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之江实验室 ZHEJIANG LAB

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Evolution Trends, Multidimensional Impacts and Cooperative Governance Paths of the Global Intelligence Divide

Laboratory of Intelligent Society and Governance, Zhejiang Lab

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Executive Summary

This report, released by the Laboratory of Intelligent Society and Governance, Zhejiang Lab, systematically analyzes the key evolutionary trends and multidimensional impacts of the global intelligence divide, while proactively proposing a framework for collaborative governance.

The research reveals that new-generation artificial intelligence technologies are raising entry barriers across three major dimensions: computing power, services, and talent. Sustained and large-scale demand for intelligent computing power is constructing a **technological access divide**; the prevalence of closed-source AI business models is engendering a **technological radiation divide**; and the heavy concentration of top-tier AI talent in developed countries is intensifying a **top talent divide**. The interlacing and superposition of these factors are accelerating the concentration of technological innovation dominance in the hands of a few countries and tech giants, driving the continuous deepening of the global intelligence divide.

Such structural imbalance has triggered far-reaching systemic risks. **First**, at the global industrial level, latecomer countries face the dual dilemma of sliding from "**gradual catch-up**" toward "**systemic dependency**", while being subjected to all-around substitution and squeeze during the restructuring of value chains. **Second**, at the ecological and environmental level, the high resource consumption of the AI race has exacerbated inequities in the global distribution of energy and carbon emission space, with the ecological costs further transferring to vulnerable countries along the industrial chains. **Third**, at the global governance level, negotiation agendas largely dominated by developed countries have left most developing countries in the passive position of rule-takers, undermining the fairness of the international governance system.

To address these global challenges and break the above dilemmas, the report calls on the international community to move beyond zero-sum games and one-way assistance to jointly build a **five-in-one**, **closed-loop** and **interconnected collaborative governance framework**. Specific pathways include:
①building inclusive and shared **open innovation infrastructure** to dismantle access barriers;
②creating a matrix of **international public goods** focused on sustainable development to promote knowledge sharing;
③cultivating an **AI open-source ecosystem** to empower the global developer community;
④strengthening **local talent capacity building** to achieve a transformation from "blood transfusion" to "capacity generation";
⑤building a **reciprocal global governance system** under multilateral frameworks such as the United Nations to ensure that intelligent dividends are fair and inclusive.

These five interrelated and synergistic pathways will assist **Global South** countries in effectively enhancing their depth of participation and governance discourse power in AI innovation, guiding artificial intelligence toward a sustainable development trajectory that serves the common well-being of all humanity.

I、The Advancement of Artificial Intelligence Technology Accelerates the Evolution of the Global Intelligence Divide

The new wave of technology innovation, centered on deep learning, large models, and generative AI, is reshaping the global innovation landscape with unprecedented depth and breadth. In contrast to early AI paradigms, the current stage of technological development presents fundamental differences in demands for computing power scale, open-source ecosystem construction, and compound talent cultivation, giving rise to and exacerbating a multi-layered global intelligence divide across the world.

(I) The Large-Scale Demand for Computing Resource Investment Raises Barriers to Innovation Entry

Frontier breakthroughs in AI, represented by large models, rely heavily on large-scale intelligent computing resources for training and inference. Unlike early shallow learning models, large model training typically requires processing hundreds of billions of data points and executing ultra-large-scale parallel computing, with the cost of a single model training often reaching millions of US dollars. Consequently, intelligent computing power has become a core constraint and strategic asset determining technological innovation capability, posing systemic barriers to developing countries with limited resource endowments.

As competition for intelligent computing resources enters a fever pitch, global investment in computing power shows a trend of high centralization, with the construction of intelligent computing centers advancing from the **10,000-card** scale toward the **100,000-card** era[1]. According to Epoch AI[2], as of May 2025, the United States accounts for nearly 75% of global AI computing power, followed by China at 15%, while the total share of underdeveloped regions is less than 10%. While leading enterprises accelerate the deployment of computing facilities, most developing countries even lack data centers capable of supporting basic AI inference. Despite the significant gap, cloud service providers and tech giants continue to increase investment in intelligent computing resources. According to forecasts by Bloomberg[3], the AI infrastructure expenditures of four US companies—Microsoft, Google, Amazon, and Meta—will exceed $600 billion in 2026, a year-on-year surge of over 70%. Chinese tech companies are also keeping pace with full force: Alibaba plans to invest over 380 billion RMB in cloud computing and AI hardware from 2025 to 2027, an amount exceeding its total investment over the past decade. The capital expenditures by Tencent and ByteDance in AI infrastructure both exceeded 100 billion RMB in 2025.

