

Financing Policy Brief Series – Recommendations for FfD4

Financing for Science, Technology and Innovation (STI) in Support of the SDGs
Africa-Europe Science and Innovation Collaboration Platform (AERAP)¹

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1. Introduction: Addressing the Financing Gaps for STI

Financing for Science, Technology, and Innovation (STI) is critical to achieving the Sustainable Development Goals (SDGs), yet there remains a substantial gap in funding, particularly for developing countries. This underinvestment hampers efforts to harness STI's full potential for sustainable development, leaving many nations and marginalized communities without the resources needed to address pressing challenges like health disparities, environmental degradation, and economic inequality as well as industrialization, necessary for sustainable development. To close this gap, a comprehensive approach is needed, combining innovative financing mechanisms with equitable policy strategies to support local and global development goals.

Current funding structures often fail to align with the long-term objectives of sustainable development, focusing instead on short-term projects with limited impact on systemic change. For STI to be a powerful driver of the SDGs, new models must integrate flexible and adaptive funding mechanisms, empowering countries to direct resources toward their unique development needs while maintaining alignment with international frameworks. Addressing these financial gaps requires more than increased investment; it calls for strategic allocation that prioritizes inclusivity, gender equality, sustainability and competitiveness. Manufacturing remains underdeveloped in many developing countries, requiring modernization to advance up the value chain.

¹ The policy brief was based on consultations and inputs, in particular from the DESA/ECA [Workshop on Building Capacity and Exploring Resources for implementing STI4SDGs Roadmaps](#), Addis Ababa, Oct. 8-9, 2024. It was drafted by Africa-Europe Science and Innovation Collaboration Platform (AERAP) and UNESCO, with substantive inputs from WIPO, ITU, OECD, EC/JRC, ECA, Global Alliance of Universities on Climate, Research & Information System for Developing Countries (RIS) India. Prof. Motoko Kotani and Dr. Xavier Estico, UN SG's10-Member Group, provided helpful comments. The UN IATT Working Group on STI4SDGs Roadmaps is facilitated by DESA/DSDG, UN IATT's Secretariat.

Manufacturing generates more jobs than the service sector and plays a crucial role in absorbing unemployment, a significant challenge for developing countries with large numbers of young people entering the labor market.

2. International Funding Mechanisms and Strategic Approaches

International financing mechanisms must adopt more diversified strategies to address the funding needs for STI. Drawing inspiration from climate finance, models such as carbon markets, adaptation funds, and impact bonds can be adapted to support STI projects. These mechanisms have successfully mobilised resources for sustainable initiatives and could be applied to drive investments in technology transfer, capacity building, and sustainable innovations in developing countries.

Official Development Assistance is an important source of funding to be mobilized. Estimates from the OECD show that only around 5% of total ODA is dedicated to financing activities in science, technology and innovation. Linking ODA agenda setting to STI ministries and national development agendas could generate synergies and greater impacts on the SDGs.

Establishing a global "STI for SDG Fund" could provide a dedicated platform for financing the STI data portal (e.g. online platform), global advocacy (e.g. STI Forum), capacity building, STI roadmaps and mission-driven initiatives, deployment of key technologies, and financing projects that tackle cross-sectoral challenges such as health, food and agriculture, energy, and education. It would facilitate blended finance options, combining public, private, and philanthropic contributions to reduce the risk for private investors and expand capital access for low-income nations. Its structure could include flexible financing terms that allow countries to respond to changing circumstances, such as economic crises or rapid technological advancements. This fund could be aligned with the Joint SDG Fund and other Global UN Funds for Sustainable Development.

Innovative approaches, such as market-linked instruments (e.g., emission credits, social impact bonds), can further incentivize private sector participation. Financing initiatives like the Digital Infrastructure Investment Initiative, Giga, debt-for-STI or education swaps, and Intellectual Property (IP) valuation should be further explored. For example, Digital Infrastructure Investment Initiative brings together the development

finance community with the private sector, civil society, and governments to enhance digital infrastructure financing. Giga, a joint initiative by ITU and UNICEF, aims to connect every school to the internet and is exploring innovative mechanisms, such as connectivity credits, to incentivize school connectivity. These initiatives can generate funding by linking investments to performance outcomes, ensuring projects deliver measurable social and environmental benefits. International financial institutions can play a pivotal role by offering concessional loans and grants that reduce investment barriers for high-impact STI projects, especially in underfunded areas such as climate adaptation, health innovation, and digital transformation.

3. National STI Investment Plans and Policy Instruments

At the national level, creating integrated STI investment plans as a part of STI4SDGs roadmaps that align with development objectives is key to achieving sustainable outcomes. Governments should prioritize embedding STI across sectors like health, agriculture, education, and infrastructure to leverage technology for improving public services and driving inclusive growth. For example, investments in digital health systems can enhance healthcare delivery in remote areas, while innovations in sustainable agriculture can support food security and resilience to climate impacts.

National policies should also emphasize social inclusion, ensuring that STI investments reach marginalized groups, including women, youth, indigenous populations, and rural communities. Special funding programs can be designed to support projects that address the unique challenges faced by these groups, promoting social equity and reducing disparities. This can be achieved through grants, subsidies, or tax incentives that encourage inclusive participation in STI initiatives, making sure that the benefits of scientific and technological advancements are widely distributed.

