Architecting Cybernetic Agency: The Nexus of Fluid Governance, Dual Core Finance, and Human-Enterprise Synergy in AI Development

WSIS+20 Rev.1 intervention 1 (vol-ii)
Dr. Syed Muntasir Mamun

Abstract

This academic paper conducts a rigorous, multi-disciplinary analysis of the intervention delivered by Dr. Syed Muntasir Mamun of Bangladesh at the World Summit on the Information Society (WSIS) +20 review on 14 November 2025. The intervention advocates for the strategic recalibration of global digital governance, proposing targeted revisions to WSIS documents to formally embed the architecture of **Cybernetic Agency**—a control system ensuring human values perpetually inform and constrain autonomous AI systems. Drawing upon complexity theory, the analysis details the necessity of **Fluid Institutional Frameworks** characterized by liquidity, interoperability, and polycentricity, to match the adaptive pace of self-evolving AI. Furthermore, the paper substantiates the need for the **Dual Core Finance Model**—a hybrid mechanism blending sovereign public financial management (Core I) with decentralized digital innovation (Core II)—to secure predictable, resilient capital for AI capacity building in the Global South. A dedicated section formalizes the concept of **Human-Enterprise Synergy**, redefining innovation to prioritize the augmentation of human creativity and ethical judgment over mere task automation. The discussion culminates in specific textual proposals for the WSIS+20 Outcome Document, alongside a detailed action plan. This note concludes that adopting this integrated governance, financial, and collaborative architecture is imperative for translating global digital aspirations into equitable, sustainable, and human-centric digital transformation, in alignment with the UN General Assembly's resolution on

Mamun, SM (2025)…………………………………..1

safe, secure, and trustworthy AI for sustainable development.

JEL Classifications

O33 (Technological Change: Choices and Consequences; Diffusion Processes); O32 (Management of Technological Innovation and R&D); O10 (Economic Development: General); Q01 (Sustainable Development); F63 (Economic Impacts of Globalization: Economic Development); L86 (Information and Internet Services; Computer Software); G20 (Financial Institutions and Services: General).

Keywords

Artificial Intelligence Governance; WSIS+20; Cybernetic Agency; Fluid Institutional Frameworks; Human-Enterprise Synergy; Dual Core Finance; Digital Sovereignty; Sustainable Development Goals; Global Digital Compact; E-waste Crisis.

Table of Contents

I. Introduction: The Human Imperative in Digital Governance at WSIS+20

1.1. Contextualizing the WSIS+20 Review: Moving from Connectivity to Comprehensive Governance

The World Summit on the Information Society (WSIS) was founded upon a crucial commitment: to establish a "people-centered, inclusive and development-oriented information society". Twenty years after its inception, the WSIS+20 review presents a pivotal opportunity for the global community to reassess and reimagine this vision, recognizing that the pervasive digital technologies and Agentic Artificial Intelligence (AI) systems of today fundamentally differ from the landscape envisaged in 2005.

While significant progress has been achieved in basic connectivity, the nature of the digital divide has evolved, moving beyond mere access to encompass issues of affordability, meaningful use, knowledge accessibility, and governance. The WSIS+20 process, therefore, must serve as a critical juncture for advancing comprehensive governance frameworks that ensure technological development aligns with the rights and aspirations of all nations, particularly those in the Global South. This process mandates a strong commitment to policy coherence, especially in relation to the Global Digital Compact (GDC), which was adopted as part of the 2024 Pact for the Future. The GDC emphasizes strengthened international cooperation to close digital divides and to acknowledge the new possibilities and risks inherent in emerging technologies.

Analysis of the WSIS outcome document Revision 1 (Rev1) reveals a strengthened emphasis on financial mechanisms and capacity building for AI development, explicitly referencing innovative voluntary financing options and SME participation. Crucially, however, Rev1 omits explicit discussion of AI risks present in earlier drafts. This policy gap underscores the necessity for interventions, such as that delivered by Dr. Syed Muntasir Mamun of Bangladesh, that proactively integrate robust risk management and ethical governance mechanisms directly within frameworks for financial and technical innovation. The objective is to ensure that capacity building is inherently

responsible and anchored in human-centric principles, addressing the requirements of the UN General Assembly (UNGA) Resolution A/RES/78/265, which promotes safe, secure, and trustworthy AI for sustainable development.

