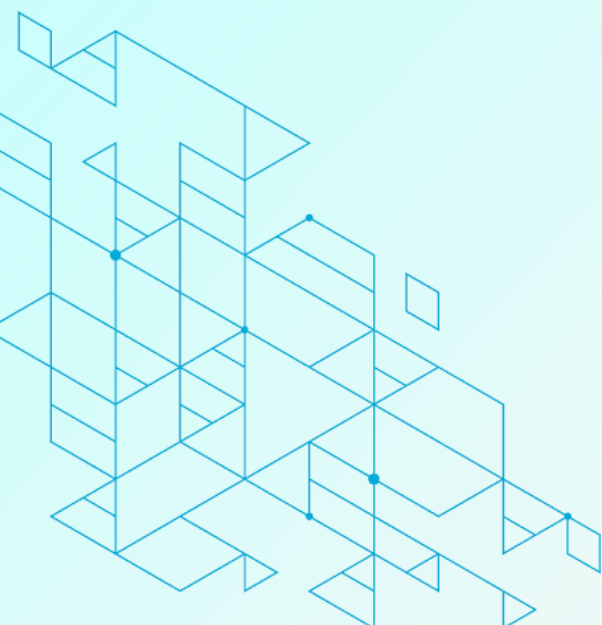




OSPPOs for Good 2024

Driving Global Open Source
Collaboration to Achieve the
Sustainable Development Goals



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United Nations
Office of the Secretary-General's
Envoy on Technology



UNITED NATIONS
OFFICE OF INFORMATION AND
COMMUNICATIONS TECHNOLOGY



OpenForum
Europe



Conference Highlights

OSPOs for Good: Driving Global Open Source Collaboration to Achieve the Sustainable Development Goals

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Table 1 Abbreviations and acronyms

Abbreviation	Meaning
a2i	Aspire to Innovate
AI	artificial intelligence
CEB	Chief Executives Board for Coordination
CEO	chief executive officer
CKAN	comprehensive knowledge archive network
COO	chief operating officer
COVID-19	coronavirus disease 2019
DG CONNECT	Directorate-General for Communications Networks, Content and Technology
DPGs	digital public goods
DPGA	Digital Public Goods Alliance
DPI	digital public infrastructure
ECOSOC	United Nations Economic and Social Council
EU	European Union
FAO	Food and Agriculture Organization
FOSS	free and open source software

Abbreviation	Meaning
GDC	Global Digital Compact
HTTP	hypertext transfer protocol
ICT	information and communications technology
IDB	Inter-American Development Bank
IP	Intellectual property
iSPIRT	Indian Software Product Industry Round Table
IT	information technology
ITU	International Telecommunication Union
MDGs	Millenium Development Goals
NGO	nongovernmental organization
OFE	OpenForum Europe
OSEE	Open Source Ecosystem Enabler
OSI	Open Source Initiative
OSPO	open source program office
RISE	Research Institutes of Sweden AB
SDGs	Sustainable Development Goals
STEM	science, technology, engineering and mathematics (or medicine)
STF	Sovereign Tech Fund
TED	Technology Entertainment and Design conference
UN	United Nations
UN OICT	United Nations Office of Information and Communication Technology
UN OSET	United Nations Office of the Secretary-General's Envoy on Technology
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICC	United Nations International Computing Centre
UNICEF	United Nations Children's Fund
ZenDiS	Centre for Digital Sovereignty (Zentrum für Digitale Souveränität)

Introduction

Since the 1980s, open source software and other forms of open technologies have become more widely available, and they now underpin most of the information and communication technologies (ICT) and digital infrastructure that helps run our modern society every day. Whether we realize it or not, open source powers the Internet, cloud technologies, supercomputers, blockchain, the Internet of Things, artificial intelligence (AI), quantum computing and more.

**Open source is
a force multiplier.**

Open source technology refers not only to licensing and access to the source code of a given technology, but also to its distribution and development. It serves as a medium of innovation across geographical and cultural boundaries. Open source methods help people to openly and collaboratively address

challenges spanning those same boundaries. Experts, volunteers, organizations and end-users can pool their knowledge and co-develop solutions. Simply put, open source is a force multiplier.