Currently, the monopolistic pattern of intelligent computing resources is accelerating the concentration of technological innovation dominance in a handful of countries and giant enterprises. While such centralized investment has driven the rapid expansion of the technological frontier in the short term, the resulting **technological access divide** has excluded underdeveloped countries from the core innovation cycle, severely restricting their ability to utilize AI for industrial transformation and intelligent upgrading.

[1] World Internet Conference. (2025). World Internet Conference think tank cooperation program: Promoting global digital infrastructure development and bridging the digital divide (Report).

[2] Konstantin F. Pilz et al. (2025). "The US hosts the majority of GPU cluster performance, followed by China". Published online at epoch.ai.

[3] Hyperscaler Capex Explodes Higher. https://www.bloomberg.com/news/articles/2026-02-06/how-much-is-big-tech-spending-on-ai-computing-a-staggering-650-billion-in-2026

(II) Path Dependency on Closed-Source Development Obstructs Global Knowledge Sharing

The open-source model serves as a core driver for the rapid popularization and iteration of AI technology. Early open-source frameworks such as TensorFlow and PyTorch promoted knowledge diffusion by lowering innovation barriers, which not only drove exponential growth in the global developer community but also laid the foundation for an open and collaborative technological paradigm. In recent years, open-source models represented by DeepSeek and Qwen have continued to promote the global sharing of technical knowledge and localized applications through the model of **low-cost API + ecosystem co-construction**.

However, contrary to the globally advocated atmosphere of open innovation, commercial closed-source strategies remain prevalent due to path dependency, creating barriers to knowledge sharing. On one hand, some enterprises privatize core model weights, training data, and architectures, restricting technology spillovers through patent walls. As pointed out in a report issued by the United Nations[1], many resource-poor countries already struggle to independently develop AI technology due to limited capacity and access. The high licensing fees for closed-source models further exceed their affordability, resulting in their exclusion from mainstream AI governance and applications. On the other hand, the **high-value API and subscription-based** business model gained popularity, turning technical access into high-cost paid services. For instance, the API call cost for GPT-5.2 pro is as high as $21 per million tokens (input) and $168 per million tokens (output); the monthly subscription fees for mainstream models such as o1 pro, Claude, and Gemini all exceed $200. In contrast, open-source solutions offer much lower marginal costs, such as the price of Qwen API starting at just $0.11 per million tokens.

The high usage costs of closed-source AI models severely undermine the inclusive nature of AI technology as an international public good, preventing global developers from participating fairly in the optimization and innovation of top-tier models. If this lock-in to the closed-source path is not broken, the resulting **technological radiation divide** will continue to exacerbate the polarization of global AI strength, hindering the full realization of AI's inclusive value.

(III) The Agglomeration Effect of Top AI Talent Intensifies Technical Resource Divergence

Every leap forward in AI, from breakthroughs in basic theories to the implementation of technological applications, is driven by the advanced thinking and innovative capabilities of top talent. New-generation AI systems integrate frontier algorithms, large-scale distributed computing, and hardware engineering, requiring compound talent capabilities that far exceed traditional fields and creating a more sophisticated professional threshold.

[1] United Nations General Assembly. (2025). Innovative voluntary financing options for artificial intelligence capacity-building (Report No. A/79/966). United Nations.

Developed countries, leveraging the advantages of top universities, tech giants, and capital, have built a high-density siphon network for top talent. Using the United States as an example, it continues to attract global talent through high-salary strategies and a mature research ecosystem. For instance, Meta once offered a sky-high four-year compensation package of $300 to recruit a leading AI researcher, and carried out acquisition-based recruitment by investing $14.3 billion in Scale AI to absorb its co-founders and core team. This agglomeration effect has led to a systemic divergence of top technical resources. According to MacroPolo[1], 75% of the world's top AI talent (top 2%) come from the US and China, with 57% of top talent choosing to work in the US, keeping it firmly at the top of the net talent inflow rankings. In the 2025 TIME 100 AI Leaders list, US corporate leaders accounted for over 50%, while underdeveloped regions like Africa and Latin America had almost no representation, highlighting the increasingly prominent imbalance in the global distribution of top talent.

