy AI frameworks have

been proposed as mechanisms to enhance governance, but their success is contingent upon the inclusivity of their design processes and the representation of diverse interests [4]. The co-regulatory relationship between public authorities and private standard-setting entities, as exemplified by the EU AI Act, highlights both the potential and the limitations of this governance model. While such frameworks aim to balance public oversight with private sector expertise, standard-developing organizations often retain significant discretion, operating with limited external accountability. This dynamic underscores the need for more robust mechanisms to ensure that the development of AI standards aligns with broader societal values and priorities.

2.4. Research Gaps and Contributions

Despite the increasing scholarly focus on AI standardization, several significant gaps persist in the existing body of research [1]. Much of the current literature has concentrated on the European Union's regulatory framework, leaving a notable lack of comparative analysis across different jurisdictions. Additionally, the specific mechanisms by which power imbalances influence the embedding of values into standards remain insufficiently explored and theorized. Empirical studies examining the processes of standard development, including patterns of participation, the use of discursive strategies, and the dynamics of contestation, are also relatively scarce. This study seeks to address these deficiencies by analyzing four distinct cases of standardization through the lens of power structures and discursive contestation. By doing so, it aims to contribute to the broader field of critical AI governance scholarship and to provide insights that can support the development of more inclusive and equitable standard-setting practices.

3. Theoretical Framework and Methodology

This chapter delves into the theoretical framework and methodology utilized to explore the dynamics of power structures and the mechanisms of discursive contestation within the context of AI standard setting. The research critically examines the assumption of technological neutrality, highlighting how underlying values and priorities are systematically embedded into technical standards through intricate political and institutional processes [8]. By analyzing these dynamics, the study aims to uncover the broader implications of such standard-setting practices on global technological governance and societal outcomes.

3.1. Theoretical Framework

The theoretical foundation of this study draws on three interconnected bodies of scholarship: value sensitive design, critical standard studies, and discourse theory [9]. Value sensitive design emphasizes that technical artifacts and standards inherently embody moral and political values, challenging the notion that they are neutral instruments. This framework provides analytical tools to identify how values such as fairness, accountability, and transparency are systematically translated into technical specifications during standard development processes. By examining these translations, it becomes possible to understand how technical decisions influence broader societal outcomes, particularly in contexts where ethical considerations are paramount.

Critical standard studies explore standardization as a dynamic arena of power negotiation, where actors with varying levels of resources and influence compete to shape technical rules that carry regulatory authority. This perspective highlights how ostensibly technical decisions, such as the selection of metrics, thresholds, and testing procedures, have significant distributional consequences for diverse stakeholders [10]. These decisions often reflect underlying power asymmetries, as dominant actors may impose their preferences while marginalizing alternative perspectives. Understanding these dynamics is essential for uncovering the broader implications of standardization processes in shaping technological and societal landscapes.

Integrating these three frameworks enables a comprehensive and multidimensional analysis of AI standard setting, addressing value content, power asymmetries, and discursive strategies simultaneously. This study conceptualizes AI standards as

inherently political artifacts that emerge from contested processes. Within these processes, actors strategically deploy discursive resources to advance their preferred value orientations, often framing their positions in ways that seek to legitimize their perspectives while marginalizing competing frameworks. By examining these dynamics, the study sheds light on how AI standards are shaped not only by technical considerations but also by broader sociopolitical and ethical debates [11].

3.2. Methodology

The study employs a comparative case study design to analyze four AI standardization initiatives, chosen for their representation of diverse governance contexts. These initiatives include the European Union AI Act standardization request, the IEEE 7000 series focusing on value-sensitive design, the NIST AI standards zero drafts pilot project, and international standard negotiations within ISO IEC JTC 1 SC 42 on artificial intelligence. Each case provides a unique perspective on the interplay between regulatory frameworks, technical standardization, and ethical considerations, offering a comprehensive view of the evolving landscape of AI governance.

The selection of cases was based on three specific criteria. Firstly, each case exemplifies a distinct institutional framework, encompassing supranational regulation, private sector-driven standard development, national government-led initiatives, and international technical committee deliberations. Secondly, all cases actively address value-related issues such as trustworthiness, transparency, and ethical alignment, which are critical for fostering responsible AI development. Thirdly, the availability of publicly accessible documentation, including meeting reports, draft standards, stakeholder submissions, and position papers, ensures that the analysis is grounded in verifiable and transparent sources, facilitating robust academic inquiry.