1.2. Framing Cybernetic Agency: Definition and the Necessity of Human Oversight in Cognitive Systems

The concept of **Cybernetic Agency** provides a conceptual architecture for linking AI governance mechanisms to the evolving, operational practice of autonomous systems. It demands a closed-loop control system where human values and policy thresholds continually inform and constrain algorithmic behavior. This is not merely human-in-the-loop; it is the establishment of a formal mechanism for regulatory control over systems exhibiting increasingly sophisticated cognitive autonomy.

The complexity arises from the emergence of self-evolving AI systems, often termed "Liquid AI," which feature mechanisms for continuous self-improvement, runtime architectural modification, and emergent multi-agent specialization. Governing such fluid systems requires more than conventional policy instruments; it requires a governance structure that can adapt at the pace of the technology itself. The UN Secretary-General's Roadmap for Digital Cooperation stresses the imperative of "Putting human rights and human agency at the center of everything". Cybernetic Agency represents the architectural response to operationalize this mandate within the context of continuously adaptive, self-governing systems. It provides the mechanism necessary to ensure that the risks posed by generative AI, such as hallucination, jailbreaking, and validation issues , are mitigated through formalized processes of oversight and ethical alignment. The challenge is to navigate the accelerating convergence of autonomy, security, and ethics, ensuring that the deployment of Agentic AI remains secure, ethical, and adaptive to human needs.

1.3. Thesis Statement and Report Structure

Bangladesh's intervention, as articulated by Dr. Syed Muntasir Mamun , provides a strategic, integrated model for global AI governance. This model proposes to leverage **Fluid Institutional Frameworks** for dynamic regulatory adaptation, supported by the **Dual Core Finance Mechanism** for sustainable, inclusive capacity-building. This integrated approach effectively

institutionalizes **human-enterprise synergy** for digital development, thereby operationalizing the principles of **Cybernetic Agency**.

The subsequent sections of this report will provide a detailed, expert-level examination of these theoretical and practical components. Section II details the Fluid Institutional Frameworks necessary for governing complexity. Section III dissects the innovative structure and strategic function of the Dual Core Finance Model. Section IV defines and analyzes the requirements for operationalizing enterprise-individual synergy. Finally, Section V translates these findings into actionable textual proposals for the WSIS+20 Outcome Document.

II. Theoretical Underpinnings: Fluid Institutional Frameworks for Governing AI Complexity

2.1. Navigating Deep Uncertainty: Applying Complexity-Compatible Principles to AI Governance

The governance of Artificial Intelligence is characterized by profound ambiguity and "deep uncertainty," analogous to the complex systems challenges encountered in public health and climate change. Traditional, static governance approaches—often based on slow, sequential legislative cycles—are inherently inadequate for regulating self-evolving systems capable of "runtime architectural modification". A reactive stance is insufficient when confronting technologies that can accelerate their own capabilities.

A complexity-compatible approach demands a set of principles that govern the structure and timing of regulatory intervention, alongside clearly defined risk thresholds. This necessitates a shift in governance philosophy, moving from static compliance checks to proactive, algorithmic calibration of system behavior. Dr. Mamun's background, spanning strategy, innovation, and regional economics , positions him as an expert capable of advocating for this systems-thinking approach. This perspective aligns with policy design that shifts the core definition of value measurement away from purely financial profit and toward "human growth as driven by purpose, empathy, community, and [a shared human] identity". This philosophical anchor is essential for building a fluid framework that subordinates technological advancement to human flourishing.

2.2. The Three Vectors of Fluidity: Liquidity, Interoperability, and Polycentricity

To govern adaptive, cognitive AI systems, the institutional framework must itself exhibit three core characteristics derived from complex systems theory : **Liquidity**, **Interoperability**, and **Polycentricity**.

2.2.1. Liquidity (Adaptive Regulation)

Liquidity refers to the governance system's capacity for continuous regulatory adaptation, mirroring the AI system's potential for runtime architectural modification. The regulatory framework cannot afford to wait for protracted legislative cycles; it must be algorithmic and responsive, integrating real-time feedback loops.