At the same time, according to the World Bank[2], the demand pressure for top AI talent is rapidly transmitting along the global industrial chain to underdeveloped countries, which are trapped in the dual dilemma of **difficulty in cultivation** and **difficulty in retention**. Although China has progressed rapidly in cultivating application-level AI talent, it still faces a shortage of basic theoretical research talent: by 2025, the country's AI talent gap has reached 5 million. Many more underdeveloped countries lack the capacity and attractiveness to cultivate local top talent due to lagging education systems and insufficient R&D investment. This **top talent divide** severely restricts the endogenous innovation momentum of nations, extending the intelligence divide from the resource level to the core talent level and further solidifying the unbalanced pattern of global AI development.

II、Multidimensional Impacts and Challenges of the Global Intelligence Divide

As generative AI transitions from a period of technological eruption into one of deep consolidation and commercial deployment, the global intelligence divide has evolved beyond mere disparities in information access. It has become a profound structural imbalance encompassing foundational infrastructure, technological autonomy, and the distribution of voice in global governance—with far-reaching and potentially irreversible consequences for the global industrial ecosystem, equitable resource allocation, and the governance order.

(I) Structural Imbalances in Global Technology and Industrial Development

The primary impact of the global intelligence divide lies in the structural divergence of foundational technology systems and industrial competitiveness. This polarization differs fundamentally from the vertical division of labor characteristic of the industrial era, and manifests in two key dimensions.

[1] The Global AI Talent Tracker 2.0. (2023). https://archivemacropolo.org/interactive/digital-projects/the-global-ai-talent-tracker/

[2] World Bank Group. (2026). Digital progress and trends report 2025: Strengthen AI foundations (Report).

First, the paradigm of technological innovation has shifted from "gradual catch-up" to "systemic dependency." During the industrial era, developing nations could still achieve technological leapfrogging by acquiring patents, recruiting talent, or purchasing equipment. In the age of AI, however, competition has moved beyond discrete products to encompass the deep integration of "computing power–data–models." Due to the absence of autonomous computing infrastructure and core algorithmic capabilities, research and industrial activities in developing countries are increasingly compelled to operate atop the technical architectures of transnational platforms[1]. This deep dependency not only erodes the independence of local institutions in knowledge production[2], but also exposes them to the risk of systemic paralysis should access to critical technology licenses be interrupted amid geopolitical turbulence - rendering the construction of autonomous and self-sustaining technological trajectories exceedingly difficult[3].

Second, global value chains are shifting from "complementary cooperation" to comprehensive "substitution and displacement." The wave of intelligent automation is reshaping comparative advantages across global industries, posing a direct challenge to the traditional labor cost advantages of developing economies. On one hand, as AI and intelligent manufacturing gain widespread adoption in advanced economies, the cost advantages of automated production are beginning to offset the labor cost differentials of developing countries, driving manufacturing re-shoring and generating significant substitution effects. On the other hand, countries lacking domestic AI innovation capacity face mounting difficulty in upgrading toward higher-value-added segments of the industrial chain, and risk being locked into the lower tiers of digital labor, such as data annotation and basic operations and maintenance. This cycle of "low innovation input–low productivity–low value distribution" is likely to further marginalize developing countries within the global intelligent division of labor, widening the gap with leading economies.

(II) Worsening Inequalities in Global Resource Consumption and the Distribution of Development Opportunities

The impacts of the intelligence divide have spilled beyond the digital realm, profoundly affecting the allocation of physical resources and the imperatives of environmental justice. AI competition has fundamentally transformed into a costly contest over resources, with the intensive demands it places on electricity, water, and land exacerbating global asymmetries in resource consumption[4].

[1] World Economic Forum. The 'AI divide' between the Global North and the Global South. https://www.weforum.org/stories/2023/01/davos23-ai-divide-global-north-global-south/.

[2] CSIS. From Divide to Delivery: How AI Can Serve the Global South. https://www.csis.org/analysis/divide-delivery-how-ai-can-serve-global-south. UNCTAD. From divides to dialogue, here's how developing countries can catch the AI boom. https://unctad.org/news/divides-dialogue-heres-how-developing-countries-can-catch-ai-boom.

[3] Center for Global Development. Three Reasons Why AI May Widen Global Inequality. https://www.cgdev.org/blog/three-reasons-why-ai-may-widen-global-inequality. EuroNews. AI race is faster than countries can adapt, threatening greater global inequality, UN report warns. https://www.euronews.com/next/2025/12/02/ai-race-is-faster-than-countries-can-adapt-threatening-greater-global-inequality-un-report.

