

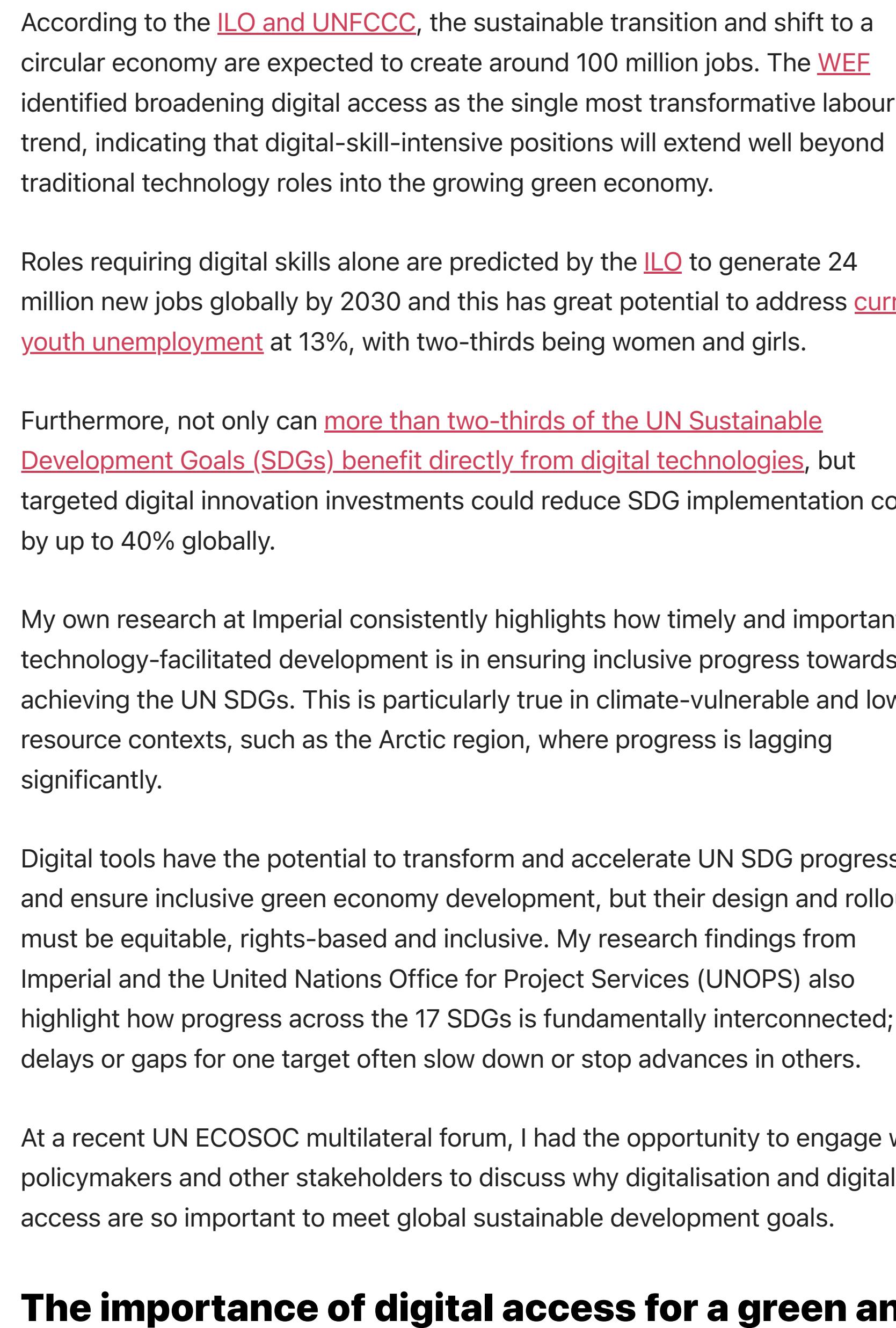
# CLIMATE AND ENVIRONMENT AT IMPERIAL BLOG

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## Digitalisation for smarter, greener and more inclusive sustainable development

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Marta Koch, PhD Researcher, Centre for Environmental Policy, Imperial College London, shares her experience as UN Side Event Chair & UK Delegate at the 2025 United Nations Economic and Social Council Youth Forum.