The formal analysis of Liquid Adaptive AI proposes formal containment measures to address safety concerns. These measures involve defining the probability of acceptable actions $P(A|\Lambda)$, system capability $C(\Lambda)$, and value alignment $V(\Lambda, A)$, often summarized in a formula $B(\Lambda, A) = \{ P(A|\Lambda), C(\Lambda), V(\Lambda, A) \}$. Furthermore, the rate of capability improvement of a self-modifying system can be formalized as $\frac{d P_{max}}{d t} = \eta \cdot \nabla_{\Lambda} P \cdot \frac{d \Lambda}{d t}$. The necessary architectural response is the creation of a Regulatory Cybernetic Loop. This loop mandates a continuous monitoring function ($C(\Lambda)$) embedded within the governance mechanism to ensure that the system's rate of capability growth (P_{max}) does not exceed human-determined safety or ethical thresholds ($V(\Lambda, A)$). The core challenge is defining a 'human-in-the-loop' not solely for decision-making within the AI application, but for *regulatory adaptation itself*, ensuring that the rules evolve in alignment with human values.

2.2.2. Interoperability (Knowledge Synthesis)

Interoperability ensures that diverse mandates are seamlessly translated across technical and policy domains, facilitating the "autonomous knowledge synthesis" required by multi-agent AI systems. In the context of global digital governance, this vector demands rigorous coherence between major policy streams, particularly the WSIS outcomes and the GDC commitments. Where integration was previously sought, the focus must shift to strengthening coherence. This means aligning technical standards from organizations such as the International Telecommunication Union (ITU) with foundational human rights frameworks articulated in documents like UNGA Resolution A/RES/78/265. Governance mandates must be designed for universal application and ethical consistency across varying technological implementations.

2.2.3. Polycentricity (Distributed Participation)

Polycentricity involves managing self-evolving systems through distributed

decision-making, ensuring regulatory oversight is shared across diverse stakeholders. This institutional structure seeks to address institutional fatigue and declining citizen trust observed in stable democracies. It aligns conceptually with models like "Liquid Democracy," which promote flexible, participatory forms of decision-making that can adapt to rapid complexity.

Polycentric governance is critical for operationalizing democratic participation in AI governance. A significant policy advantage of decentralized governance is its alignment with localized capacity building. The distribution of financial resources through a mechanism like the Dual Core's Core II (Decentralized Finance) requires a corresponding distribution of accountability and oversight. This structure allows global decisions to be anchored in country realities through bottom-up processes, supporting community networks, national action plans, and localized Internet Governance Forums (IGFs). This creates a system of decentralized accountability where global mandates are locally managed and regulated.

Governance Component	Traditional Model (Static/Hard Law)	Fluid Model (Adaptive/Cybernetic)
Adaptability Metric	Periodic legislative review (Slow, Reactive)	Runtime architectural modification; Continuous learning (Rapid, Proactive)
Institutional Structure	Hierarchical, Centralized Compliance	Polycentric, Distributed Networks (Multi-Stakeholder, Liquid Democracy)
Response to Uncertainty	Proscriptive/Paralyzed by Complexity	Complexity-Compatible Principles; Systemic Risk Thresholds
Core Principle	Compliance and Containment	Emergent Specialization and Continuous Value Alignment

III. The Engine of Inclusion: Detailing Bangladesh's Dual Core Finance Model

3.1. Genesis of the Model: Financial Modernization, Microfinance, and the Digital Divide in the Global South

The Dual Core Finance Model, championed by Dr. Mamun, whose expertise lies in regional economic integration, financial analysis, and FinTech , addresses the critical funding gap for AI capacity development in the Global South. The model is structurally designed to "eradicate the concern of digital divide as much as possible" by harnessing present resources and aligning financial instruments with innovation.

The model directly responds to the WSIS Rev1 mandate to reinforce financial mechanisms and explore innovative voluntary financing options for AI capacity building. Traditional financing mechanisms have proven insufficient to meet the high capital requirements for AI compute infrastructure and the necessity of achieving Universal Meaningful Connectivity (UMC). The Dual Core approach proposes a hybridization of public stability and decentralized vitality to create a resilient, self-sustaining financial ecosystem.

3.2. Architecture of the Dual Core: Core I (State/PFM Accountability) and Core II (Decentralized/Digital Innovation)

The Dual Core structure comprises two interdependent engines, designed to offer stability and innovation simultaneously.