[4] The 2025 AI Index Report | Stanford HAI, https://hai.stanford.edu/ai-index/2025-ai-index-report.

First, advanced economies are, through their disproportionate energy consumption and occupation of carbon emission space, effectively appropriating the future development rights of less-developed regions. Owing to longstanding structural contradictions in the global energy governance system, developed countries have leveraged their capital and first-mover infrastructure advantages to secure preferential access to large quantities of affordable and stable energy globally[1]. This de facto appropriation of energy quotas means that many already resource-scarce regions, as they pursue their own AI development ambitions, face increasingly severe energy price volatility and electricity supply shortfalls, drawing down the planet's remaining usable energy and low-carbon development headroom[2]. Simultaneously, this asymmetry in resource consumption deepens developmental divergence worldwide. Developing countries bear the substantial environmental costs of energy consumption and carbon emissions while remaining trapped at the lower end of value chains, unable to capture commensurate technological spillovers or economic returns. This pattern of "high consumption, low benefit" further entrenches the North-South development gap.

Second, the ecological costs generated by high-energy consumption are being transferred to vulnerable nations through global industrial chains and environmental system[3]. Many developing countries lack access to clean energy and stable electricity grids, and are therefore unable to offset external impacts through large-scale construction of green data centers or similar infrastructure, leaving them to passively absorb the negative consequences of climate change and environmental degradation. At the same time, late-developing nations possess insufficient capacity for "technological self-rescue": they lack the basic conditions to deploy AI in adapting to and mitigating disaster risks, and are unable to develop and apply intelligent solutions for climate prediction, agricultural flood-and-drought early warning, or dynamic optimization of energy systems. As a result, their ecological carrying capacity is further eroded.

(III) The Deficit of Developing Countries' Voice in Global Technology Governance

In the dimension of global AI governance, the most far-reaching impact of the intelligence divide is the North–South imbalance in norm-setting authority and the power to define development narratives. To begin with, in the ongoing construction of international AI governance frameworks, a large number of developing countries find themselves in a position of "absence" or "proxy representation," with severely limited influence[4]. On one hand, prevailing governance frameworks have not adequately incorporated the specific concerns of developing countries regarding infrastructure deficits,

[1] Unruh, G. C. (2000). Understanding carbon lock-in. Energy policy, 28(12), 817-830.

[2] Fanning, A.L., Hickel, J. Compensation for atmospheric appropriation. Nat Sustain 6, 1077-1086 (2023).

[3] Shanghai Association for AI and Social Development (2025). Global Report on Artificial Intelligence and Social Development. https://hulianhutongshequ.cn/upload/tank/report/2025/202508/1/bddbce1ffa8d45e3bda5d92e98b35128.pdf.

[4] CNBC. AI could affect 40% of jobs and widen inequality between nations, UN warns. https://www.cnbc.com/2025/04/04/ai-could-affect-40percent-of-jobs-widen-inequality-between-nations-un.html.

brain drain, and technological sovereignty[1]. On the other hand, confronted with complex compliance regimes established by major economies, developing countries frequently lack the resources and institutional capacity for localized implementation and compliance translation, undermining their sense of ownership over global governance arrangements and diminishing their motivation for effective implementation.

Second, in the domain of AI and related digital rules, the majority of developing countries are predominantly positioned as passive "rule-takers." On one hand, the principal principles, standards, and compliance regimes governing AI tend to be designed around the industrial structures, risk preferences, and legal traditions of a handful of leading economies; developing countries find it extremely difficult to put forward systematic alternative proposals on technical details and implementation pathways. On the other hand, many developing countries have yet to establish comprehensive domestic AI regulatory frameworks and lack sufficient talent with combined technical and legal expertise. This dual deficit makes it challenging both to articulate clear positions on complex issues such as technical interfaces, security requirements, and liability allocation, and to support domestic enterprises in participating in high-level consultations within international standards organizations and industry consortia, leaving them at risk of marginalization at the level of rule-making itself.