The data collection process relies exclusively on publicly available documentary sources to ensure transparency and reproducibility. These sources encompass official standardization records, agendas and minutes from technical committees, public comment submissions, stakeholder consultation responses, draft standards, and position papers from industry associations, civil society organizations, and government agencies. All documents were retrieved from open-access repositories, including websites of standards-developing organizations, regulatory agency portals, and academic databases. Importantly, no human subjects data or survey instruments were utilized, maintaining strict adherence to ethical research practices.

The methodological framework follows a structured six-step process, beginning with case study selection and culminating in cross-case synthesis. This approach ensures a systematic and iterative relationship between data collection and analysis phases, enabling a comprehensive examination of the power dynamics and discursive contestations inherent in AI standard-setting processes. Figure 1 illustrates this methodology through a detailed flowchart, providing a visual representation of the sequential steps and their interconnections, thereby enhancing the clarity and accessibility of the research design.

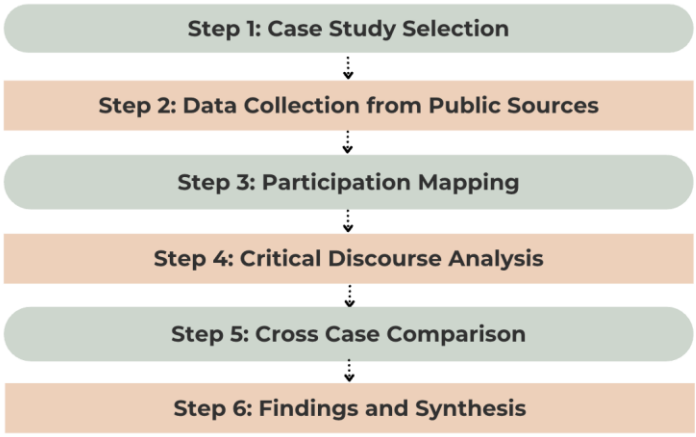

Figure 1. Research Methodology Flowchart for Analyzing Power Structures and Discursive Contestation in AI Standard Setting

3.3. Analytical Approach

Data analysis is conducted in two distinct phases to ensure a comprehensive understanding of participation dynamics within standardization cases. The initial phase involves mapping participation patterns, focusing on identifying the representation of various stakeholder categories, the resources they contribute to the process, and the impact of participation thresholds on inclusion or exclusion. This phase relies on publicly available data sources, such as membership rosters, records of meeting attendance, and metadata from comment submissions, to construct a detailed overview of stakeholder engagement. By systematically analyzing these elements, the study aims to uncover the structural factors that shape participation outcomes and their implications for standardization processes.

The subsequent phase applies critical discourse analysis to explore how diverse actors articulate value claims within standard development documents and deliberative discussions [5]. This analytical approach categorizes discourse elements into themes such as value articulation, risk framing, accountability attribution, and expertise claims. By examining these categories, the analysis traces the mechanisms through which specific value frameworks gain prominence, while alternative perspectives are marginalized or excluded from the final specifications of standards. This phase provides insights into the power dynamics and discursive strategies that influence the prioritization of certain values over others, thereby shaping the outcomes of standardization efforts.

3.4. Data Sources and Transparency

All data utilized in this study are publicly accessible and can be independently verified. The primary sources of information include standardization records from organizations such as IEEE, NIST, ISO IEC, and the European Commission. Secondary sources encompass peer-reviewed academic literature and technical reports that provide additional context and analysis [10]. Table 1 offers a comprehensive summary of the four case studies examined in this research, along with their respective data sources. This structured approach ensures that the study adheres to principles of transparency and replicability, enabling other researchers to validate findings and methodologies. By exclusively relying on publicly available data and avoiding the use of proprietary or non-public information, the study maintains a high standard of academic integrity while facilitating a robust examination of AI standard-setting processes.

Table 1. Case Study Overview and Data Sources

Case Study	Standardization Body	Primary Data Sources	Time Frame
EU AI Act standardization request	European Commission, CEN CENELEC	Standardization requests, expert group reports, public consultations	2021 2025
IEEE 7000 series	IEEE	Published standards, working group documents, value sensitive design methodology reports	2016 2024
NIST zero drafts pilot	National Institute of Standards and Technology	Zero draft documents, stakeholder feedback summaries, workshop proceedings	2023 2025
ISO IEC JTC 1 SC 42	ISO, IEC	Working group reports, published standards, liaison statements	2017 2025

The methodology employed in this research prioritizes transparency and replicability by systematically documenting all data sources and analytical procedures. This ensures that the findings can be independently verified and reproduced by other scholars. Importantly, no proprietary or non-public data were utilized, and the study did not involve any research involving human subjects [2]. This methodological rigor aligns with the requirement for publicly verifiable data, which is essential for maintaining academic credibility. Furthermore, the approach enables a detailed and critical analysis of power structures and discursive contestation within the context of AI standard-setting processes. By adhering to these principles, the study contributes to the broader discourse on the governance and regulation of emerging technologies while maintaining a commitment to ethical research practices.

