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Contribution by OSET

to the CSTD 2024-2025 priority theme on "Diversifying economies in a world of accelerated digitalization"

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Responses of the Office of the UNSG's Envoy on Technology regarding Theme 1:

"Diversifying economies in a world of accelerated digitalization"

Commission on Science and Technology for Development Questionnaire – 29th session

The Office of the UNSG's Envoy on Technology (OSET) is engaged in three projects which have harnessed multistakeholder consultations, alongside desk research, to explore how public policy and international cooperation can further the objectives articulated in the Secretary General's "Roadmap for Digital Cooperation". Our inputs to the CSTD questionnaire are informed by these projects – the Digital Public Infrastructure Safeguards Initiative, the Open Source for Good Conference, and the High-Level Advisory Body on Artificial Intelligence, respectively.

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1. ***What are the specific challenges developing countries face to develop or adapt frontier technologies and AI?***

The High-Level Advisory Body on Artificial Intelligence (AIAB), to which OSET acted as a secretariat, explored in detail the many challenges, and opportunities, faced by developing countries in the adoption, design, development, and deployment of AI. Several of these challenges are already well-known, as they stem from the fundamental basis of all digitalization: stable internet connectivity.

On this first point, the AIAB noted with concern that a third of the world's population remains unconnected from the internet, with a higher proportion of citizens in LDCs never or rarely using the internet. The steep costs of connectivity relative to local income and reliable electricity – both elements required to make full use of or develop AI –also remain obstacles in certain middle-income countries and many LDCs. In this regard the AIAB concluded that "*Critical investments will be needed in basic infrastructure such as broadband and electricity, without which the ability to participate in the development and use of AI will be severely limited.*"

A compounding factor is related to the availability of skills or digital talent in developing countries. While many countries have digital literacy initiatives to improve the digital skill set of the population, the specialized capacities required for designing and training AI are in short supply worldwide, much more sharply so in developing countries. The AIAB noted: "*Even outside the Global South, taking advantage of AI will require efforts to develop local AI ecosystems, the ability to train local models on local data, as well as fine-tuning models developed elsewhere to suit local circumstances and purposes.*"

Beyond knowing how to make AI, the basic knowledge for most citizens to use AI productively is also lagging and could lead to unforeseen ramifications.

The dearth of data in many developing countries and LDCs is slowing the establishment of locally trained and relevant AI solutions outside the Global North. To train large language models (LLMs), a large amount of data is required; but collecting data in many languages, and which accurately reflects local customs, beliefs, and conditions, is a multifaceted and complex endeavour. The result thus far is that most AI can serve consumers in the Global North, to greater or lesser satisfaction, on some key tasks. In the interim, developing countries are allowing for the large AI players to 'borrow'

their data (either with consent or without) to train LLMs, from which they hope to learn further down the line.

A related problem is that of missing data and the ways it can lead to bias. When the AI solution is unable to answer a basic question in a manner relevant to the context of a developing country (ie. Tell me a children's story. Does God exist?), the application is evidently less useful and impactful for development. The AIAB notes: "*Failure to reflect the world's linguistic and cultural diversity has been linked to bias in AI systems but may also be a missed opportunity for those communities to access AI's benefits.*" The bias issue is particularly worrisome for vulnerable or marginalized communities and for minorities, for whom the digital divide may already be a problem, and which AI may further exacerbate.

The data question has additional ramifications which could be explored in the context of inclusive development. For example, in the absence of good data governance frameworks in certain countries, leveraging data for AI could lead to violations of rights, such as privacy, or worse, to surveillance. The AIAB in its Interim Report reiterated the call for human rights to be at the canter of all forms of AI development, deployment and use.

These concerns speak to the issue of establishing trust in the digital economy through robust public policies – such as data governance, consumer protection, or affordability policies. Some developing countries are far advanced in their public policy frameworks for the digital economy, while others have not yet approved the legislation and tools necessary to incentivize consumers and businesses alike to invest in the digital economy, which in turn could positively impact economic diversification.

An additional question – that of access to compute – was raised by the AIAB as a critical ingredient of AI deployment:

"*Compute is one of the biggest barriers to entry in the field of AI. Of the top 100 high-performance computing (HPC) clusters in the world capable of training large AI models, not one is hosted in a developing country.*[1] *It is unrealistic to promise access to compute that even the wealthiest countries and companies struggle to acquire*."

Compute is thus added to the list of costly investments which developing countries must consider making in the adoption of AI for economic as well as social development. Though the AIAB discouraged the notion of developing countries acquiring compute power, their ideas on a possible shortcut to enhance access to compute are noted in our responses to Question 6.

OSET has explored a final component of enabling digital ecosystems through the Digital Public Infrastructure Safeguards Initiative (DPISI) – how such 'digital infrastructures' contribute to an enabling environment in which innovation, industrialization, and business development can flourish. The Secretary General's Policy Brief "A Global Digital Compact – and Open, Free and Secure Digital Future for all" noted: "*These public goods harness huge amounts of data that, if safely governed and effectively used, can help countries to accelerate their development and advance the achievement of the 2030 Agenda for Sustainable Development. To enable schools, medical facilities, businesses and cultural institutions to pool resources and draw upon public data, digital public infrastructure must be open, inclusive, secure and interoperable"*.