According to the [ILO and UNFCCC](#), the sustainable transition and shift to a circular economy are expected to create around 100 million jobs. The [WEF](#) identified broadening digital access as the single most transformative labour trend, indicating that digital-skill-intensive positions will extend well beyond traditional technology roles into the growing green economy.

Roles requiring digital skills alone are predicted by the [ILO](#) to generate 24 million new jobs globally by 2030 and this has great potential to address [current youth unemployment](#) at 13%, with two-thirds being women and girls.

Furthermore, not only can [more than two-thirds of the UN Sustainable Development Goals \(SDGs\) benefit directly from digital technologies](#), but targeted digital innovation investments could reduce SDG implementation costs by up to 40% globally.

My own research at Imperial consistently highlights how timely and important technology-facilitated development is in ensuring inclusive progress towards achieving the UN SDGs. This is particularly true in climate-vulnerable and low-resource contexts, such as the Arctic region, where progress is lagging significantly.

Digital tools have the potential to transform and accelerate UN SDG progress and ensure inclusive green economy development, but their design and rollout must be equitable, rights-based and inclusive. My research findings from Imperial and the United Nations Office for Project Services (UNOPS) also highlight how progress across the 17 SDGs is fundamentally interconnected; delays or gaps for one target often slow down or stop advances in others.

At a recent UN ECOSOC multilateral forum, I had the opportunity to engage with policymakers and other stakeholders to discuss why digitalisation and digital access are so important to meet global sustainable development goals.

### The importance of digital access for a green and inclusive transition and achieving the Paris Agreement

Digitalisation and artificial intelligence (AI) are already advancing equitable sustainable development by addressing the digital divide through expanded affordable connectivity, devices and digital literacy. This enables economically and socially marginalised communities, those in climate-vulnerable regions, as well as public and private sector organisations providing goods and services, to access support and information at a much faster pace. Inclusive digital services such as e-government, e-health and mobile banking, as well as assistive technologies, are significantly reducing barriers and accessibility gaps for low-income and vulnerable groups worldwide.

Additionally, disaggregated data and digital platforms are increasingly being used for civic engagement and transparency and accountability improvement, supporting decision-makers' monitoring and responses to the needs of their citizens and partners.

Despite this potential, there is a darker side to digitalisation that must be taken into account in global sustainable development progress. Over [2.6 billion people](#) remain digitally excluded. Nearly [60% of women](#) with internet access across 18 countries have experienced often intersectional technology-facilitated violence, including misinformation and defamation (67%) and hate speech (65%), with [at least 70%](#) of those targeted belonging to national, ethnic, religious or linguistic minority communities. Therefore, digital and AI public sector innovation for sustainable development and climate action must not only be scalable but also remain safe and socially-just, especially when deployed in economically marginalised and climate-vulnerable contexts.

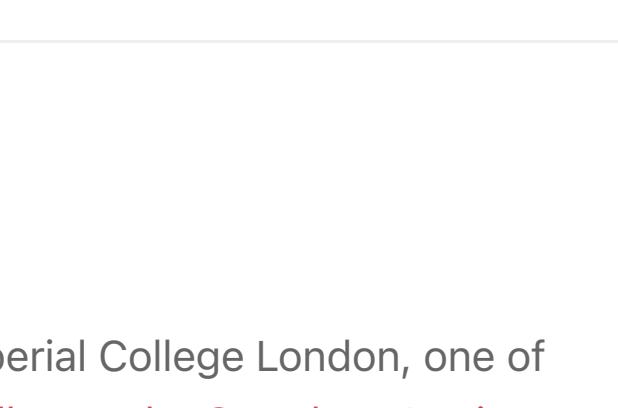
### Facilitating and empowering localised digital climate technology solutions

Given the growing attention from policymakers to this critical issue, I was invited to organise and chair an official side event at the 2025 UN ECOSOC Youth Forum on this topic at the United Nations Headquarters in New York on 16 April 2025.