Why has the open source movement gained such traction? Because it is inclusive, results-driven and pioneering. Open innovation — the ability to collaborate freely in local, regional and global communities of practice without fear of legal repercussions or intellectual property (IP) restrictions — taps the imaginations of digital creatives. It has led to many successful innovations over the years, including the Android operating system, the Apache HTTP Server, the Linux kernel, and git version control among many others.

A convergence of principles and priorities

In recent years, the world — including the United Nations (UN) — has taken notice of the value of open source for digital transformation, and digital transformation for sustainable development. In this context, open source has reached a place where it can and should become a part of the global agenda for sustainable development.

Why should the global community care about open source for sustainable development and, more narrowly, for the Sustainable Development Goals (SDGs)? By sharing source code freely under a license that permits copying, modification and redistribution, users of open source can help reduce disparities in digital maturity through affordable and equitable access to technologies. By lowering barriers to entry, open source promotes collaboration within global communities and fosters technical learning and the development of place-based knowledge. These values are at the core of the sustainable development agenda promoted by the UN.

Open source technologies are integral to the Global Digital Compact.

In recent years, the United Nations itself has sought to embed digital public goods (DPGs) and principles of open innovation in its activities around global digital cooperation. It

presented these ideas in the Secretary-General's 2019 Road Map for Digital Cooperation and elaborated on them in Resolution 1. The resolution E/RES/2021/30, adopted on 22 July 2021 by the UN Economic and Social Council (ECOSOC), noted the enormous potential for open source technologies to drive efforts towards achieving the SDGs. ECOSOC invited the Secretary-General to “develop specific proposals, based on inputs from interested Member States and other stakeholders, on ways to better leverage open source technologies for sustainable development.”

More recently in September 2024, the UN General Assembly adopted the “Pact for the Future,” an expansive global agreement that aims to foster a safer, more peaceful, and inclusive world. The pact emphasizes digital equity and collaboration, with open source technologies integral to the Global Digital Compact (GDC), a key component of the pact. GDC Member States are

working to implement “safe and secure open source software, open data, open AI models, and open standards,” and to adopt open standards that ensure interoperability, so that people can use DPGs across different platforms. Participants will track these measures throughout the implementation of the GDC over the coming years.

Emergence of OSPOs for Good

Enter the open source program office or OSPO. For years, OSPOs — as centres for excellence and policy coordination around open source — have supported the health of open source communities and helped organizations to nurture and contribute back to them. Having proliferated in business, OSPOs began entering the public sector and addressing the challenges of formalizing and coordinating relationships with open source communities.

Research and practice have matured significantly, with OSPOs collaborating in industry and public sectors. Still, the adoption of OSPOs is an emerging phenomenon, especially so in the use of open source to advance international community efforts towards the SDGs.

The aim of last year’s inaugural edition of the OSPOs for Good conference was to spotlight and recognize the potential of OSPOs as a mechanism for catalysing national, regional and global cooperation as well as developing the necessary skills and competencies. For the United Nations, a focus on OSPOs — within the UN system and with Member States — could



elevate the adoption and use of open source to a policy level within governments and mobilize global cooperation around open source to achieve the SDGs.

The report that followed the 2023 Symposium, on building and designing cooperative digital infrastructure, affirmed a belief that open source was a step towards developing such policy proposals because it considered how organizations could leverage an industry-proven method for economic empowerment and sustainable growth, particularly in underserved communities and low-income countries.

The 2023 report stressed the value of working together through OSPOs to address global concerns, especially in underprivileged communities, among governments, academia, the commercial sector and civil society. Its overall message was clear: OSPOs were catalysts in creating a more inclusive, interconnected, and sustainable digital future.

Where we are now

The 2030 deadline for achieving the SDGs fast approaches. How much of the ambitious global agenda will we have completed by then? Perhaps more importantly, where are we right now? What might the open source community do to help?

According to the Sustainable Development Report of June 2024, the world is

Universal access and digital connectivity for all remain priorities.

The high-level panel for Reboot the Earth included Ms. Amina J. Mohammed, Deputy Secretary-General of the United Nations, Assistant Secretary-General and Chief Information Technology Officer Mr. Bernardo Mariano Jr., and Tech Envoy Mr. Amandeep Singh Gill.

significantly behind in meeting the targets set for 2030, with only 17 per cent on track. Without significant investment and accelerated action, achieving the SDGs by 2030 appears highly unlikely. The report's authors called for enhanced public and private global cooperation and innovative solutions to bridge the gaps in the next five years.