III、Collaborative Governance Pathways for Bridging the Global Intelligence Divid

Faced with unprecedented systemic challenges such as technological monopoly and resource divergence triggered by the global intelligence divide, the international community needs to break through the one-way technical assistance model and guide all countries to jointly build a multi-layered, three-dimensional collaborative governance framework. This framework should take **inclusive infrastructure as its physical base, international public goods as its core supply, an open-source innovation ecosystem as its development engine, practical talent cultivation as its dynamic support, and multilateral collaborative governance as the institutional guarantee**. These five dimensions are organically linked to systematically enhance the substantive participation and rule-making discourse power of Global South countries in AI development, ensuring that the dividends of AI progress transcend geographical and class boundaries, and ultimately realize the common vision of technological empowerment for the sustainable development of all humanity.

[1] Sumaya Nur Adan. The Case for Including the Global South in AI Governance Discussions. https://www.governance.ai/analysis/the-case-for-including-the-global-south-in-ai-governance-conversations.

Abdallah Abdallah. The AI divide: Can the West foster a fair and democratic process for AI governance?. https://advox.globalvoices.org/2025/11/07/the-ai-divide-can-the-west-foster-a-fair-and-democratic-process-for-ai-governance/.

Roxana Radu. The G20 and Global AI Governance. https://static.ie.edu/CGC/G20_Global_AI_Governance.pdf#page=21.07.

(I) Building Open Infrastructure to Promote Inclusive Access to Innovation Resources

In the AI era, building open infrastructure covering innovation resources such as computing power, data, and models is the physical prerequisite for breaking geographical restrictions and achieving inclusive resource supply. Its core construction goal is to ensure that all countries have equal access to key resources and capabilities through technological collaboration and institutional innovation. This is not only a necessary condition for promoting the balanced development of global artificial intelligence, but also an important path for achieving the UN Sustainable Development Goals (SDGs) and building a community with a shared future for mankind.

First, **advocating for and guaranteeing the cross-border flow and sharing of key innovation elements such as chips, data, and models is the top priority for releasing infrastructure potential**. Currently, factors like geopolitics, trade barriers, and intellectual property protection hinder the free flow of these elements. The international community must work together to establish a more open, transparent, and rules-based international collaboration framework under the premise of ensuring national security and data privacy. This includes promoting the diversification and resilience of chip supply chains, advocating for secure and trustworthy mechanisms for cross-border data flows, and encouraging the open sharing and international collaborative development of large AI models.

Second, **for the existing infrastructure resources of all countries, it is necessary to innovate open sharing mechanisms, safeguard fair access, and improve the overall utilization efficiency of innovation resources**. As of now, a large number of built computing centers, high-quality data, and model resources exist worldwide. We should explore the establishment of flexible efficientt, and reciprocal sharing platforms and mechanisms, such as open sharing plans for national scientific research infrastructure, inclusive access schemes for cross-border cloud service platforms, and elastic scheduling and on-demand allocation models for computing resources. Through institutional innovation and technical means such as blockchain-based rights confirmation and intelligent scheduling algorithms, we will ensure that stock resources are open to a broader range of international users, especially scientific research institutions, enterprises, and developers in developing countries. Simultaneously, it is necessary to establish fair and transparent access rules and cost-sharing mechanisms to prevent the formation of new monopolies and inequities, so that global innovation infrastructure truly serves the common progress of all humanity.

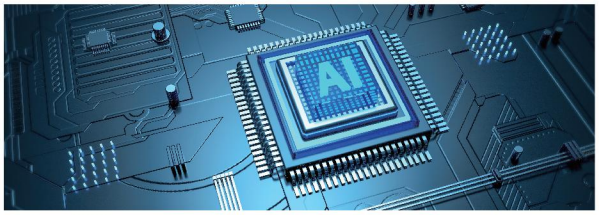
Finally, **technologically advanced countries should actively assume international responsibilities by exporting experience, technology, and capabilities to help developing countries build localized infrastructure**. Inclusive sharing is not just a one-way opening of resources, but more importantly, the co-construction of innovation capabilities. Developed countries should help the Global South countries enhance its capabilities in infrastructure construction, operation and maintenance management, security guarantee, and application development through technical assistance, joint R&D, talent training, and knowledge transfer. For example, jointly building data centers and computing power platforms that meet local needs, providing technical training, and supporting the growth of local AI R&D teams. We will help the Global South countries establish an endogenous and sustainable support system for scientific and technological development, enabling them to not only access the global network, but also participate in the construction of the future global computing power network and truly integrate into the global innovation ecosystem.