Our panel event, co-organised with Imperial College London, University College London and the UN Major Group for Children and Youth entitled "Building a Gender-Just, Green and Future-Ready Tomorrow" focused on themes explored in the UN Pact for the Future adopted by the UN General Assembly in 2024. It addressed UN SDGs 5, 8, and 17 on gender equality, decent work and economic growth and partnerships under review at the upcoming July 2025 UN High-Level Political Forum on Sustainable Development.

We brought together academics, representatives from international organisations and NGOs, youth innovators, and leaders from institutions including Imperial College London, the UN Youth Office, and the United Nations Population Fund (UNFPA). We explored the opportunities and challenges at the intersection of digital technologies and gender equality initiatives, including how, when combined, these forces can drive progress towards global sustainable development and advance the United Nations SDGs.

Additionally, I had the opportunity to share my ongoing research at Imperial and UNOPS during the Forum's plenary discussion entitled "Empowering & Engaging Young People: The Evolving Role of Science & Technology" led by ITU, UNCTAD, UNESCO and UN-Habitat and contribute to the technology-session report on "Youth Navigating the Digital World".



During the events, I underscored the potential of cross-sectoral and multilateral investment in digitalisation and public-sector innovation for sustainable development when it is paired with embedded equity and human rights within the latest digital governance frameworks.

For instance, the [UN Global Digital Compact](#), adopted at the Summit of the Future in September 2024, established a human rights-based framework for global digital cooperation. The [OECD Digital Government Policy Framework](#) and [2025 Regulatory Policy Outlook](#) also guide national digital transformations and emphasise the alignment of digital governance with green transition goals, while the [Council of Europe Framework Convention on AI](#) is the world's first binding AI treaty, aiming to ensure AI in development respects human rights, democracy and the rule of law.

The discussions highlighted the critical role of inclusive digital innovation in ensuring that technological advancements reduce, not exacerbate, existing social inequalities.

I learned how grassroots initiatives, particularly those led by young people, gender minorities and marginalised groups, are already driving meaningful change in this space, often in ways that global frameworks and institutions can take lessons from. Young people have an important role to play as the first digitally-fluent generation fully aware of the risks posed by accelerating climate change.

Another key insight that emerged was that fostering collaboration between academia, policy and civil society is essential for creating holistic solutions. Equality must be embedded at every stage of digital development, from design to implementation, to ensure sustainable and equitable outcomes. I was reminded that achieving the UN SDGs requires not only technological progress but also an explicit commitment to tackling the digital divide and ensuring ethical rollout in governance strategies.

Growing locally-led public and private-sector innovations highlighted at the Forum, such as remote sensing and satellite imagery, smart grids, AI early warning systems and GenAI LLM-assisted climate policy modelling, have immense potential to tackle complex sustainable development challenges. My LSGD monitoring and agenda-setting found an average efficiency gain of 73% and accuracy scores of 78%, and high user-friendliness scoring in comparison with manual human analysis.

It is essential to globally leverage these innovations through targeted digital education and training programmes that equip and upskill governance and AI technical staff, interdisciplinary knowledge and skills to successfully govern digital technology-facilitated solutions as part of the growing digital and green economy workforce.



By convening diverse stakeholders—including youth innovators and early-career researchers—at collaborative science-policy events, the Forum and our panel once again demonstrated that inclusive design, data-driven insights and interdisciplinary collaboration can drive smarter, greener and more equitable progress towards sustainable development.

We emphasised that advancing inclusive digital innovation and actively involving socially and diplomatically marginalised communities, such as gender minorities and young people, remains crucial for achieving the UN SDGs.

Looking ahead, my research will focus on exploring the further role of policymaking and capacity-building in climate action and sustainable development. I will also place emphasis on greater support for localised digital solutions, more inclusive co-design processes with affected communities, and stronger integration of digital tools into climate resilience strategies in low-income settings that no region or community is left behind in the digital transformation towards a sustainable future.