To further support the commercialization of innovations and local entrepreneurship, governments can implement risk-sharing mechanisms, such as co-investment funds, that reduce the financial burden on private entities engaged in development-oriented projects. Public-private partnerships (PPPs) can be leveraged to accelerate technology adoption, develop local manufacturing capabilities, and scale solutions that address national development priorities. Additionally, policies that streamline regulatory processes and provide fiscal incentives for STI-focused businesses can stimulate private sector investment in areas with high social impact

The success of national STI investment plans fundamentally relies on the development and effective execution of well-designed policy instruments that serve as concrete implementation mechanisms. Effective implementation of policy instruments requires strong institutional capacities, stakeholder engagement, and adaptive governance structures capable of responding to changing technological landscapes and societal needs. Without these meticulously crafted and executed policy mechanisms, even substantial investments may fail to produce the desired impact on sustainable development, undermining efforts to achieve the SDGs through science, technology, and innovation.

4. Building Capacity for Effective STI Policy Implementation

Building capacity for effective STI policy implementation is fundamental to realizing the potential of STI as a tool for sustainable development. This includes enhancing institutional frameworks, technical expertise, and data infrastructure to support evidence-based policymaking and monitor the progress of STI initiatives. Countries need to invest in data collection systems that allow for the accurate tracking of resources and impact, which is crucial for assessing whether investments are achieving desired outcomes and addressing gaps as they arise.

Strengthening data infrastructure will also enable countries to better integrate STI strategies into national development planning. Data-driven decision-making facilitates policy coherence by aligning STI policies with broader development targets, such as the SDGs. For example, UNESCO's Global Observatory of Science, Technology, and Innovation Policy Instruments (GO-SPIN) platform provides policymakers with comprehensive data on national STI policies, instruments, and indicators from around the world. By utilising the GO-SPIN platform, countries can benchmark their own policies against global best practices, identify gaps in their STI systems, and develop informed strategies that are tailored to their specific needs.

National STI roadmaps can provide a clear framework for integrating multi-stakeholder cross-sectoral perspectives, incorporating inputs from the private sector, academia, and civil society, as well as international organizations. This collaborative approach ensures that STI policies are comprehensive and reflect the diverse needs of society.

To implement STI roadmaps, education and skills development are essential components of building local capacity. Governments should increase investments in STEM (Science, Technology, Engineering, and Mathematics) education and vocational training to prepare the workforce for the demands of an evolving global economy. Supporting local research institutions and innovation hubs that foster grassroots solutions can also encourage the development of homegrown technologies tailored to local contexts, driving sustainable and inclusive development.

5. Conclusion: Integrating Funding, Policy Instruments, and Capacities for STI-Driven SDG Achievement

To make STI a powerful driver of sustainable development, adopting a comprehensive approach that integrates innovative funding models, effective policy instruments, and capacity-building efforts is essential. Addressing financing gaps involves increasing investment and improving the efficiency, inclusivity, and sustainability of funding allocations. Strategic partnerships with international development banks, philanthropic organizations, and the private sector will create sustainable and long-term funding models for STI initiatives.

Innovative funding mechanisms, such as blended finance and market-based solutions, can help mobilize resources for global cross-sectoral initiatives and high-impact STI projects. At the same time, flexible financing approaches can ensure that investments remain relevant and adaptive to evolving challenges. National governments should embed STI into their development strategies, ensuring that investments are targeted toward sectors with the greatest potential for transformative change. By prioritizing social inclusion, equitable resource allocation, and gender equality, these strategies can help bridge inequalities and promote sustainable development across diverse communities.

Capacity building is central to ensuring the effectiveness of STI policies, and efforts must focus on strengthening institutional frameworks, data infrastructure, and educational systems. This will enable countries to implement STI initiatives successfully, track progress toward the SDGs, and adjust policies based on real-time evidence. Collaborative approaches that involve diverse stakeholders in policymaking can also help align national STI agendas with international development goals, fostering a coordinated global response to shared challenges.

Ultimately, the proposed input to FfD4 highlights the need for a global effort to leverage STI's potential for sustainable development. By addressing financing gaps, diversifying funding instruments, and enhancing local capacities, the UN Elements Paper can advocate for a comprehensive approach that supports the 2030 Agenda and empowers developing countries to use STI as a catalyst for innovation, equity, and sustainability.

Recommendations:

1. **Expand International Funding Mechanisms:** Introduce innovative financing models, such as blended finance and market-linked instruments, to attract diverse funding sources for STI projects.
2. **Align National Investment Strategies with Development Priorities:** Ensure STI investments support inclusive growth across sectors and reach underserved communities.
3. **Strengthen Capacity for Policy Implementation:** Invest in data infrastructure, institutional capacity, and skills development to support evidence-based STI policymaking.
4. **Encourage Public-Private Partnerships:** Leverage partnerships to scale technology adoption, support local entrepreneurship, and drive the commercialisation of innovations.
5. **Promote Policy Coherence:** Harmonize national STI policies with international frameworks to align investments with SDGs and foster global coordination.

These recommendations provide a strategic roadmap for leveraging STI to achieve sustainable development, addressing the urgent need for more effective financing mechanisms, inclusive policies, and stronger local capacities.