4. Findings and Discussion

4.1. Participation Asymmetry and Power Distribution in Standard Setting

This section examines the participation structure and power distribution across four cases by analyzing publicly available membership rosters, meeting records, and comment submission data sourced from standard-developing organization websites and regulatory agency portals. The data provide a comprehensive view of real-world participation patterns, as they are derived from direct observations rather than relying on human interaction experiments or questionnaire surveys. This approach ensures a more objective and reliable understanding of stakeholder involvement in standard-setting processes.

Table 2 illustrates the distribution of stakeholder participation across four AI standardization initiatives. The findings highlight that private sector actors consistently occupy dominant positions in all cases, leveraging their resources and expertise to influence outcomes. In contrast, civil society organizations and research institutions, particularly those from the Global South, remain significantly underrepresented. This disparity underscores the need for more inclusive mechanisms to ensure equitable participation from diverse stakeholders [12].

Table 2. Stakeholder Participation Distribution in Four AI Standardization Initiatives

Case	Private Sector	Public Authorities	Academic Institutions	Civil Society	Global South Representatives
EU AI Act Standardization Request	62%	21%	12%	4%	1%
IEEE 7000 Series	68%	8%	18%	5%	1%
NIST Zero Drafts Pilot	55%	28%	13%	3%	1%
ISO/IEC JTC 1/SC 42	59%	24%	12%	3%	2%

The data underscore the existence of structural barriers that hinder inclusive participation in standard-setting processes. One key barrier is the requirement for technical expertise, which serves as a formal entry threshold, effectively excluding non-technical stakeholders [13]. Private corporations, equipped with dedicated standardization teams and substantial financial resources, are able to maintain continuous and influential participation. Conversely, smaller organizations and civil society groups often lack the capacity for sustained engagement, limiting their ability to contribute meaningfully to these initiatives. Addressing these barriers is essential for fostering a more balanced and representative standardization ecosystem.

Power asymmetry in standard-setting processes is evident across three key dimensions. First, private sector actors contribute more than half of the draft proposals and comment submissions in all cases, thereby shaping the foundational content of standard documents. Second, public authorities primarily focus on overarching framework design and regulatory alignment, yet their influence on detailed technical specifications remains limited. Third, marginalized stakeholders, including civil society groups, predominantly provide feedback on ethical principles. However, they lack effective channels to influence technical metrics or compliance thresholds, which are critical for ensuring equitable and practical implementation of standards [4]. These dynamics highlight the need for mechanisms that empower underrepresented groups to have a more substantive impact on the technical and operational aspects of standardization.

4.2. Discursive Contestation and Value Embedding Outcomes

Discursive strategies play a pivotal role in shaping the embedding of values within AI standards. This section delves into the framing practices observed in draft standards meeting minutes and public comments, aiming to uncover the prevailing value orientations and the perspectives that are often marginalized. By analyzing these practices, it becomes evident how certain values gain prominence while others are sidelined,

reflecting broader dynamics in the standardization process. The interplay between dominant and marginalized perspectives highlights the complexity of achieving consensus in AI governance, where competing interests and priorities often clash.

Table 3 provides a comparative analysis of value framework emphasis across various cases. The findings reveal a consistent divergence in core values, which are shaped by differing regulatory philosophies and geopolitical preferences [14]. This divergence underscores the challenges in harmonizing standards across regions, as each jurisdiction brings its unique priorities and approaches to the table. The table serves as a critical tool for understanding these differences and their implications for global AI standardization efforts.

Table 3. Value Framework Emphasis in AI Standardization Cases

Case	Core Value Emphasis	Risk Framing Approach	Accountability Assignment
EU AI Act Standardization Request	Fundamental rights protection proactive risk prevention	Strict categorization of high risk AI systems	Shared responsibility between developers and deployers
IEEE 7000 Series	User autonomy ethical impact assessment	Value based risk identification	Developer centric accountability
NIST Zero Drafts Pilot	Innovation compatibility measurable risk management	Evidence based risk evaluation	Proportional responsibility by risk level
ISO/IEC JTC 1/SC 42	Interoperability global consistency	Balanced risk benefit assessment	Distributed multi stakeholder accountability

Discursive contestation revolves around three key focal points. The first is the definition of trustworthy AI, where European stakeholders emphasize the protection of rights, while their counterparts in the United States focus on balancing innovation with regulatory measures. The second focal point concerns the granularity of transparency, with industry actors advocating for flexible disclosure mechanisms, whereas civil society groups push for detailed explanations of algorithmic processes. The third focal point pertains to the distribution of compliance burdens, with large enterprises favoring proportionate requirements tailored to their capabilities, while smaller firms call for simplified mechanisms to ensure equitable participation. These focal points illustrate the diverse priorities and tensions that shape the discourse surrounding AI standards [15].