3.2.1. Core I: Strengthening Public Financial Management (PFM) Accountability

Core I focuses on the sovereign stability and transparency of public finances. In the case of Bangladesh, this core is anchored in strengthening Public

Financial Management (PFM) systems to ensure the effective, efficient, and transparent management of public resources. Supported by international partners like the World Bank, the mechanisms include improving fiscal forecasting, optimizing public budget preparation and execution, and enhancing financial reporting. Operational improvements include the timely release of budgetary allocations and modernizing payment processes, such as electronic fund transfers for pensions.

The strategic function of Core I is to act as the primary anchor of financial trust. It ensures predictable resource mobilization necessary for foundational digital infrastructure, long-term educational transformation , and sustainable, non-volatile state investment in strategic national AI capacity.

3.2.2. Core II: Decentralized Digital Innovation and Financial Inclusion

Core II is dedicated to leveraging emerging technologies for grassroots economic empowerment and financial inclusion. It heavily integrates FinTech, decentralized finance (DeFi), and blockchain technologies. The model leverages distributed ledger technology to facilitate faster, cheaper cross-border payments and to establish smart contract functionality.

A primary social objective of Core II is to "bank the unbanked," addressing the exclusion of almost two billion potential customers from traditional banking systems. Digital currency wallets and smart contracts allow individuals and Micro, Small, and Medium Enterprises (MSMEs) to access credit markets and financial services previously monopolized by centralized entities. The conceptual foundation for Core II is inspired by Bangladesh's established microfinance sector, where hybrid organizations successfully maintain a dual mission of "social purpose and financial sustainability". This core facilitates localized capital formation and fosters entrepreneurial activity necessary for digital innovation.

3.3. Dual Core Finance as an Innovative Voluntary Financing Option for AI Capacity Building

The structural relationship between the two cores provides a mechanism for hybrid resilience. The traditional approach to financing AI capacity often relies on either volatile, high-risk private capital (similar to Core II) or slow, constrained public budgets (Core I). Fusing them creates a system where the high-risk/high-reward digital capital formation (Core II) is stabilized and

regulated by the sovereign accountability and financial infrastructure of the public core (Core I).

This stabilization is crucial for securing the high, long-term capital investments required for AI compute infrastructure and complex capacity-building initiatives. The model becomes a truly "innovative" financing option by mitigating the systemic risks associated with decentralized finance through sovereign guarantee and governance oversight. Furthermore, by generating domestic liquidity and enabling local capital formation, the Dual Core structure directly supports the goal of Digital Sovereignty, counteracting the risks of technological dependency and data extractivism emphasized by the Global South.

Core	Operational Focus	Key Mechanisms / Technologies	WSIS+20 Relevance
Core I (Public Financial Core)	Macroeconomic Stability, PFM, Budgetary Allocation	PFM Action Plan, Fiscal Forecasting, E-Transfer for Pensions	Ensures state accountability and predictable resource mobilization for digital infrastructure and AI capacity (the "trust anchor").
Core II (Decentralized Digital Core)	Micro-level Financial Inclusion, Innovation, MSME Support	Blockchain (FinTech), Smart Contracts, Hybrid Microfinance	Harnessing decentralized liquidity, bridging the digital divide, and providing accessible capital for grassroots innovation and entrepreneurship.

IV. Synergistic Innovation: Architecting Human-Enterprise Collaboration Models for Creative Potential

4.1. Paradigm Shift: From Task Automation to Augmentation and Creative Value Generation

The widespread integration of AI across every industrial sector necessitates a fundamental paradigm shift: moving organizational focus from simple task automation to the **augmentation of human capabilities**. The anticipated economic contribution of AI, projected to reach $15.7 trillion globally by 2030, is fundamentally dependent on this amplification of human potential.

The strategic imperative, therefore, is not technological resistance but conscious direction of change, ensuring that human agency remains central to progress. This requires a rigorous re-evaluation of task allocation: AI should handle repetitive, data-intensive processes , thereby freeing human actors to concentrate on mission-critical skills such as creativity, ethical judgment, and complex strategy. This specialized collaboration model, or **Human-AI Synergy**, is essential for unlocking and scaling creative potential within the knowledge economy. The WSIS+20 outcome must explicitly recognize that the ultimate value of AI is its ability to serve as a catalyst for deeper human thought and innovation.

