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Embedding Ubuntu and Indigenous Business Insights in Zambia: Advancing a Neuro-Responsible Governance Framework for the Global South

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ABSTRACT

The accelerating convergence of neuroscience and business management presents significant ethical, cultural, and governance challenges for the Global South. This article integrates the core constructs of neuro-responsibility, cognitive dignity, and relational accountability within an Ubuntu-grounded analytical framework informed by indigenous Zambian business practices. Using a transparent systematic–interpretive literature review of interdisciplinary sources published between 2014 and 2025, the study synthesises scholarship from neuroethics, African philosophy, governance studies, and business ethics. The analysis demonstrates that dominant Western, rights-based neuroethical frameworks inadequately capture relational harms, collective accountability, and epistemic justice concerns salient in Zambian and broader Global South contexts. Drawing on established indigenous economic practices such as Chilimba and custodial leadership traditions, the paper translates Ubuntu from normative philosophy into governance-relevant principles applicable to corporate policy, regulatory design, and organisational decision-making. The resulting framework advances an applied, context-sensitive contribution by showing how neuro-responsibility can be operationalised within business governance without displacing existing neuro-rights discourse, thereby strengthening ethical legitimacy and practical relevance for Global South economies.

1. Introduction

The rapid expansion of neurotechnologies into business management, workplace monitoring, consumer analytics, and decision-support systems has intensified global concerns regarding mental privacy, cognitive autonomy, and ethical governance (Vasiliu-Feltes, 2025; Rudroff, 2025; Dhutraj, Ansari, & Gupta, 2026). Tools such as affective computing, biometric analytics, and neuro-adaptive decision systems are increasingly embedded in organisational environments to monitor attention, predict preferences, and optimise performance

(Neethirajan, 2024; Delina et al., 2024). While these developments promise efficiency gains, they also raise profound ethical questions concerning cognitive liberty, human dignity, and institutional responsibility—particularly in emerging economies where digital transformation is accelerating in the absence of neuro-specific regulatory safeguards.

Dominant governance responses to these risks have largely emerged from Western liberal traditions that prioritise individual autonomy, consent, and rights-based data protection (Botes et al., 2025). Although these frameworks have made significant contributions to global neuroethical discourse, they often presume institutional conditions—robust enforcement mechanisms (Johnson et al., 2024; Borbón, 2025), individualised legal subjectivity (Johnson, 2025; Mishra, 2024; Pravotorova et al., 2025) and high levels of digital literacy (Gilbert & Russo, 2024; Tantaru, 2025) that are unevenly distributed across Global South contexts. When transposed without adaptation, such models risk ethical misalignment and governance inefficacy in relational moral environments.

In Zambia, ethical reasoning in business and social life is deeply informed by Ubuntu philosophy, which conceptualises personhood, dignity, and responsibility as inherently relational rather than individualistic (Ajitoni, 2024; Chigangaidze, 2025). Ubuntu frames moral harm not merely as a violation of individual rights, but as a disruption of social harmony and collective well-being (Nnodim & Okigbo, 2024; Onyango Ouma, 2025; Ndasauka, 2024). Within this context, the governance of neurotechnologies raises distinct questions regarding communal accountability, shared cognitive environments, and institutional stewardship that remain insufficiently addressed by prevailing neuroethical models.

Although a growing body of literature critiques the epistemic dominance of Western ethical frameworks in global technology governance, few studies systematically examine how indigenous African philosophies can be operationalised within business-oriented neuro-governance structures. Much of the existing research remains either purely normative or focused on biomedical and human rights dimensions, with limited engagement with organisational governance, corporate accountability, and applied business ethics. As a result, the practical role of indigenous ethical systems in shaping neuro-responsible business governance remains under-theorised. This study addresses this gap through a systematic–interpretive literature review synthesising interdisciplinary scholarship at the intersection of neuroethics, Ubuntu philosophy, and business governance within the Zambian context. Rather than displacing Western neuroethical principles, the study demonstrates how they can be complemented and recalibrated through relational ethical logics to enhance legitimacy, coherence, and applicability in Global South economies. By translating Ubuntu from philosophical abstraction into governance-relevant principles, such as relational accountability, custodial leadership, and restorative responsibility, the article contributes an integrative, applied framework for pluralistic neuro-governance in business settings.

The article proceeds as follows. Section 2 reviews dominant neuroethical and governance frameworks and identifies their limitations in relational contexts. Section 3 outlines the systematic–interpretive methodology employed. Section 4 synthesises key thematic gaps in the literature. Section 5 develops an Ubuntu-informed neuro-responsible business governance framework grounded in indigenous economic practices. The concluding section discusses policy implications for Zambia and comparable Global South economies and identifies directions for future research.