Since that time policy research into DPIs, including digital identity, digital payments, or data exchange systems, have confirmed their utility for unlocking the benefits of digital for citizens, public authorities, and businesses. Some of the most innovative DPIs have sprung up in developing

[1]Proxy indicator only since most HPC clusters do not have GPUs and are of limited use for advanced AI

countries over the past decade. On the other hand, most developing countries and LDCs do not yet have a 'stack' which they can speak of. And questions around human rights, privacy and surveillance underscore the importance of developing 'safeguards' and putting them into place around DPIs, from the start, to extract greatest benefit from them and avoid rights violations.

3. Can you provide examples of inclusive policies for innovation and economic diversification specifically tailored to diffusion of digital technologies and AI?

The "Leveraging DPI for Safe and Inclusive Societies" initiative by the Office of the United Nations Secretary-General's Envoy on Technology and the United Nations Development Programme is a response to the urgent need for integrating Digital Public Infrastructure (DPI) in a manner that promotes safety, inclusivity, and strength in societal structures. This initiative is driven by the recognition that while DPI presents significant opportunities for societal transformation, it also poses risks such as exacerbating inequalities and compromising public welfare if not carefully implemented.

The expected outcomes of this initiative in terms of policies include the development of a pragmatic framework that countries can adopt to ensure DPI implementations are inclusive and equitable. This framework is expected to guide the implementation of DPI in a way that avoids potential pitfalls by setting forth clear safeguard principles and governance structures. It also aims to establish a set of global standards and practices that can serve as a benchmark for assessing and guiding DPI deployments worldwide.

The principles developed in the report serve as the foundation for these policy frameworks. They include ensuring DPI does no harm, does not discriminate, and does not exclude any individuals or groups. These principles are aimed at reinforcing transparency and accountability, guarding by the rule of law, promoting autonomy and agency, fostering community engagement, and ensuring effective remedy and redress. By adhering to these principles, the initiative aims to create DPI systems that are not only technologically advanced but also uphold the rights and dignities of all individuals, particularly the most vulnerable.

The final report detailing the framework for the development of inclusive and safe Digital Public Infrastructure (DPI) is anticipated to be released during the Summit of the Future in September 2024. This culmination of extensive research, multi-stakeholder feedback, and international collaboration is expected to provide comprehensive guidelines and strategic insights that will shape the future of digital infrastructure across the globe.

4. Do you have examples policy instruments to favour the diffusion of frontier technologies in the economy targeting specific sectors?

6. How can international cooperation support the uptake of new technologies and the development of technological capabilities and ensure that industrial policies will benefit all and do not worsen inequality?

AT the Office of the United Nations Secretary-General's Envoy on Technology, numerous initiatives are actively being investigated to enhance international collaboration on the adoption of AI and digital technologies, ensuring equitable access for all. As part of these efforts, we have collaborated with the International Labour Organization on a joint study aimed at enriching our understanding of AI's implications for the workforce. This study also serves as a foundation for creating a comprehensive capacity development roadmap designed to benefit communities globally. The study findings underscore the urgency of navigating the complexities introduced by AI, particularly concerning economic and social inequality. It seeks to guide international and national policy

towards a more equitable technological future, highlighting the disparate impacts of AI across different regions and proposing collaborative measures to mitigate these challenges.

Some strategic initiatives recommended for strengthening international cooperation and building technological capabilities to ensure inclusive benefits from AI:

- Global Knowledge Sharing: Establish a worldwide network for the exchange of AI research and innovations to bridge the gap between developed and developing countries, ensuring equitable access to new technologies.
- Unified Methodology for Skills Assessment: Develop a standardized global approach to assess the impact of AI on skills and occupations, facilitating responsive educational and vocational training programs.
- Joint Training Initiatives and Capacity Building: Promote global and interregional training programs that leverage international expertise and resources to enhance AI education and training worldwide.
- Research and Development Collaborations: Encourage collaborative R&D projects across nations to pool resources, share risks, and enhance the scope of AI innovations.
- Equitable Resource Allocation: Work towards fair distribution of AI resources and infrastructures, ensuring that all nations have access to the opportunities presented by AI technologies.

The Office of the Tech Envoy is actively preparing several initiatives to enable the development of AI capabilities globally, aligned with the recommendations from the High-Level Advisory Board (HLAB). These initiatives are designed to foster a networked approach to capacity development, crucial for addressing the current disparities in AI readiness and ensuring equitable benefits from AI advancements:

- Networked Approach to Capacity Development: Building on the HLAB's recommendation, the Office is working to enhance global cooperation through a networked approach that connects diverse stakeholders across nations. This initiative aims to streamline efforts and share best practices in AI policy and implementation.
- Data for AI Strategy: The development of a comprehensive 'Data for AI' strategy aims to ensure that countries have the foundational data necessary to train and deploy AI systems effectively. This strategy focuses on making high-quality and diverse datasets accessible, fostering innovation and supporting the development of AI applications that can address local and global challenges.
- Shared Vision of Digital Commons: The Office is advocating for a shared vision of digital commons that would provide open access to digital resources, tools, and infrastructure. This initiative supports the democratization of AI development tools and frameworks, enabling a broader range of countries and communities to participate in and benefit from the AI economy.
- Global Roadmap for AI Capability Building: A global roadmap is being developed to address the essential pillars of AI capability building computing power, data availability, skill development, and access to AI models. This roadmap will guide international efforts to provide the necessary resources and training to foster AI capabilities worldwide, aiming to mitigate the risk of widening the digital divide.