(II) Creating International Public Goods to Stimulate Multilateral Innovation Vitality

International public goods refer to global resources or services jointly supplied by multilateral subjects, characterized by non-excludability and non-rivalry in consumption, such as open technical standards, shared datasets, and AI model libraries. The core of creating a matrix of international public goods lies in transforming frontier AI technology from private goods into global public goods through institutionalized sharing mechanisms, significantly reducing the cost for developing countries to access high-threshold technical achievements and providing sustainable inclusive momentum for bridging the global intelligence divide.

Actively respond to the UN Open Science Initiative and deepen coordination in scientific and technological strategic cooperation. Countries should align closely with open science cooperation initiatives and practices under regional multilateral mechanisms. Through government leadership and multi-stakeholder participation, the United Nations can form a regular institutional collaboration framework and build a dense global network for scientific research collaboration. By clarifying the roles and comparative advantages of each country, the United Nations will guide nations to jointly develop open science platforms for transnational research collaboration, fostering a differentiated and complementary new pattern of international scientific and technological progress. All countries together should promote the efficient flow and democratic distribution of core AI elements including computing power, data and models across the globe, and accelerate the global transformation of the open science research paradigm.

Advance the UN "AI for Good" (AI4G) global initiative and jointly develop high-quality international public goods. All countries should center on the 17 UN Sustainable Development Goals, give full play to the United Nations as the main channel in global AI governance, and jointly formulate an international standard system covering the entire industrial chain of artificial intelligence through consultation. Joint efforts should be made to build AI application case libraries and toolkits targeted at addressing global challenges, and to promote the mutual recognition of technical standards in key fields across borders. On this basis, guided by the principle of extensive consultation, joint contribution, shared benefits and common development, the international community should work together to establish a system of international public goods oriented toward sustainable development. For instance, GeoGPT (a geoscience domain-specific model) and OneAstronomy (an astronomy domain-specific model), developed by Zhejiang Lab to tackle common challenges facing the international community, won the **Outstanding Innovation Practice Case Award** at the UN "AI for Good" Global Summit in July 2025. As open and shared international public goods, these two achievements are now accessible to users in 135 countries around the world, serving more than 40,000 researchers in related fields, and providing a replicable and inclusive model for global scientific research collaboration.



(III) Fostering an Open-Source Ecosystem to Lower Technical R&D Thresholds

Fostering an open innovation AI open-source ecosystem is the acceleration engine and sustainable power source for bridging the global intelligence divide. The large-scale development of an open-source ecosystem can not only accelerate technology diffusion and reduce R&D costs, but also empower global developer groups to shift from technology users to innovation contributors through an innovation mechanism of **extensive consultation, joint contribution, shared benefits and common development**. This transforms the governance of the intelligence divide from resource transfusion to capacity building, and ultimately forms a sustainable cycle for technological inclusion.

A networked and inclusive global open-source community collaboration platform should be built to break down geographical and resource barriers, enabling developers in developing countries to deeply integrate into the global AI innovation chain. Establishing open-source communities with multilateral participation, equality and inclusiveness is an effective practice to facilitate convenient cooperation among global developers. The zero2x open-source platform developed by Zhejiang Lab integrates a “Scientist Workbench” and an “Open Sharing Community”, supporting researchers worldwide to conduct integrated online analysis of long-tail data and domain-leading data, and to openly share research processes and outcomes. This not only provides abundant innovation resources for researchers but also delivers continuous feedback for the iteration and optimization of their work through community interaction.

Efforts should be made to explore a standardized, low-threshold open-source toolchain system and flexible access models to provide “out-of-the-box” support for developers in developing countries. Given the limited AI innovation resources in developing countries, guidance should be given to the adoption of lightweight, easily deployable open-source toolkits, which can upgrade existing systems and empower business scenario applications through flexible integration. Taking Alibaba Cloud’s ModelScope community as an example, its Model Scope-Sora open-source initiative focuses on multimodal large models and provides a one-stop toolchain covering data processing, datasets, foundation models, and training/inference. Simultaneously, through open services such as Open APIs, they practice the “AI Infrastructure as Code” concept, enabling developers to automate the integration and management of AI resources, build applications, CI/CD pipelines and agent systems with low barriers, and significantly lower the threshold for innovation.

(IV) Strengthening Local Capacity Building to Narrow the Global AI Talent Gap

In efforts to bridge the global AI divide, talent constitutes the central variable. Compared with one-way technology transfer, building sustainable talent development systems is more effective in enabling less developed regions to accumulate technological capabilities locally and achieve endogenous growth.