Research Objective and Questions

Primary Objective

The primary objective of this study is to develop an Ubuntu-informed neuro-responsible business governance framework that integrates neuroethics, neurorights discourse, and relational African philosophy to address the governance of neural data within Global South business contexts, with particular emphasis on Zambia.

Research Questions

To achieve this objective, the study is guided by the following research questions:

1. How does existing neuroethics and neurorights scholarship conceptualise responsibility, dignity, and accountability in relation to neural data governance, and what limitations arise when these frameworks are applied to Global South business contexts?
2. In what ways do Ubuntu philosophy and indigenous African business principles reconceptualise cognitive dignity, responsibility, and accountability in organisational and market settings?
3. What legal, institutional, ethical, and socio-cultural governance gaps emerge in Zambia's current regulatory framework when assessed against emerging neurotechnological practices in business management?
4. How can an Ubuntu-informed framework operationalise neuro-responsibility within business governance without displacing existing neurorights and data protection regimes?

These questions guide the structure of the literature review, conceptual framework development, and governance analysis presented in the sections that follow.

2. Literature Review

Theoretical Foundations for Neuro-Responsible Business Governance

The accelerated integration of neurotechnologies into business and organisational environments has intensified scholarly concern regarding the ethical governance of cognition, emotion, and behaviour. Contemporary organisations increasingly deploy affective computing systems, biometric monitoring tools, neuro-adaptive interfaces, and algorithmic decision-support systems to enhance productivity, optimise consumer engagement, and personalise managerial control (Neethirajan, 2024; Delina et al., 2024). While these technologies are often framed as efficiency-enhancing innovations, the literature recognises that they extend organisational oversight into domains traditionally regarded as private, subjective, and morally sensitive.

Governance scholars argue that neurotechnologies represent a qualitative departure from earlier surveillance and data analytics tools. Rather than merely recording observable behaviour, they infer mental states, emotional dispositions, and cognitive capacities, thereby producing predictive profiles that shape future opportunities and constraints (Abbott, 2024). This shift raises profound ethical questions regarding autonomy, dignity, and accountability within business contexts, particularly where participation is implicitly mandatory, such as employment or platform-mediated consumption (McCullum & Mancera, 2025).

Neuroethics, Neurorights, and Liberal Governance Models

In response to these developments, neuroethics has evolved as a specialised field examining the moral implications of technologies that interact directly with the human brain and mind. Initially grounded in biomedical ethics, neuroethical inquiry has expanded to address non-clinical applications in workplaces,

marketing, education, and digital platforms (Paz, 2021). Central to this expansion is the concept of neurorights, including mental privacy, cognitive liberty, psychological continuity, and protection against algorithmic manipulation (Doshi, 2024; Rinta-Pollari, 2024).

The neurorights discourse reflects a liberal legal tradition that conceptualises the individual as the primary unit of moral and legal concern (Hertz, 2025; Stahl, 2025). Regulatory initiatives in jurisdictions such as Chile and ongoing policy debates within the European Union exemplify efforts to constitutionalise or legislate protections for cognitive integrity through rights-based instruments (Asghar & Naz, 2025; Muravieva, 2025). The literature acknowledges that these developments provide important normative safeguards and symbolic recognition of emerging risks. However, critics caution that neurorights frameworks rely heavily on assumptions of autonomous consent, adversarial enforcement, and individual redress (Mishra, 2024; Istace, 2024). In organisational settings, where power asymmetries are pronounced and harms are often collective or diffuse, such models may offer limited protection. The governance challenge is therefore not merely the articulation of rights but their institutional translation into everyday business practices.

Governance Limitations in Global South Business Contexts

The application of Western neuroethical frameworks within Global South economies introduces additional governance complexities. Regulatory systems in many developing countries operate under conditions of institutional fragmentation, limited enforcement capacity, and high levels of labour informality (Botes et al., 2025; Mogaji, 2025). Within such contexts, reliance on individual litigation or regulatory complaints may be impractical or socially misaligned.

Business ethics scholars emphasise that employees and consumers in emerging economies often face constrained choices, rendering formal consent insufficient as a moral safeguard (Jamiu, 2025; Bhatnagar et al., 2024; Passos Maia et al., 2025). The literature therefore questions the adequacy of governance approaches that prioritise individual autonomy without addressing structural inequality, collective vulnerability, and institutional realities. These limitations are particularly salient in sectors characterised by precarious employment, weak unionisation, and rapid technological adoption.