Digital connectivity for all, especially to the global financial system, remains a priority, as does universal access to vital technologies — such as low-cost digital platforms and open education resources — for participating in the digital economy.

In terms of digital technology, another priority is multilateral governance of the risks associated with digital technologies, such as digital surveillance, deep fakes, cyberbullying, and addiction. Including more young people in digital efforts towards the SDGs is a global imperative, because today's decisions and policies will greatly affect their future.

Open source solutions have helped to make steady progress on several of these goals, such as transforming food and land systems and increasing access to high-quality educational and

scientific resources. OSPOs in public and private sector organizations could be significant enablers of progress by sharing knowledge, forming communities around specific problems, coordinating efforts to create solutions, and making these solutions freely available as DPGs and infrastructure that accelerated progress across the goals.

But we must boldly go further. The 2023 conference made clear that the United Nations and the open source community should come together and use open tools and technologies, especially open source software and open data. This spirit of global cooperation, embedded in the idea of OSPOs, was important but insufficient on its own. The open source community must widen its view and bring its best efforts to bear for global collaboration around the SDGs.

OSPOs for Good 2024

The OSPOs for Good 2024 conference convened the United Nations and other actors to discuss adequate governance, funding and preservation of open source

OSPOs can do more in open source communities of practice.

technologies, building on the increasing urgency to accelerate progress on key SDG targets and indicators. While the 2024 conference again showcased the role of OSPOs, it expanded its scope to open source networks as facilitators of global cooperation around open source for good within and between countries.

The argument for such expansion rested on the premise that the community should not work in its own silo but cooperate globally with and through such bodies as the United Nations. Open source ideals of openness, transparency, equality and collaboration aligned with those of the United Nations. OSPOs could do more in global communities of practice that brought to bear the collective efforts of the open source community.

The second edition of the OSPOs for Good symposium took place on the 9th and 10th of July 2024 in New York City, with a richer global presence of diverse open source thinkers, championing OSPOs as a global network for good. Building on the success of last year's event, the 2024 conference was bigger and better in every way. From 70 participants in 2023 to over 500 in 2024, this symposium was a high-level coming out party for open source in the UN system. Its high-level thematic tracks addressed key areas of open source policy and highlighted examples of open source for good around the globe.

Goals of this report

This report captures and distills the main takeaways of each session of the OSPOs for Good 2024 symposium into actionable recommendations. It encapsulates speaker insights and use cases across five thematic tracks, three spotlight panels and a special presentation. It also showcases opportunities for the open source and the sustainable development communities

to cooperate. The report presents the opening plenary speeches in their entirety and summarizes the key points of the remaining sessions.

Day 1

This section begins by showcasing in full the transcripts of the keynote speeches delivered during the Opening Plenary for OSPOs for Good 2024. Thereafter, each section summarizes in turn the sessions that took place on Day 1.

Opening plenary: Embracing open source technology to achieve the SDGs

This section reproduces the opening speeches of the conference hosts and sponsors.

Federal Government of Germany

SPEAKER: Markus Richter, State Secretary at the Federal Ministry of the Interior and Community, and Federal Government Commissioner for Information Technology, Federal Government of Germany

Thank you so much, your Excellencies Mr. Thigo and Mr. Gill, my friend. We had several talks already in Berlin, and it's great to be here now. Thank you for setting this up. Dear Assistant Secretary-General Mariano, thank you so much for putting this into reality so that we could come together. CEO Vestberg, thanks for joining, because this shows that this can be solved — what we are talking about — only when it's a common effort. Therefore, it's really great to see the audience and everyone who's contributing and participating.

Open source is something we've known from the beginning of the 1980s, already some time ago. But I've got a feeling that it's pretty new to us, especially when it comes to government work and implementing open source. Why is it so important? From my point of view, we have to recognize that open source can be a great vehicle for making innovation easier. We share insights, we share experience. We can easily benefit from it but also contribute at the same time.



Open source can be a great vehicle for making innovation easier.

—Markus Richter, State Secretary at the Federal Ministry of the Interior and Community, Federal Government of Germany

Open source can also break down barriers on a geographical level as well as on an institutional one. We are all coming closer together. From my point of view, it's also a question

of participation. Open source was invented, if I may say so, because of a clear value set that we share when it comes to digitization, which includes people, initiatives and researchers, but also the economy and communities. Therefore, we are talking about participation.