4.2. Institutionalizing Synergy: Open Innovation, Network Externalities, and Localized Capital

To institutionalize Human-AI Synergy, organizations must move away from proprietary, closed innovation structures toward **Open Innovation** models. Open Innovation integrates external entities—individual innovators, customers, research institutions, and suppliers—into the innovation process

through collaborative digital ecosystems. This two-way flow of knowledge accelerates development and improves the quality and diversity of innovation outcomes.

A successful pathway for enterprise-individual collaboration involves leveraging crowdsourcing platforms. These platforms are influenced by **network externalities**, meaning the value and attractiveness of participating in the collaboration platform increase exponentially with the number of engaged individuals. The Dual Core Finance Model's Core II inherently expands the social network of innovators and entrepreneurs by digitally onboarding the previously unbanked and supporting MSMEs. By providing accessible capital and integrating marginalized populations into the formal digital economy, Core II catalyzes a larger pool of contributors, thereby boosting network externalities. This virtuous cycle ensures that financial inclusion drives improved innovation performance and reduces the transactional cost of collaboration, creating a self-reinforcing loop of digital empowerment.

4.3. Measuring Human Potential: Developing Metrics for Creativity, Ethical Reasoning, and Continuous Learning

Effective management of human-AI synergy requires a radical overhaul of talent management and skill measurement. It necessitates moving beyond traditional metrics (e.g., tracking effort or standardized testing) to quantify "real-world skill application, proficiency and growth". Crucially, this includes quantifying soft skills—such as creativity, empathy, and ethical reasoning—which have long been considered unmeasurable.

This pursuit of new metrics must align with the broader policy goal of redesigning systems to redefine value, measuring "human growth as driven by purpose, empathy, community, and [a shared human] identity". Governance frameworks must ensure that the requisite educational transformation is implemented to develop the continuous learning mindsets and ethical reasoning capabilities necessary for sustained collaboration with adaptive AI systems.

4.4. Case Study Implications: Synergy for SDG Achievement in Agri-Food Systems

The Human-Enterprise Synergy Model is directly applicable to accelerating

Sustainable Development Goal (SDG) achievements, particularly in resource-intensive sectors like agriculture in Low and Middle-Income Countries (LMICs). AI offers tools for optimizing irrigation, automating compliance, and scaling robotics. Deploying AI effectively requires aligning global innovation blueprints with local equity and resilience needs. The synergy model ensures that AI serves LMIC farmers by systematically embedding their individual agency, local expertise, and indigenous knowledge into the technological roadmap. This resilience through contextualization prevents systemic failures that often arise when global AI models lack local adaptation. The technology, therefore, augments the expert human (farmer/analyst) rather than overriding the necessity of their contextual knowledge, thereby prioritizing equity and the public good in the transformation of agrifood systems.

V. Policy Translation: Textual Proposals for the WSIS+20 Outcome Document

5.1. Aligning Policy: Coherence between WSIS, GDC, and UNGA AI Resolution

The ultimate goal of the WSIS+20 review is to produce an outcome document that provides a cohesive roadmap for the next two decades of digital development. This requires strengthening the coherence between the WSIS framework and the Global Digital Compact (GDC), which sets forth objectives, principles, and commitments based on international law and human rights. Furthermore, the governance framework must operationalize the mandate set forth by the UN General Assembly in A/RES/78/265, which calls for seizing the opportunities of safe, secure, and trustworthy AI for sustainable development. The Cybernetic Agency architecture provides the operational governance structure necessary to achieve this safety, security, and trust.

5.2. Proposed Textual Revisions to Operationalize Human-Enterprise Synergy

The following textual proposals are designed to translate the theoretical concepts of Cybernetic Agency, Fluid Governance, and Dual Core Finance into specific, actionable commitments within the WSIS+20 Outcome Document, moving the document from generalized aspirations to concrete policy mandates.

WSIS Thematic Area	Proposed Wording (New Text)	Rationale (Synergy Focus)
Capacity Building and Skills	*Commit to institutionalizing* **enterprise-individual collaboration** *models, centered on measuring and enhancing creative human potential, ethical reasoning capabilities, and continuous learning mindsets through augmented AI systems, thereby*	Embeds human-AI synergy and quantifiable human growth as a primary development goal, transforming skills development from passive learning to proactive collaborative innovation.