Find out more about the 2025 Forum here: <https://ecosoc.un.org/en/what-we-do/ecosoc-youth-forum/about-youth-forum/ecosoc-youth-forum-2025>

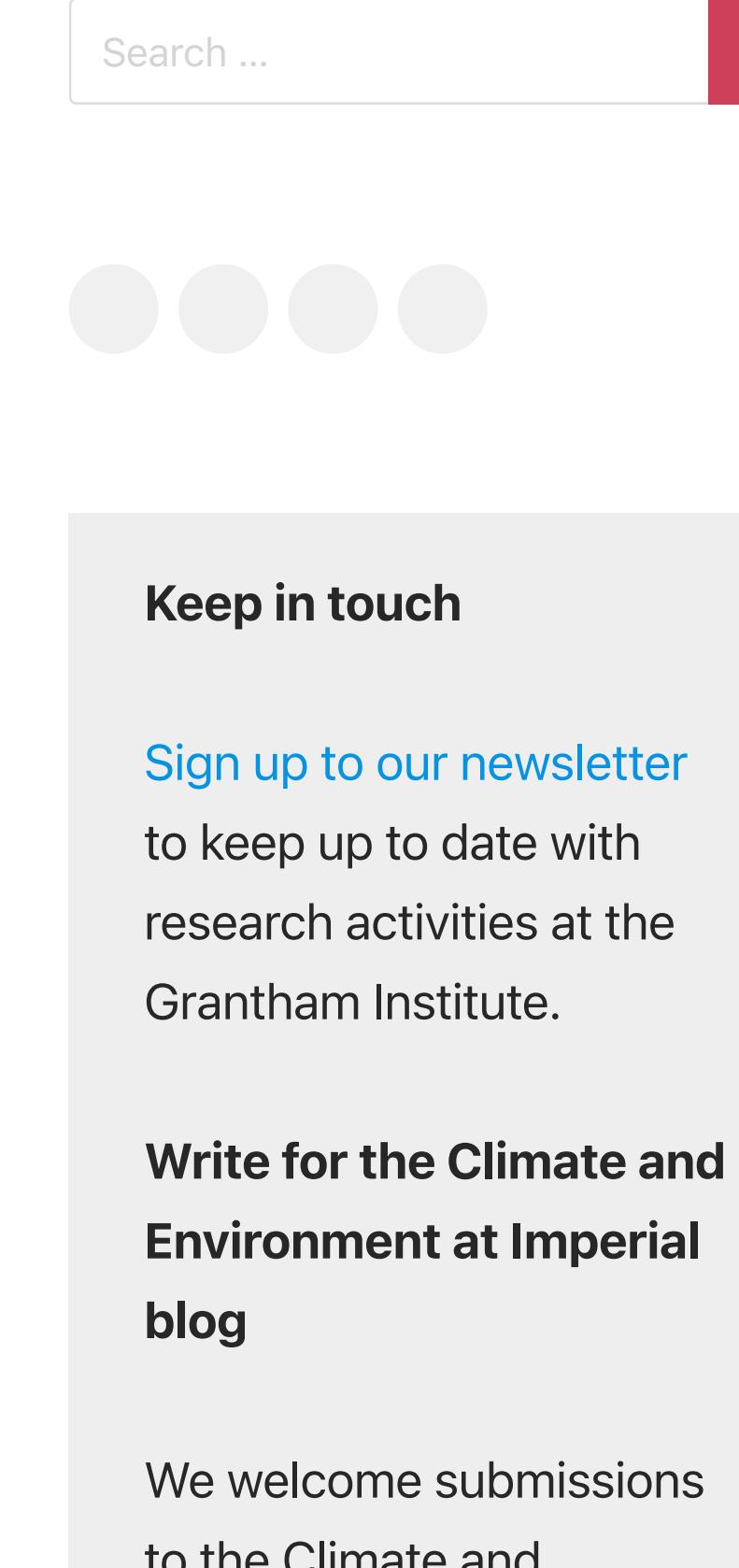
Read my side-event summary and watch the video recording here: <https://ecosoc.un.org/sites/default/files/2025-04/4-may-y-london-un-summ.pdf>

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