Epistemic Dominance and Digital Colonialism in Neuro-Governance

A growing body of postcolonial and governance scholarship interrogates the epistemic foundations of global technology regulation. Ethical frameworks for emerging technologies are predominantly developed within Global North institutions and disseminated internationally as ostensibly universal standards (Ndlovu-Gatsheni, 2018; De Sousa Santos, 2018). In the neurotechnology domain, this manifests through responsible innovation guidelines and governance toolkits grounded in Western jurisprudential assumptions (Farisco, 2024). This process has been characterised as digital colonialism, whereby Global South societies adopt externally produced ethical norms with limited scope for contextual adaptation or indigenous knowledge integration (Nuechterlein et al., 2024). The literature warns that such epistemic asymmetry risks undermining regulatory legitimacy and effectiveness, particularly in business environments where ethical governance depends on cultural resonance and institutional trust.

Ubuntu Philosophy as a Relational Ethical Framework

Ubuntu philosophy offers an alternative ethical lens grounded in relational personhood and communal responsibility (Okogbe, 2025; Igboin, 2025; Andanda & Düwell, 2024). Commonly expressed through the maxim *Umuntu ngumuntu ngabantu*, Ubuntu conceives individual identity and moral agency as constituted through social relationships rather than isolated autonomy (Rieger, 2021; Ajitoni, 2024). Dignity, within this framework, emerges from mutual recognition, solidarity, and shared accountability.

African bioethics and governance scholars have applied Ubuntu to issues ranging from public health ethics to artificial intelligence governance, demonstrating its capacity to foreground collective well-being, restorative justice, and participatory decision-making (Ewuoso & Hall, 2019). In contrast to rights-based approaches, Ubuntu emphasises moral repair and social harmony over adversarial enforcement.

Indigenous Zambian Economic Practices and Relational Accountability

Ubuntu principles are operationalised within indigenous Zambian economic and governance practices that regulate cooperation, trust, and accountability (Jennings, 2025; Mwinsa et al., 2025; Irakoze, 2025; Sipondo, 2025). Communal savings schemes, traditional leadership structures, and customary dispute resolution mechanisms exemplify governance arrangements grounded in shared responsibility and social sanctioning. These practices illustrate how collective oversight can function effectively in contexts with limited formal regulatory capacity. Business governance literature increasingly recognises the relevance of such indigenous practices for designing context-sensitive regulatory frameworks. Their emphasis on stewardship, reciprocity, and legitimacy offers valuable insights for governing emerging technologies whose impacts extend beyond individual actors to affect communities and social institutions.

Translating Relational Ethics into Neuro-Responsible Business Governance

Despite growing normative interest in Ubuntu, the literature reveals a gap between ethical theory and organisational implementation. Few studies articulate concrete mechanisms through which relational ethics can inform business governance structures for neurotechnology deployment. Existing analyses often remain at the level of philosophical critique, offering limited guidance for managers, regulators, and policymakers.

Emerging governance scholarship suggests that relational ethics can be operationalised through collective consent processes, stakeholder-inclusive ethics committees, and restorative accountability mechanisms addressing diffuse harm. Such approaches align ethical oversight with organisational realities, embedding responsibility within decision-making processes rather than externalising it through post hoc compliance.

Literature Synthesis

The reviewed literature collectively demonstrates that neurotechnology governance within business contexts is undergoing rapid normative expansion but remains conceptually and institutionally fragmented. Across neuroethics, governance studies, and business ethics scholarship, there is broad consensus that emerging neurotechnologies—particularly affective analytics, cognitive monitoring, and behavioural prediction systems—introduce risks that exceed the scope of traditional data protection and corporate governance frameworks. These risks are increasingly understood to implicate not only informational privacy, but also autonomy, dignity, identity, and the integrity of decision-making processes.

However, the synthesis reveals several persistent limitations. First, neurotechnology governance remains predominantly anchored in liberal, individualistic paradigms that prioritise consent, personal rights, and post hoc remedies. While neurorights frameworks represent an important normative advance, they are largely reactive and insufficiently attuned to organisational power asymmetries, collective exposure to harm, and structurally constrained choice—conditions that are especially pronounced in employment and platform-mediated markets. As a result, ethical protection is often formal rather than substantive.