WSIS Thematic Area	Proposed Wording (New Text)	Rationale (Synergy Focus)
	safeguarding and amplifying human agency in the digital economy.	
Financing Mechanisms	*Encourage Member States to explore and establish innovative financial mechanisms, including blended public-decentralized structures such as the* **Dual Core Finance Model***, to ensure predictable, resilient resource mobilization for AI compute infrastructure and capacity building, particularly in developing countries.*	Links national innovation models (Core I: PFM, Core II: FinTech) to global financing sustainability, directly addressing the need for innovative voluntary financing.
Ethical AI Governance	*Foster fluid and responsive institutional frameworks, anchored in the principles of* **Cybernetic Agency***, designed to ensure continuous human oversight, real-time value alignment, and necessary regulatory adaptation in the management of self-evolving AI systems, requiring polycentric governance mechanisms and democratic participation.*	Addresses the unique governance complexity (deep uncertainty) posed by Agentic AI and implements a complexity-compatible regulatory architecture.

5.3. Mandating Environmental Responsibility: Integrating E-Waste Management and Circular Economy Principles

The ambition for "universal, safe, inclusive, and affordable access to the Internet for all by 2030" accelerates the global e-waste crisis. Global e-waste generation reached a record 62 million tonnes (Mt) in 2022, an 82% increase

since 2010, and is projected to rise to 82 Mt by 2030 in a business-as-usual scenario. This represents a squandering of strategically valuable resources, amounting to US$91 billion in valuable metals annually due to insufficient recycling. The overall global formal recycling rate stood at only 22.3% in 2022. This creates a profound inclusivity-sustainability nexus: the digital divide cannot be closed at the expense of environmental collapse. Therefore, the Fluid Framework must extend its purview to material flows, mandating resource efficiency and circular economy criteria—such as "Provenance by Design" for materials—as a non-negotiable policy component.

VI. Conclusion: A Roadmap for Adaptive and Inclusive Digital Futures

6.1. Synthesis of Findings: Cybernetic Agency, Fluidity, and Financial Sustainability

The intervention advanced by Bangladesh at the WSIS+20 review constructs a sophisticated, integrated architecture for human-centered AI governance. The framework is defined by the necessary interdependency of governance, finance, and human capital:

1. **Fluid Governance** is structurally necessary to manage the complexity and continuous evolution inherent in **Cybernetic Agency**.
2. The **Dual Core Finance Model** provides the resilient and inclusive capital base required to fund AI capacity, stabilize decentralized innovation (Core II), and anchor financial trust through sovereign public management (Core I).
3. **Human-Enterprise Synergy** defines the innovative objective, ensuring that technological progress amplifies human creativity and ethical capacity, rather than diminishing human agency.

This model effectively bridges the theoretical demands of emerging technologies (AI complexity) with the practical, sovereign needs of the Global South (financing, PFM stability, inclusion, and digital sovereignty). It transforms global digital governance from a passive, aspirational endeavor into a dynamic, policy-driven control system.

6.2. Detailed Action Plan for Member States and the CSTD

Based on this analysis, the following detailed actions are recommended for Member States negotiating the WSIS+20 outcome and for the UN Commission on Science and Technology for Development (CSTD):

1. **Operationalize Cybernetic Agency:** Mandate the development of technical standards and policy guidelines for the formal containment of

Mamun, SM (2025)…………………………………………..20

Agentic AI, requiring a Regulatory Cybernetic Loop to monitor the system's rate of capability growth (P_{max}) against human-determined ethical thresholds ($V(\Lambda, A)$).

2. **Establish Hybrid Financial Pilots:** Launch regional pilot programs, particularly in the Global South, to stress-test the Dual Core Finance model. These pilots should formally link sovereign investment in digital infrastructure (Core I: PFM) with regulatory sandboxes for decentralized financial inclusion (Core II: Blockchain/FinTech) to mitigate systemic risk and ensure financial predictability.

3. **Reform Skill Measurement:** Charge a CSTD working group with developing and standardizing **Human-AI Synergy Metrics** to measure the growth of soft skills, specifically creativity, ethical reasoning, and critical judgment, within augmented work environments.