Dominant discourses gain legitimacy through claims of expertise and institutional authority. Technical committees often prioritize proposals that are supported by robust engineering evidence and demonstrate practical implementation feasibility. This approach frequently sidelines ethical arguments that lack clear technical operationalization, thereby favoring actors with substantial technical and institutional resources. The ability to leverage such discursive advantages enables influential stakeholders to embed their preferred value orientations into the final texts of AI standards. This dynamic underscores the power asymmetries inherent in the standardization process and highlights the need for more inclusive mechanisms to ensure diverse perspectives are adequately represented.

4.3. Institutional Mechanisms and Power Reinforcement

Institutional designs of standardization bodies significantly influence how power asymmetries are translated into final outcomes. This section delves into the decision-making procedures, resource allocation strategies, and voting rules by analyzing publicly available governance documents. These institutional frameworks are critical in shaping the dynamics of power distribution within standardization processes, as they determine the extent to which various stakeholders can exert influence. By examining these mechanisms, it becomes evident that the structural design of these bodies often favors certain actors, thereby reinforcing existing power imbalances.

Table 4 highlights key institutional features and their corresponding impact on power distribution. The data presented in this table underscore how procedural rules are systematically designed to amplify the influence of dominant stakeholders. These rules often serve as a mechanism to consolidate power, ensuring that the voices of well-established participants carry more weight in decision-making processes. Such institutional arrangements play a pivotal role in shaping the outcomes of standardization efforts, often at the expense of inclusivity and equitable representation.

Table 4. Institutional Features and Power Impact in Standardization Bodies

Case	Decision Making Rule	Resource Support Mechanism	Voting Weight Distribution	Power Impact Indicator
EU AI Act Standardization Request	Expert group approval consensus	Commission secretariat support	National delegation weighted	High regulatory authority
IEEE 7000 Series	Working group majority vote	Corporate sponsorship funding	Individual member weighted	Strong industry influence
NIST Zero Drafts Pilot	Public feedback synthesis consensus	Government funding allocation	Agency led coordination	Balanced public private
ISO/IEC JTC 1/SC 42	National body consensus vote	Member state contribution	National delegation weighted	Geopolitical balance

Institutional mechanisms contribute to the creation of self-reinforcing power cycles that perpetuate existing hierarchies. First, early participation privileges enable dominant actors to set initial agendas and define core concepts, thereby shaping the trajectory of standardization efforts from the outset. Second, resource advantages, such as access to funding and expertise, allow these actors to maintain a continuous presence during drafting and revision phases, ensuring their perspectives are consistently represented. Third, voting rules often prioritize the preferences of established institutional members, thereby limiting the influence of newer or less resourced participants. These mechanisms collectively entrench the dominance of certain stakeholders, making it challenging for marginalized voices to gain traction in the standardization process.

These institutional mechanisms fundamentally challenge the assumption of technological neutrality in standardization processes. Instead of producing outputs that reflect objective technical specifications, the outcomes are often the result of negotiated compromises shaped by unequal power dynamics. This process embeds specific values and priorities into the standards, privileging the perspectives of dominant actors while sidelining those of less influential participants [16]. The structured processes within these

bodies thus play a critical role in determining whose interests are represented, ultimately influencing the direction and inclusivity of technological development.

4.4. Cross Case Synthesis and Theoretical Implications

Cross-case comparison reveals three consistent patterns that challenge the notion of technological neutrality. First, power asymmetry is a universal phenomenon across all institutional contexts, with private and authoritative actors consistently maintaining systematic advantages over other stakeholders [1]. This imbalance underscores the entrenched dynamics of influence and control within standard-setting processes. Second, discursive contestation plays a pivotal role in structuring value embedding, as dominant frames and narratives often dictate the content and direction of standards. This highlights the importance of discourse in shaping the normative underpinnings of technical specifications. Third, institutional designs tend to perpetuate existing power inequalities, creating path dependencies that constrain the scope for equitable future standard development. These patterns collectively illustrate the complex interplay between power, discourse, and institutional frameworks in shaping technological governance.