It is essential to uphold a practice-oriented approach and foster talent development models that integrate industry, academia, and research. Given the highly engineering-intensive and application-dependent nature of AI technologies, a key pathway for narrowing the AI talent gap lies in breaking down the divide between theoretical education and engineering practice. This requires promoting targeted training programs anchored in major real-world tasks and improving talent quality through participation in authentic scientific research and industrial application environments. For example, Zhejiang Lab's "Seed Class" conducts intensive training around large-model development and intelligent computing tasks, enabling participants to strengthen capabilities across the full pipeline of data processing, model training, system deployment, and application validation. NVIDIA's Deep Learning Institute enhances AI engineering capabilities among developers worldwide by providing access to real computing environments and project-based curricula. Microsoft's AI Skills Initiative similarly delivers systematic training on a global scale and reinforces practical competencies through enterprise-based case learning. Training models built around real tasks help shorten the cycle between knowledge acquisition and technology application, while enhancing capabilities in systems integration and application-oriented innovation.

It is also necessary to strengthen "partner empowerment" mechanisms and cultivate local interdisciplinary talent that can be retained and effectively utilized. A critical step in narrowing the talent gap is to support less developed regions in establishing long-term, self-sustaining talent cultivation systems, thereby allowing local innovation capacity to take root and grow. Huawei's "Seeds for the Future" program, for instance, targets outstanding university students worldwide and supports higher education institutions in multiple countries in strengthening information technology and AI curricula through advanced technical training, cross-cultural exchange, and "tech for good" innovation competitions. Zhejiang Lab has also established a number of scientist workshops to bring together global research communities for the joint development of domain-specific models, scientific AI agents, and general-purpose R&D tools, thereby helping researchers reduce costs and accelerate scientific discovery. This "teaching people how to fish" approach not only helps cultivate local talent with professional expertise, but also strengthens the capacity of local institutions to build autonomous technological systems.

(V) Improving Multilateral Coordination Mechanisms to Promote the Equitable Sharing of AI Dividends

Building an inclusive and equitable global governance system is not only a security baseline for technological development, but also a critical institutional safeguard for ensuring the fair distribution of AI dividends and narrowing the global AI divide. The international community should firmly support the establishment of an open, equal, and inclusive governance framework under the auspices of the United Nations, and promote the evolution of AI governance toward a more just and balanced order.

Multilateral cooperation should be advanced to support a development-oriented global governance agenda. Within the framework of relevant UN mechanisms and instruments such as the Global Digital Compact, the international community should work toward more balanced institutional arrangements on key issues, including capacity building, data governance, and the participation of developing countries. On the one hand, international organizations should be leveraged to build cross-institutional cooperation networks that facilitate the sharing of technological resources and research capabilities. For example, Zhejiang Lab has worked with UNESCO, the ITU, and other partners to launch initiatives such as the "AI for Science Decade" and "AI for Good (AI4G)," soliciting major scientific questions globally while providing validation platforms and technical support. Through the opening of research infrastructure resources, such efforts also create opportunities for research teams from different countries to participate in frontier scientific work. On the other hand, cross-border academic conferences and case-sharing platforms should be strengthened to summarize practical experience, enhance policy communication, and gradually build a development-oriented governance consensus, thereby providing a multilateral dialogue platform for the application of AI in the public sector.

Rule coordination should also be improved to enhance the inclusiveness and operational feasibility of the governance system. Building a safe, transparent, and responsible AI regulatory framework requires taking into account the realities of countries at different stages of development and formulating technical guidelines that are mutually recognizable and practically implementable[1]. First, efforts should be made to advance interoperability and compatibility in key technical standards, lower barriers to international participation, and promote resource sharing and cross-border collaboration. Second, compliant pathways for cross-border data flows should be explored in order to develop replicable data governance models and provide an institutional basis for transnational scientific and industrial cooperation. In addition, mutual trust mechanisms should be strengthened through such measures as third-party assessment, transparency reporting, and expert participation. This would facilitate the compliant sharing of open-source models and scientific research tools, while deepening the international community's common understanding of technological safety and the boundaries of responsibility.

[1] ITU. The Annual AI Governance Report 2025: Steering the Future of AI. https://www.itu.int/epublications/en/publication/the-annual-ai-governance-report-2025-steering-the-future-of-ai/en.