Second, African ethical frameworks—and Ubuntu in particular—remain marginal within mainstream neuroethics and business governance literature. Although Ubuntu has been extensively applied to bioethics, public health, and artificial intelligence governance, its potential relevance to neurotechnology governance in organisational and commercial settings remains underdeveloped. Existing studies tend to reference Ubuntu at a philosophical level without examining how its relational conception of dignity and responsibility might address concrete governance challenges associated with neural and cognitive data extraction.

Third, the literature exhibits a limited engagement with indigenous economic and governance practices as sources of regulatory insight. While Global South regulatory constraints are frequently acknowledged, indigenous mechanisms of accountability, collective oversight, and legitimacy are rarely analysed as functional governance models. This omission reinforces epistemic asymmetry, whereby Global North ethical standards are treated as universal templates despite their contextual misalignment with communitarian business environments.

Finally, there is a discernible gap between ethical critique and organisational implementation. Much of the literature offers normative diagnosis without articulating how ethical principles—whether rights-based or relational—can be translated into business governance structures, decision-making processes, or institutional accountability mechanisms. This gap constrains the applied contribution of neuroethics within business studies and limits its relevance for managers, regulators, and policymakers operating in emerging economies.
Taken together, these gaps indicate the need for a more systematic articulation of how cognitive dignity, responsibility, and accountability can be governed in business contexts characterised by relational social structures, institutional constraints, and rapid technological adoption. Addressing these unresolved tensions requires a clearer conceptual delineation of governance gaps and a more coherent theoretical foundation capable of bridging neuroethics, business governance, and indigenous ethical traditions.

Gap Analysis

Building on the synthesis, the literature reveals a set of interlocking governance gaps that collectively undermine the ethical regulation of neurotechnologies in business contexts, particularly within Global South economies such as Zambia. These gaps can be analytically categorised into normative, institutional, and operational dimensions.

At the normative level, existing governance frameworks remain dominated by liberal-individualist assumptions that conceptualise harm, responsibility, and protection primarily in terms of individual rights and consent. While neurorights discourse advances important protections for mental privacy and cognitive liberty, it presumes conditions of voluntariness, informational symmetry, and enforceable legal recourse that are rarely present in organisational environments. This normative framing inadequately captures collective, relational, and

structurally mediated harms—such as normalised cognitive surveillance, behavioural conditioning, and reputational scoring—that emerge incrementally and affect groups rather than isolated individuals.

At the institutional level, the literature highlights a misalignment between rapidly evolving neurotechnological capabilities and the regulatory infrastructures governing business conduct. In many Global South contexts, data protection authorities, labour regulators, and consumer protection bodies operate with limited technical capacity, fragmented mandates, and constrained enforcement power. The absence of explicit recognition of neural or cognitive data within existing legal frameworks further exacerbates regulatory ambiguity. As a result, governance relies disproportionately on organisational self-regulation, ethical guidelines, or externally imported standards, none of which are consistently internalised within local institutional cultures.

At the operational level, there is a pronounced gap between ethical theory and organisational practice. Even where ethical principles are articulated—whether through neurorights, responsible innovation guidelines, or corporate social responsibility frameworks—there is limited guidance on how these principles should be embedded into business decision-making processes. The literature provides few concrete mechanisms for collective consent, shared accountability, or restorative responses to diffuse cognitive harm. This operational deficit is particularly salient in workplaces and platform economies, where algorithmic management and neuro-analytics reshape power relations in ways that escape traditional compliance models.

Crucially, the gap analysis also exposes an epistemic disconnect. Indigenous ethical systems and local governance practices are rarely treated as sources of regulatory knowledge, despite their demonstrated effectiveness in managing collective responsibility and legitimacy under conditions of institutional constraint. This exclusion perpetuates digital colonialism by positioning Global North ethical paradigms as universal while relegating relational and communitarian frameworks to the margins. Together, these normative, institutional, and operational gaps justify the need for a governance framework that moves beyond compliance-oriented regulation toward a neuro-responsible business model capable of addressing relational harm, contextual feasibility, and ethical legitimacy in emerging economies.

3. Theoretical and Conceptual Framework: Ubuntu-Informed Neuro-Responsible Business Governance

Responding directly to the gaps identified in the gap analysis, this study advances an Ubuntu-informed neuro-responsible governance framework that integrates insights from neuroethics, business governance, and indigenous African philosophy. The framework is both theoretical, in its normative grounding, and conceptual, in its articulation of governance relationships and mechanisms. The framework is anchored in three complementary theoretical strands.

First, neuroethics provides the foundational concern for cognitive dignity, mental integrity, and protection against undue cognitive interference. Rather than treating neural data as an extension of personal data, neuroethics foregrounds the moral significance of cognition, emotion, and agency as constitutive of personhood.