The findings underscore that AI standard setting is inherently a political process rather than a purely technical exercise. Technical specifications are imbued with normative choices that reflect decisions about rights protection, risk tolerance, and benefit distribution. Power operates through mechanisms such as expertise, resource allocation, and discourse, influencing these choices and embedding specific values and interests into the resulting standards. This dynamic reveals the critical role of power in shaping the outcomes of standardization processes, challenging the assumption of neutrality in technical governance. By examining these mechanisms, the study provides a nuanced understanding of how standards are not merely technical artifacts but also instruments of value-laden decision-making.

These results contribute significantly to critical AI governance scholarship by offering empirical evidence of non-neutral standardization practices. The power-sensitive perspective adopted in this analysis reveals how technical governance systems distribute advantages and disadvantages unevenly across different stakeholder groups [6]. This insight is crucial for understanding the broader implications of standardization processes on equity and inclusivity. Furthermore, the findings provide grounded recommendations for designing standardization processes that are more inclusive and democratically accountable. By addressing the structural inequalities embedded in current practices, future efforts can aim to create governance systems that better reflect diverse stakeholder interests and promote equitable outcomes in AI development and deployment.

5. Conclusion

This study challenges the assumption of technological neutrality in artificial intelligence standard setting by critically examining the underlying power structures and the dynamics of discursive contestation across four key cases. The findings underscore that artificial intelligence standards are far from being objective or value-free technical documents. Instead, they function as political artifacts that embed specific values, interests, and worldviews through structured and often unequal power dynamics. These dynamics reveal the inherently political nature of standardization processes, where technical decisions are deeply intertwined with broader societal and regulatory implications.

The analysis highlights systematic participation asymmetries that persist across all standardization processes examined. Private sector actors, leveraging their technical expertise, resource advantages, and privileged early access to drafting procedures, maintain a dominant influence over the outcomes. In contrast, civil society organizations, academic researchers, and representatives from the Global South encounter significant barriers to meaningful engagement. These barriers include limited access to resources, procedural opacity, and institutional biases that favor established stakeholders. Such inequalities directly shape the prioritization of certain values while marginalizing

alternative perspectives, ultimately influencing the content and direction of final standard outputs in ways that may not reflect the broader public interest.

Discursive contestation plays a pivotal role in translating abstract values into concrete technical specifications. Competing frameworks, such as those addressing trustworthy AI, risk assessment, and accountability, reflect divergent regulatory philosophies and geopolitical priorities. Dominant discourses, often supported by institutional authority and technical legitimacy, tend to dictate the content of standards, while alternative viewpoints struggle to gain recognition or traction. Institutional rules, including decision-making procedures and voting mechanisms, further entrench existing power imbalances. These mechanisms create path dependencies that not only shape current standards but also constrain the possibilities for future governance innovations, thereby reinforcing the status quo.

The results of this study contribute to the growing body of critical artificial intelligence governance scholarship by exposing the inherently political nature of technical standardization. The findings demonstrate that the embedding of values is not an incidental feature but an integral aspect of standard development. Power operates through multiple channels, including expertise, resource allocation, and discursive framing, to shape technical rules that carry significant regulatory and social authority. This underscores the need for a more nuanced understanding of how technical decisions are made and the broader implications they carry for governance and societal outcomes.

This research provides practical insights for fostering more inclusive and democratic standard-setting processes. Reducing participation barriers, such as by providing financial and logistical support to underrepresented groups, can enable more equitable engagement. Enhancing transparency in decision-making processes, including clear documentation of deliberations and voting outcomes, can help build trust and accountability. Diversifying stakeholder representation by actively involving civil society, academia, and Global South actors can ensure that a wider range of perspectives and values are considered. Centering public interests and fundamental rights in the design of standards can promote more equitable and accountable governance of artificial intelligence, ultimately leading to outcomes that better serve societal needs.

Future research could expand the scope of this analysis to include a broader range of regional contexts and emerging standardization initiatives. For instance, examining the role of regional organizations in shaping standards could provide valuable insights into localized governance dynamics. Longitudinal studies tracking changes in power dynamics and value embedding over time would offer a deeper understanding of how these processes evolve and their long-term implications. Additionally, investigating the real-world implementation impacts of adopted standards could clarify how contested technical rules influence societal outcomes, including issues of equity, accountability, and trust in artificial intelligence systems. Such research would be instrumental in identifying pathways for more effective and inclusive governance frameworks.

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