From my point of view in the German government, open source is a key issue for modern and sustainable governmental work. We are all facing dependencies. We are in close, ongoing cooperation with, for instance, big tech companies, and that's okay. At the same time, it's okay if we work on alternatives to create more competition. Therefore, the governmental programme of the German government lays out a focus on open source.

Where we are having ongoing cooperations with big tech companies, the contracts should be based on open source principles, and the software coming out of them should be a part of the public. This is easily written down in a governmental programme when it comes into practice.



Now is the time to foster international cooperation, an international open source portfolio.

—Markus Richter, State Secretary at the Federal Ministry of the Interior and Community, Federal Government of Germany

On a practical level, it's important that we cooperate more. There I see many benefits to all of us. It's not only innovation and participation. It's also information technology (IT) security. I know there are ongoing discussions with security agencies but, from my point of view, there are so many peer groups continuously reviewing the codes, making IT incidents very visible in a brief time so that everyone can react. I think we should elaborate on this topic a little more. How can governments contribute to these challenges to IT security through open source?

That's why Germany implemented, for instance, the Centre for Digital Sovereignty (called ZenDiS), something like the OSPO of Germany. We recognize that we all know what open source is good for. But when it comes to public administration, we are not yet seeing the breakthroughs, especially in Germany. Therefore, we needed an institution to make it happen. ZenDiS provides, for instance, one open code platform. It makes visible what kind of solutions are there and provides additional information.

At the same time, ZenDiS is working not only for federal governments but also for the states within Germany. I'm pleased that the minister from the federal state of Schleswig-Holstein in the north of Germany is very committed to open source and making this happen. In the end, if we want to implement it in governmental backbones, then we need people who know what to do on a CEO level.

We also have a Sovereign Tech Fund (STF). I'm pleased that its members are here with us. They focus on more sovereignty to increase the resilience of open source components. It's so important that we work on the quality of these solutions, and provide not just quick solutions, but also solutions easily customized to specific needs, especially those of governments.

Here I am at an important point. We have to talk more about cooperation in Germany. For instance, we have several initiatives within Europe. We have ongoing cooperation with France on concrete IT products. This centre in Germany is working on an open desk solution, which is an open source based workplace environment. We do this not only on a national level, but on a European-wide level with other countries.

From my point of view, now is the time to foster international cooperation, an international open source portfolio. It's great that we already came to platforms like Kubernetes and other ones because we are talking about infrastructure, having the guidelines, the frameworks and the technical capabilities to exchange these solutions easily. We are standing at the beginning.

Therefore, it's great to be here, to see so many people from all areas of the world coming together. I see it in your faces that we want to make it happen. I commit that the German government will do everything to support this and make it a success. It's great to have an orchestrator on a UN level to help us. I'm looking forward to that, and to meeting you and to the discussions in the programme of these two days. Thank you so much.

Republic of Kenya

SPEAKER: Philip Thigo, Special Envoy on Technology for the Republic of Kenya and Executive Director for Africa at the Thunderbird School of Global Management, Arizona State University

Good morning. Thank you so much. Let me thank the German Minister of Interior, the Office of the Secretary General's Envoy on Technology, the UN Office of Information and Communication Technology, OSPO++ and OpenForum Europe for coming together to host this event in this very symbolic building. I saw many of you taking photos, and so I know many of you are here for the first time. That's a good thing. It's also timely.

The world is at a crossroads. We're seeing increasing polarization, increasing withdrawal of people from internationalism or multilateralism. This community has always been an exemplar

of what collaboration and co-creation could be. It's not easy in this era of progress — an era that's not necessarily inclusive — to be very inclusive.

We see the products of this community. Last time I checked, GitHub had 300,000 Kenyan developers and a million Nigerian developers. It's amazing. They are contributing to open products, to the open source community.

“

Open source becomes intrinsic or integral to everything we do.

—Philip Thigo, Special Envoy on Technology for the Republic of Kenya and Executive Director for Africa at the Thunderbird School of Global Management, Arizona State University

In many ways, open source begins to debunk the myth that people from the Global South do not contribute to international cooperation, to building software or collaborative projects. Open source begins to demystify that, because of collaboration.

In the era of the SDGs, where we must end extreme poverty and leave no one behind, open source becomes intrinsic or integral to everything we do. At the tail end of the MDGs [Millennium Development Goals] and in the beginning of SDGs, people like us in my country were struggling with financial inclusion. Only because of open source do we have this amazing innovation called mobile money. Most likely, had somebody else developed it, it would've been monetized and out of reach of people who needed those services. And so we know what open source can do.