Second, business governance theory contributes an institutional lens, emphasising organisational responsibility, power asymmetry, and the governance of risk within firms and markets. This perspective reframes ethical

responsibility as an organisational obligation rather than a purely individual burden, recognising that firms actively structure choice architectures and behavioural environments.

Third, Ubuntu philosophy supplies the relational ethical core of the framework. By conceiving personhood as socially constituted, Ubuntu reframes cognitive dignity as a collective and relational good. Harm, within this framework, is understood not merely as rights infringement but as disruption of ethical relationships, trust, and communal well-being. Responsibility is therefore distributed across actors who design, deploy, and benefit from neurotechnological systems.

Conceptually, the neuro-responsible governance framework operates across three interrelated levels:

1. **Technological–Cognitive Level**

   This level concerns the extraction, inference, and use of neural, cognitive, and affective data. The framework conceptualises such data as ethically distinct due to its proximity to identity, agency, and psychological integrity, warranting heightened governance attention.

2. **Organisational–Governance Level**

   At this level, firms are conceptualised as cognitive environments rather than neutral data processors. Governance responsibility is shared among developers, deployers, managers, and data intermediaries. Ethical oversight is embedded within organisational processes through collective consent mechanisms, participatory ethics structures, and internal accountability systems.

3. **Socio-Institutional Level**

   This level situates business practices within broader regulatory, cultural, and institutional contexts. Ubuntu-informed governance emphasises legitimacy, social trust, and restorative accountability, particularly where formal enforcement mechanisms are weak or fragmented.

The proposed framework directly addresses the gaps identified in the gap analysis.
Normatively, it moves beyond individual consent toward relational accountability.
Institutionally, it complements formal regulation with culturally grounded governance mechanisms. Operationally, it translates ethical principles into organisational structures capable of managing collective cognitive risk.

By integrating Ubuntu with neuroethics and business governance, the framework avoids both regulatory transplantation and ethical abstraction. Instead, it offers a context-sensitive model for governing neurotechnologies as socio-technical systems embedded within relationships of power, dependency, and mutual responsibility.

The interpretive literature review and comparative socio-legal analysis employed in this study are designed to examine how such a neuro-responsible governance framework can be theoretically substantiated and

contextually articulated within the Zambian business environment. Table 1 below summarises the entire conceptual and theoretical framework.

Table 1. Ubuntu-Informed Neuro-Responsible Business Governance Framework

Framework Level	Core Focus	Key Constructs	Governance Instruments	Accountability Logic	Intended Outcomes
Ethical Core	Protection of mental and cognitive integrity	Cognitive dignity; psychological continuity; autonomy-in-relation	Substantive limits on cognitive intrusion; purpose limitation	Moral responsibility grounded in relational personhood	Preservation of mental integrity and human dignity
Organisational Governance	Translation of ethics into business practice	Neuro-responsibility; custodial leadership; shared stewardship	Collective consent mechanisms; ethics committees; neuro-impact assessments	Distributed accountability across organisational actors	Ethical deployment of neurotechnologies in workplaces and markets
Socio-Institutional Context	Embedding governance within cultural and regulatory environments	Ubuntu; relational accountability; communal legitimacy	Hybrid regulation; indigenous governance practices; delegated oversight	Reciprocal accountability between firms, communities, and regulators	Legitimate, context-sensitive, and sustainable governance outcomes

Source: Author

Table 1 further illustrates how the proposed framework advances an Ubuntu-informed, neuro-responsible business governance model integrating neuroethics, relational philosophy, and organisational governance theory. Within this framework, cognitive dignity is operationalised as a socially embedded good sustained through relationships of trust, reciprocity, and shared responsibility, rather than as an exclusively individual entitlement. Neuro-responsibility is defined as an institutional obligation distributed across technology developers, deploying organisations, and regulators, while relational accountability is enacted through collective oversight, participatory decision-making, and restorative responses to harm.

4. Materials and Methods

This study adopted a structured interpretive literature review methodology to examine neurotechnology governance, neuroethics, and relational accountability within business and organisational contexts. Interpretive review methods are well suited to emergent and fragmented fields, enabling conceptual synthesis across normative theory, governance analysis, and organisational practice rather than aggregation of empirical findings (Boell & Cecez-Kecmanovic, 2014; Greenhalgh et al., 2011).