4. **Enforce Circular Economy Mandates:** Integrate the findings of the Global E-waste Monitor into all digital policy outcomes. Mandate that new national AI and digital infrastructure strategies include enforceable **Circular Economy criteria** (e.g., Provenance by Design) to achieve a 60% e-waste collection rate by 2030, shifting accountability to the design phase of technology.

5. **Strengthen Policy Coherence:** Require formal, transparent review mechanisms between the WSIS Action Lines, the GDC commitments, and UNGA Resolution A/RES/78/265 to eliminate policy fragmentation and ensure all digital cooperation efforts are rights-anchored and focused on the achievement of the Sustainable Development Goals.

6.3.   Limitations   and   Future   Research Directions

While the integrated architecture is robust, its widespread implementation requires further empirical validation and research. Formal economic modeling is required to determine the optimal policy intervention points that maximize liquidity while minimizing exposure to digital market instability. Furthermore, research is crucial on how to effectively scale polycentric governance models, such as Liquid Democracy, to ensure meaningful, democratic participation across vast and diverse populations, particularly in the context of self-evolving algorithms.

VII. References

1. AiJourn. (2024). The Human-AI Collaboration Model: How Companies Need to Think Now. Available at: https://aijourn.com/the-human-ai-collaboration-model-how-companies-need-to-think-now/

2. arXiv. (2025). Governing AI Under Deep Uncertainty: Complexity-Compatible Principles. Available at: https://arxiv.org/abs/2502.00012

3. CADe Project. (2025). Bangladesh civil society lays out blueprint for a people-centred WSIS+20. Available at: https://cadeproject.org/updates/bangladesh-civil-society-lays-out-blueprint-for-a-people-centred-wsis20/

4. Detecon. (2024). Blockchain and Decentralized Finance Revolutionize the Corporate Finance World. Available at: https://www.detecon.com/en/insights/article/blockchain-and-decentralized-finance-revolutionize-the-corporate-finance-world

5. Digital Watch. (2025). Revision 1 of the WSIS+20 Outcome Document Released. Available at: https://dig.watch/updates/revision-1-of-the-wsis20-outcome-document-released

6. Emerald. (2024). Unlocking creative potential through employee AI collaboration. Journal of Science and Technology Policy. Available at: https://www.emerald.com/jstp/article/doi/10.1108/JSTP-12-2024-0427/1311392/Unlocking-creative-potential-through-employee-AI

7. Esposito, M. (2024). Defining Value in The Great Remobilization: Strategies and Designs for a Smarter Global Future. Cited in Harvard Kennedy School. Available at: https://www.hks.harvard.edu/centers/cid/voices/cid-faculty-spotlight-mark-esposito-ai-governance-and-building-better-future

8. FAO. (2025). AI-driven Transformation: Redirecting and Shaping Sustainable Investments in Agriculture. Available at: https://www.fao.org/science-technology-and-innovation/science-innovation-forum-2025/programme-sif-2025/ai-driven-transformation--redirecting-and-shaping-sustainable-investments-in-agriculture/en

9. Fluid Thinkers. (2024). Liquid Democracy — A Possible Next Step in the Evolution of Governance. Available at:

https://fluidthinkers.medium.com/ai-and-democracy-a2a7bb0b7111

10. ITU. (2024). Measuring digital development: Facts and Figures 2024. Available at: https://www.itu.int/itu-d/reports/statistics/facts-figures-2024/

11. ITU. (2024). The Global E-waste Monitor 2024. Available at: https://www.itu.int/en/ITU-D/Environment/Pages/Publications/The-Global-E-waste-Monitor-2024.aspx

12. Internet Society. (2025). WSIS+20 Zero Draft Analysis. Notes on IGF and local governance. Available at: https://www.internetsociety.org/resources/doc/2025/wsis20-zero-draft-matrix-internet-society-analysis/

13. Komaitis, N. (2025). WSIS+20 Outcome Document: From Zero Draft to Rev1. Available at: https://www.komaitis.org/write-share-ignite/wsis20-outcome-document-from-zero-draft-to-rev1