From Silicon Savannah to Silicon Valley, we've seen degrees of innovation in the hands of kids who have no university degrees, kids who've had no access to this type of education, build technologies that are groundbreaking. I speak of projects like Ushahidi, used initially to monitor post-election responses in Kenya. It now gives communities agency to amplify their voices as citizens facing autocratic regimes, or farmers accessing information critical to farming, or women participating in business and society. Another project is Open Street Map, which makes visible the previously invisible. In Nairobi, teams engaged members of the Kibera community so that they could add their knowledge to the global community and global knowledge.

I'm a product of this community. I was visible only because open source made it possible. Some of us will continue to be very strong advocates for this community. Such work was possible at that time only because we saw a lot of resources flowing in, whether for research and development, whether for sharing capabilities rather than building them, whether for providing Internet infrastructure or spaces for community so that people could gather. We need to go back to such work. Potentially, this is the community that will do it. It is my singular honour to thank all of you for what you do. It may look small, but — believe me — it's very, very big. Thank you very much.

United Nations Secretary-General's Envoy on Technology

SPEAKER: Amandeep Singh Gill, Secretary-General's Envoy on Technology, United Nations

Good morning, everyone! It's great to be here with you. Thank you very much to the cohosts, Germany and Kenya. Markus, Phil, thank you for being here, encouraging us on this effort. Last year, this [conference] was an experiment. We were in a nice room — not as nice as this one. There were 60 or 70 of us.

This time we've grown tenfold. It reminds me that the main objective of this effort, OSPOs for Good, is building a community, extending it in new directions. Some of those directions are informed by developments in technology — artificial intelligence, for instance — but also developments in the policy space. Hans mentioned the Global Digital Compact. There are the challenges that Phil mentioned in terms of the transition from a different world to a world

that's even more different. So, this is a good time to be forming this family. I was reminded of the Secretary-General's call last year to have a million digital champions for the SDGs.

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This is the nature of this community. ...
It is human-centric digital development.

—Amandeep Singh Gill, Secretary-General's
Envoy on Technology, United Nations

Phil had all the numbers on GitHub. There is open source, which is the foundation, and then there is the work that many of you are leading on digital public goods where the open source work pinches up and comes together around certain applications, certain contexts, if you put a more strategic lens to it. So, it comes together as digital public infrastructure (DPI). Now we have more examples. We have some cautionary tales as well. We are working on those. But there are some good examples.

Going forward, thinking of those million digital champions for the SDGs, what if we could unleash the energy, the creativity of the open source family to build the data and AI commons of the future? Often, we think of data curation as something that happens in big companies. Perhaps now some people are thinking about its happening in DPIs. At the end of the day, if

Opening plenary on embracing open source technology to achieve the SDGs featured Amandeep Singh Gill, Markus Richter, Philip Thigo, Bernardo Mariano Junior and Hans Vestberg.

Phil had all the numbers on GitHub. There is open source, which is the foundation, and then there is the work that many of you are leading on digital public goods where the open source work pinches up and comes together around certain applications, certain contexts, if you put a more strategic lens to it. So, it



we want high quality, diverse and contextually relevant data sets for the SDGs, then it has to be bottom up. It has to be people's participation in development. When I was growing up, and we were reading about developmental challenges in my own country, India — and in the “Global South,” as it's called more widely today — we often heard this slogan, “people's participation.” What does people's participation in the digital space look like? I think we have to take a more strategic lens, build these digital commons together.

It's about building the community, taking it in new directions, giving it more purpose and linking it to these societal challenges, planetary challenges. I won't say more, because we have an exciting programme, exciting panels and side events that have happened organically.



If we want high quality, diverse and contextually relevant data sets for the SDGs, then it has to be bottom up.

—Amandeep Singh Gill, Secretary-General's
Envoy on Technology, United Nations

This is a tribute to you. This is the nature of this community. In my closing minute, I want to underline values. There is openness, of course, but there is also democratization and the future of democracy. It is human-centric digital development. As Phil and Markus mentioned, there are the values around trust, around co-creation and reducing the barriers between governments and citizens. Those values are as important as the aspects of creation and innovation, which we will dive into, over the next two days. Thank you, and thank you to my partner Bernardo Mariano, whom you'll hear from next. Thank you to the incredible team, those who've been working quietly to make this happen. I look forward to the next two days. Thank you.