The methodological design is explicitly aligned with the Ubuntu-informed conceptual framework developed in Section 3, allowing systematic integration of relational ethics, neurolaw principles, and context-sensitive governance analysis. While interpretive and normative review approaches are well established, their application to neurotechnology governance through an Ubuntu-aligned business governance lens particularly within a Global South institutional context represents a novel methodological configuration.

An interpretive literature review approach was adopted to support theory-building and conceptual synthesis in an emergent field characterised by fragmented literatures and limited empirical consolidation (Boell & Cecez-Kecmanovic, 2014; Weick, 1995). Such approaches are particularly appropriate where analysis centres on ethical frameworks, regulatory models, and organisational practices shaped by meaning-making, power relations, and institutional context rather than stable causal relationships (Alvesson & Sköldberg, 2018; Flyvbjerg, 2006). By privileging interpretive depth over aggregation, this method enables the integration of neurolaw, business governance, and socio-cultural theory in a manner suited to under-theorised and context-sensitive domains.

Search Strategy

Both primary and secondary sources were examined, including peer-reviewed journal articles, policy reports, legal instruments, and authoritative scholarly monographs. Consistent with best practice for interpretive and interdisciplinary reviews, literature was identified through systematic searches across major academic databases, including Web of Science, Scopus, EBSCO, ABI/INFORM, IBSS, PubMed, and Google Scholar (Boell & Cecez-Kecmanovic, 2014; Tranfield et al., 2003). Supplementary searches were conducted using publisher databases such as Wiley and ScienceDirect to ensure comprehensive coverage of business ethics, governance studies, neuroethics, and African philosophy, reflecting the fragmented and cross-disciplinary nature of the field (Greenhalgh et al., 2011).

Search strings combined terms such as *"neurotechnology governance," "neuroethics," "neurorights," "business ethics," "cognitive data," "Ubuntu," "African philosophy,"* and *"Global South regulation."* The search strategy prioritised literature published between 2014 and 2025 to capture contemporary debates, while permitting inclusion of foundational theoretical works where conceptually necessary, in line with interpretive synthesis approaches (Boell & Cecez-Kecmanovic, 2014). Citation chaining and reference list screening were employed to identify influential and frequently cited works shaping the field, a technique widely recognised as enhancing completeness and analytical depth in qualitative reviews (Greenhalgh & Peacock, 2005).

Inclusion Criteria

Sources were included where they demonstrated rigorous academic standards and substantive relevance to at least one dimension of the conceptual framework: (i) neurotechnological applications in business or organisational settings; (ii) ethical, legal, or governance analyses of cognitive or neural data; or (iii) relational, communitarian, or indigenous ethical perspectives applicable to governance design. Publications appearing in reputable peer-reviewed journals, academic books, and authoritative policy sources were prioritised. Both conceptual and empirical studies were incorporated, reflecting the theory-building and interpretive orientation of the review, which values explanatory richness and contextual insight over statistical aggregation (Weick, 1995; Alvesson & Sköldberg, 2018).

Exclusion Criteria

Sources were excluded if they lacked scholarly rigor, were non-academic or promotional in nature, or failed to address the ethical, legal, or governance dimensions of neurotechnology in business contexts. Opinion pieces, speculative commentary without analytical grounding, and materials unrelated to organisational or market settings were omitted. This filtering process enhanced analytical coherence while reducing the risk of confirmatory bias by maintaining engagement with critical and contrasting perspectives, consistent with reflexive qualitative review standards (Alvesson & Sandberg, 2011; Flyvbjerg, 2006).

5. Findings and Discussion

A comprehensive interpretive review of interdisciplinary literature published between 2014 and 2025 indicates that neurotechnologies are increasingly shaping business governance, organisational decision-making, and market interactions across both Global North and Global South contexts. The findings demonstrate that while neurotechnological tools promise efficiency, optimisation, and behavioural insight, they simultaneously generate novel ethical, legal, and governance risks that are insufficiently addressed by existing regulatory frameworks. In particular, the literature highlights a growing mismatch between technologically mediated cognitive intervention and the normative architectures currently governing business conduct.

Neurotechnologies as Drivers of Organisational Transformation

Across the reviewed studies, neurotechnologies emerge as powerful instruments reshaping organisational power dynamics. Applications such as affective analytics, cognitive performance monitoring, neuro-adaptive marketing, and algorithmic management systems enable firms to influence, predict, and modulate human behaviour with unprecedented granularity. These tools connect macro-level technological strategies—such as artificial intelligence deployment and digital transformation—with micro-level organisational practices affecting employees and consumers.