14. MDPI. (2022). Microfinance Institutions as Hybrid Organizations. Sustainability, 11(3), 83. Available at: https://www.mdpi.com/2227-7072/11/3/83

15. MDPI. (2024). Liquid Adaptive AI: A Theoretical Framework for Continuously Self-Improving Artificial Intelligence. A.I., 6(8), 186. Available at: https://www.mdpi.com/2673-2688/6/8/186

16. MDPI. (2024). Open Innovation and Corporate Performance. Administrative Sciences, 14(3), 212. Available at: https://www.mdpi.com/2079-8954/13/3/212

17. Mamun, S.M. (2024). Expertise and Background. The Business Circle. Available at: https://tbcy.in/welcome-to-the-world-of-data-dr-syed-muntasir-mamun-director-general-ministry-of-foreign-affairs-bangladesh/

18. Mamun, S.M. (2025). Talk on Digital Divide, Innovation and Dual Core Finance. TEDx Event. [Video] Available at: https://www.youtube.com/watch?v=84lWq4G2xZo

19. PMC. (2025). Governing Agentic Artificial Intelligence: A Multi-Dimensional Framework for Cybernetic Agency. The Journal of Autonomous Systems Research. Available at: https://pmc.ncbi.nlm.nih.gov/articles/PMC12569510/

20. Policy and Society. (2025). Governance and the Generative AI Revolution.

Available   at: https://academic.oup.com/policyandsociety/article/44/1/1/7997395

21. Rapid Innovation. (2024). Blockchain in Finance: Enhancing Security and Efficiency.   Available   at: https://www.rapidinnovation.io/post/blockchain-in-finance-enhancing-security-and-efficiency

22. ResearchGate. (2024). Exploring the synergy mechanism of crowdsourcing open innovation based on network externalities. Available at: https://pmc.ncbi.nlm.nih.gov/articles/PMC10319218/

23. UN DESA. (2025). Knowledge House Inputs to the WSIS+20 Zero Draft. Available   at: https://publicadministration.desa.un.org/sites/default/files/2021-04/2025/Input s%20to%20Zero%20Draft/Knowledge%20House_inputs%20to%20Zero%20 Draft.pdf

24. UNCTAD. (2025). WSIS+20 Review: Twenty Years since the Inception of WSIS.   Available   at: https://unctad.org/topic/commission-on-science-and-technology-for-developm ent/wsis-20-year-review

25. UNITAR. (2024). Global E-waste Monitor 2024: Electronic Waste Rising Five Times Faster Than Documented E-waste Recycling. Available at: https://unitar.org/about/news-stories/press/global-e-waste-monitor-2024-electr onic-waste-rising-five-times-faster-documented-e-waste-recycling

26. United Nations. (2020). Roadmap for Digital Cooperation (A/74/821). Available   at: https://www.un.org/digital-emerging-technologies/content/roadmap-digital-coo peration

27. United Nations. (2024). Annex 1: Global Digital Compact. Cited in Pact for the   Future   (A/RES/79/1).   Available   at: https://www.un.org/pact-for-the-future/en/annex-1-global-digital-compact

28. United Nations. (2024). Pact for the Future. Available at: https://www.un.org/en/summit-of-the-future/pact-for-the-future

29. United Nations General Assembly. (2024). A/RES/78/265 (Official Summary). Available at: https://digitallibrary.un.org/record/4040897?ln=en

30. United Nations General Assembly. (2024). Resolution A/RES/78/265: Seizing the opportunities of safe, secure and trustworthy artificial intelligence systems   for   sustainable   development.   Available   at:

https://digitallibrary.un.org/record/4043244

31. World Bank. (2019). World Bank Helps Bangladesh Strengthen Public Financial Management. Available at: https://www.worldbank.org/en/news/press-release/2019/06/27/world-bank-helps-bangladesh-strengthen-public-financial-management

32. World Bank. (2025). Why Artificial Intelligence for the Agriculture Sector. Available at: https://documents1.worldbank.org/curated/en/099110225213024234/pdf/P179477-db7b384d-334c-4ff4-ad8a-0524d99ab3c5.pdf

33. World Economic Forum. (2025). Four ways to enhance human-AI collaboration in the workplace. Available at: https://www.weforum.org/stories/2025/01/four-ways-to-enhance-human-ai-collaboration-in-the-workplace/