United Nations Office of Information and Communications Technology

SPEAKER: Bernardo Mariano Joaquim Junior, Chief Information Technology Officer, Assistant Secretary-General, Office of Information and Communications Technology, United Nations

Good morning, and welcome to United Nations headquarters. This room you're sitting in today, it's called the ECOSOC Chamber. It's the central platform for reflection, debate and innovative thinking on sustainable development. That's the motto of this room, and you are right here today. If you look at the ceiling, you'll see that part of it is not finished. It symbolizes that the work of the United Nations will never be finished.

Welcome again, Excellencies State Secretary Markus Richter and the Secretary-General's Envoy Amandeep Gill, Ambassador Philip Thigo, distinguished guests, thought leaders, professionals and enthusiasts of open source. It's my pleasure to welcome you here today at the United Nations and to introduce this very important event. It's an event that we had last year. We are

taking the open source programme office to the next level. In that process, we come with this shared belief that open source should transcend organizational boundaries, that open source should enable technological advancement for everyone.

All the speakers mentioned that open source is a foundation for digital commons and digital public goods. Most important, open source has a key role in accelerating the sustainable development targets. That's our shared goal here today. In that shared goal, I want us to make sure that we strengthen

two things: one is collaboration, that the open source cuts across countries, institutions and organizations, and we need to work together. This is the essence of this platform, this symposium. Second is to promote the global network to create these interoperable standards, collaborative policymaking and innovation at every level.

What are we doing in the United Nations? What did we do from the last meeting to today? We established the open source community of practice in the United Nations across the UN system. We issued a report on the status of open source in the United Nations. This community identified five key strategic areas to eliminate all the obstacles and to promote open source in the United Nations. Later I'll explain why I'm talking about what we've done since the last meeting because I have something to ask of you for the next meeting.

I also want to welcome the winners of Reboot the Earth, which is a partnership between my office, the youth office, the Digital Public Good Alliance and Salesforce, that created five hackathons — four in geographical locations plus one virtual. We have winners whom you will hear from today, who created solutions to reboot the earth through climate change impact, to make sure that we leave a better world for the next generations.

“

Please engage meaningfully. Please be bold.

—Bernardo Mariano Joaquim Junior, Chief Information Technology Officer, Assistant Secretary-General, Office of Information and Communications Technology, United Nations

“

Open source has a key role in accelerating the sustainable development targets.

—Bernardo Mariano Joaquim Junior, Chief Information Technology Officer, Assistant Secretary-General, Office of Information and Communications Technology, United Nations

My call to action during the symposium's two days — or three days, if I count the side event — please engage meaningfully. Please be bold, and please think not just from your own perspective but across, and how you can strengthen this collaboration.

But there's no such a thing as free lunch. Between now and when you come back next year, I would like

you all include, in every conference that you organize, a twofold challenge: first, come up with a solution on how to accelerate SDG targets using open source; and second, include a segment on how to make the digital ecosystem safer and secure. Those are my two asks of you, when we meet next time. With that, thank you very much. I wish you very fruitful discussions and actions that we will all be proud of, when we go back to our everyday life and when we come back next time. Thank you very much.

Verizon Communications Inc.

SPEAKER: Hans Vestberg, Chairman and Chief Executive Officer, Verizon Communications Inc.

Thank you so much, your excellencies, fantastic to be here. Thank you so much for having me. These are important times in our world and society, and digital inclusion is one of the most important enablers of equality around the world. I started working on digital inclusion during the MDGs. Young people might not remember what those were. They were the prelude to the SDGs. I saw the importance of connecting villages and people as part of our society.

I also realized that where you were born, where you came from, and who you were should not matter, for you to be part of our society. Digital inclusion was a means of doing that. It was Goal 18. I fought a long time for Goal 18, digital inclusion of everyone on this planet. As you all know, there are 17 goals. So, I failed on that.

I continued to advance digital inclusion through my work. I worked for Ericsson for many years. Today I work for Verizon, one of the biggest telecom operators in the world. When I saw COVID coming out — and we saw the disparity and inequalities of those not connected — I decided to start working on a multi-platform. The multi-platform was the basis for the EDISON Alliance, started in the beginning of 2022.