The literature consistently identifies that these technologies blur the boundary between support and surveillance. While framed as tools for productivity enhancement or consumer personalisation, they extend managerial influence into cognitive and emotional domains, raising concerns regarding autonomy, dignity, and psychological integrity. Importantly, harm is rarely immediate or individualised; instead, it accumulates structurally through altered workplace norms, behavioural conditioning, and asymmetric information flows.

Governance Gaps and the Limits of Existing Regulatory Models

A central finding of the review is the inadequacy of existing governance models to regulate neurotechnologies in business environments. Data protection regimes primarily focus on personal data processing, offering limited protection against inferential analytics and predictive cognitive profiling. Similarly, neurorights frameworks, while normatively significant, are largely individualistic and reactive, relying on consent and post hoc remedies. In organisational contexts characterised by power asymmetry—particularly in labour markets of the Global South—these models struggle to address collective and relational harm. The literature emphasises that consent obtained under conditions of economic dependency or limited alternatives cannot be treated as ethically sufficient. Consequently, governance gaps persist between formal compliance and substantive protection of cognitive dignity.

Relational Harm, Cognitive Dignity, and Ubuntu-Informed Interpretation

The reviewed scholarship increasingly conceptualises neurotechnological harm as relational rather than solely individual. Ubuntu philosophy provides an interpretive lens through which cognitive dignity is understood as socially constituted and embedded within networks of trust, reciprocity, and mutual recognition. From this perspective, intrusive cognitive monitoring is not merely a rights violation but a disruption of ethical relationships within organisations and communities.

This relational framing aligns with business governance realities, where organisational legitimacy, employee morale, and stakeholder trust are collective goods. The findings suggest that Ubuntu-informed governance emphasises shared responsibility, dialogical consent, and restorative responses to harm, offering a more contextually resonant approach for communitarian societies such as Zambia.

Epistemic Asymmetry and Contextual Misalignment

Another key finding concerns epistemic asymmetry in neurotechnology governance. Ethical standards and governance frameworks are predominantly formulated in Global North contexts and exported as universal models. The literature documents how this dynamic marginalises indigenous ethical systems and constrains local regulatory innovation. In Zambia and comparable economies, this misalignment risks regulatory superficiality, where imported standards are formally adopted but weakly internalised within organisational culture. The findings underscore the necessity of embedding governance mechanisms within local moral vocabularies to achieve legitimacy and effectiveness.

Comparative Synthesis of Neurotechnology Governance Themes

To enhance analytical clarity and applied relevance, Table 2 synthesises the dominant governance themes identified in the literature, mapping neurotechnology applications against ethical risks, governance gaps, and Ubuntu-informed responses relevant to business contexts.

Table 2. Comparative Synthesis of Neurotechnology Governance Themes in Business Contexts

Domain / Context	Neurotechnology Applications	Key Ethical Risks	Governance Gaps Identified	Ubuntu-Informed Governance Response
Workplace Management	Cognitive performance monitoring, affective analytics	Erosion of autonomy; psychological surveillance	Consent-based compliance; weak labour protections	Collective consent; participatory ethics committees
Consumer Markets	Neuromarketing, behavioural prediction systems	Manipulation; loss of mental privacy	Focus on data ownership rather than inference	Relational accountability; transparency obligations
Platform Economies	Algorithmic management, cognitive scoring	Structural coercion; exclusionary profiling	Individualised remedies inadequate	Restorative accountability; stakeholder dialogue
Global South Regulation	Imported neurorights frameworks	Cultural misalignment; weak enforcement	Epistemic dominance;	Indigenous ethical integration; contextual governance

			limited local adaptation	

Source: Author

Implications for Neuro-Responsible Business Governance

Synthesising these findings, the discussion affirms that neuro-responsible governance in business contexts requires a shift from individualistic, compliance-oriented models toward relational, context-sensitive frameworks. Ubuntu-informed governance does not replace neurorights but complements them by addressing collective harm, power asymmetry, and institutional feasibility.

For businesses operating in Zambia and similar economies, this implies embedding ethical oversight within organisational structures, adopting participatory decision-making processes, and recognising responsibility for cognitive well-being as a shared institutional obligation. For policymakers, the findings support the development of hybrid governance models that integrate formal regulation with indigenous ethical principles.

Overall, the analysis positions neuro-responsibility as a governance imperative capable of aligning technological innovation with cognitive dignity, social trust, and sustainable business practice in the Global South.