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Digital inclusion is one of the most important enablers of equality around the world.

—Hans Vestberg, Chairman and Chief Executive Officer, Verizon Communications Inc.

Some colleagues and I decided to connect one billion people over five years. These one billion people would have not only broadband or connection but also digital education, digital healthcare or financial inclusion like mobile money. Ultimately, infrastructure is just an enabler. Today we have 170 partners all from countries to NGOs

[nongovernmental organizations] and the biggest tech companies in the world. We have more than 350 initiatives. In two and a half years, we achieved 784 million people being connected.

Why do I talk about this? Because I talk about partnership working cross aisles. This is not one company, one country, one NGO that can solve digital inclusion. It has to go crossover. I've

also learned that 2.6 billion people on this earth are still offline. They're not connected. Why? There are three reasons, and they're different with different countries.

Number one is accessibility to technology. Of the 2.6 billion people not connected, roughly 80 per cent have access to some sort of broadband capability that would give them a societal service like digital education, healthcare or financial inclusion. They might not be able to stream Netflix, but that's not what we're talking about here. It's about being part of our society. The second is affordability, affording the service fees and a device. If you do education, you usually need a larger device.

That's one of the largest barriers in many countries in the world. Finally, of course, is the application, the usability, having applications that open up digital education and digital healthcare in the country, and allowing mobile money and mobile accounts.

There you see the challenges we have. It's going from the 90 per cent of all investment infrastructure from private companies and subsidies from government to seeing that cities can afford what is a governmental service. Many times, the application is governments doing and owning the societal services like education and healthcare and allowing financial, transactional mobile phones.



Our plan is to reach one billion, and we hope to do that soon.

—Hans Vestberg,
*Chairman and Chief Executive Officer,
Verizon Communications Inc.*

All that needs to come together in what we're doing. That's where also OSPOs come in with open source making these solutions more efficient and sharing them more quickly. Our job in EDISON Alliance in the third year is sharing what we're doing, working with organizations like the United Nations and OSPOs and understanding what the requirements are and where we can implement open source to be more efficient and reach even more citizens in the world.

The work is not over. Our plan is to reach one billion, and we hope to do that soon. Then we'll think about how we can continue to work with organizations like the United Nations and the Global Digital Compact, which is addressing the same things that we are.

I also want to mention what our company is doing. In technology, our commitment is to do digital education with 10 million students in the United States. We're giving them not only broadband; we're giving them a digital STEM [science, technology, engineering and mathematics] education programme that we provide to teachers and students. We give a device to all students, and we do maintenance to the equipment in the most vulnerable schools in the United States. We have 600 schools that we have been investing more than \$1 billion over the last six, seven years. Eight million students so far have gone through our curriculum. Some of them are already in university.

This is part of our business. That's how I see it. We are building broadband, we're building STEM technologies. We want more students to be educated in STEM technologies, and we want more females in there. Finally, this makes our platform even stronger, as many of these students will probably think about Verizon as a good company to work for or buy the service from. So, you need to integrate what you're doing in the private sector as this part of a strategy. Then it really works because you have full access to it.

Finally, I would like to thank the organizations for doing this, the host nations, and all of you here to continue doing the relentless work we need to do for digital inclusion in this world, because it shouldn't matter who you are, where you come from or where you live. You should have an equal chance. The only way for us to make that chance equal is digital inclusion. That's also how we can reach the 17 SDGs. Thank you.

Thematic track 1: Open source AI

Keynote speaker

Philip Thigo, Special Envoy on Technology for the Republic of Kenya, and Executive Director for Africa at the Thunderbird School of Global Management, Arizona State University

In the opening keynote, Mr. Thigo focused on the dangers of increasing global fragmentation. He underscored the salient role of open source in fostering global technological collaboration so that everyone — not just in geographical and sectoral silos — benefitted from the AI revolution.

Mr. Thigo emphasized trust. To mitigate the potential harms of unbridled AI development, he argued that transparency is crucial across the product life cycle, including algorithms, as machines and technologies become increasingly intertwined

with real-world decision-making. To that end, Mr. Thigo reiterated the importance of global cooperation, collaboration as the bedrock of trust, and that open source itself was at the centre of technological collaboration.