6. Conclusion

This systematic review synthesises interdisciplinary scholarship published between 2014 and 2025 to demonstrate that neurotechnologies constitute a critical governance frontier for business management in Zambia and the Global South. Operating at the intersection of technological innovation, market practices, and socio-cultural values, emerging neurotechnologies challenge existing data protection, labour, and consumer governance regimes by enabling access to neural, cognitive, and affective data. Guided by an Ubuntu-informed neuro-responsible framework, this study positions businesses not merely as economic actors, but as cognitive stewards bearing relational obligations toward employees, consumers, and communities.

Drawing on neuroethics, socio-legal governance, and postcolonial theory, the review demonstrates that prevailing Western liberal models—anchored in individual consent, data commodification, and market efficiency—are insufficient to address the collective, dignitary, and relational harms posed by neural data extraction in Global South contexts. Core risks identified across workplace monitoring, neuromarketing, and consumer neuroanalytics include erosion of cognitive dignity, informational asymmetries, algorithmic exploitation, and heightened vulnerability of precarious and informal populations. In contrast, Ubuntu offers a normative lens that foregrounds relational accountability, communal well-being, and proportional responsibility, enabling a more context-sensitive governance response.

Comparative analysis of international regulatory developments—including neuro-rights initiatives in Chile, Australia's AI and privacy reforms, and subnational protections in California and Colorado—illustrates that explicit neural data safeguards, risk-based regulatory thresholds, and anti-neurodiscrimination norms are increasingly recognised as necessary components of responsible innovation. However, these frameworks remain fragmented and often ill-suited for transplantation into Global South legal systems without contextual adaptation. For Zambia, the absence of explicit recognition of neural data within the Data Protection Act (2021) represents

a significant governance gap, particularly as neurotechnologies begin to enter workplaces, financial services, education, and digital marketing ecosystems.

The findings affirm that embedding Ubuntu principles within business governance can function as the "missing middle" between abstract neuroethical norms and enforceable regulatory mechanisms. By operationalising concepts such as cognitive dignity, relational accountability, and collective harm prevention, the proposed neuro-responsible framework enables businesses to align innovation with ethical legitimacy and social trust. Key governance instruments include mandatory neural data classification, heightened consent and purpose limitation standards, organisational neuro-impact assessments, and shared liability models across developers, deployers, and data processors. Such measures support not only individual protection but also institutional resilience and sustainable market development.

To maximise the effectiveness of neuro-responsible business governance, policymakers are encouraged to prioritise: (1) legislative recognition of neural data as a distinct and sensitive category within existing data protection laws; (2) adoption of risk-based regulatory obligations for high-impact neurotechnologies in employment and consumer markets; (3) development of enforceable anti-neurodiscrimination and cognitive liberty safeguards; and (4) establishment of delegated regulatory authority to specialised oversight bodies capable of adapting standards as technologies evolve. Integrating these measures into national digital transformation strategies can prevent regulatory lag, mitigate digital colonialism, and foster ethically grounded innovation ecosystems.

Ultimately, aligning business practices with Ubuntu-informed neuro-responsibility offers a pathway for Zambia and similarly positioned Global South economies to engage neurotechnological innovation without reproducing extractive or inequitable governance models. By embedding relational ethics into corporate decision-making and regulatory design, neurotechnologies can be harnessed to support inclusive development rather than exacerbate cognitive, economic, and social asymmetries.

Future Research Directions

Future research should prioritise empirical and longitudinal investigation into the deployment of neurotechnologies within Global South business environments, particularly in underexplored contexts such as Zambia, Sub-Saharan Africa, and emerging digital economies. Mixed-method studies combining qualitative organisational analysis with socio-legal evaluation are needed to assess how neurotechnologies are adopted in workplaces, marketing practices, financial services, and education, and how affected populations perceive risks to cognitive autonomy and dignity.

Comparative regulatory research should further examine how neuro-rights frameworks, data protection regimes, and AI governance instruments can be adapted across diverse legal and cultural settings without replicating forms of regulatory colonialism. Developing standardised, open-access metrics for assessing cognitive harm, relational impact, and distributive risk would enable cross-jurisdictional benchmarking and support evidence-based policy diffusion.

Future work should also explore the integration of neuro-responsible governance with emerging technologies such as AI-driven affective computing, biometric analytics, and brain–computer interfaces, assessing cumulative

risks and accountability gaps across converging systems. Finally, scenario modelling and policy simulation—using socio-technical foresight and systems-based approaches—can assist regulators and businesses in anticipating long-term impacts, identifying regulatory thresholds, and designing adaptive governance mechanisms capable of safeguarding cognitive dignity in rapidly evolving digital economies.

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