The role of open source for artificial intelligence, Mr. Thigo argued, was also to reach the global margins. Promoting competition, building new markets that cultivated innovation, and creating more jobs further downstream were all potential gains from this transformation. Unlocking these benefits globally relies on using open source to leverage compute, data and talent because AI would always be deeply human: “Artificial intelligence is neither artificial nor intelligent. It still relies on people. To democratize access, we need to invest in people and critical infrastructure.”



Artificial intelligence is neither artificial nor intelligent. It still relies on people.

*—Philip Thigo, Special Envoy on Technology,
Republic of Kenya*

In closing, Mr. Thigo planted the seeds — trust, talent, and cooperation — for a fruitful panel discussion: “Open source can be where we represent all interests,” he said. “This is where we avoid the race to the bottom and prevent the reckless deployment of AI technologies without ethics and safety, because this community is one bound by common values. This is where we can work together to mitigate against unintended consequences. That is the essence of open source AI.”

Panel

- **Mehdi Snene**, Moderator; AI and Digital Transformation Senior Advisor, Office of the Secretary-General’s Envoy on Technology, United Nations
- **Sergio Gago Huerta**, Managing Director of AI and Quantum, Moody’s Analytics
- **Ashley Kramer**, Chief Marketing and Strategy Officer, GitLab BV
- **Sasha Luccioni**, Artificial Intelligence Researcher and Climate Lead, Hugging Face Inc.
- **Stefano Maffulli**, Executive Director, Open Source Initiative
- **Craig Ramlal**, Principal Investigator, Intelligent Systems Laboratory, University of the West Indies

The conference’s first panel weighed the immense potential of open source artificial intelligence against its significant challenges. The panellists explored thought-provoking questions about ensuring algorithmic transparency, fostering collaborative AI initiatives and enabling governments to use AI in bridging divides and tackling global challenges.

Creating a vibrant AI ecosystem everywhere

Moderator Mehdi Snene, AI and Digital Transformation Senior Advisor, UN Office of the Secretary-General’s Envoy on Technology (OSET), opened with a question to Mr. Thigo: “What is missing today to create a flourishing AI ecosystem in the Global South?” Mr. Thigo pointed to significant gaps caused by years of disinvestment in crucial infrastructure such as hardware, computing power, and data clusters.

He emphasized that the lack of core data across essential sectors such as health, education, civil statistics, and agriculture has hindered progress, especially in the education system, which remained crucial for developing the necessary skills and knowledge to drive the AI industry forward.

Shifting to Ashley Kramer, chief marketing and strategy officer at GitLab, Mr. Snene explored the interest in open source AI across sectors. Ms. Kramer distinguished open source AI from traditional software, noting that while open source AI allowed for understanding weights and querying, there

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We need new guardrails and new guidelines regarding what open source AI actually means.

—Ashley Kramer,
Chief Marketing and Strategy Officer, GitLab BV

remains considerable opacity around the training data used for large language models — a critical aspect that demands more attention. She recognized the risks of fully open-sourcing AI but highlighted that the true value lay in understanding the foundational data that drove models under the hood.

Craig Ramlal, principal investigator in the intelligent systems laboratory at the University of the West Indies, reflected on the irony that proprietary AI systems were overtaking open science AI so that academia — especially in the Global South — was struggling to keep up. He too emphasized that access to data, computing power, and talent development was crucial for bridging this gap. “You need access to data, talent, and compute, along with a national AI strategy,” Mr. Ramlal said. “Without these working together, we’ll face an increasing skills gap.”

Mr. Snene then inquired about achieving open computing in the region. Mr. Ramlal suggested that countries with spare compute capacity could more effectively share their underutilized high-performance computing resources to spread the benefits of AI innovation globally. He also called for cross-domain collaboration in AI ethics and stressed that technologists should not drive it on their own.

Advocating for more than open source alone

Sasha Luccioni, artificial intelligence researcher and climate lead at Hugging Face, argued that AI was often developed within cultural and intellectual echo chambers, and so she advocated for no-code solutions that would broaden and diversify AI participation. On climate science, she noted that climate change was an umbrella issue consisting of sub-problems, including water, air, ecosystems and more

— each of which required specific data sources and types to handle. She said, “Integrating data sources into accessible platforms could help solve complex issues like climate change,” which was essential to achieving SDG 13 (Climate Action).



Integrating data sources into accessible platforms could help solve complex issues like climate change.

—Dr. Sasha Luccioni, Artificial Intelligence Researcher and Climate Lead, Hugging Face Inc.

Sergio Gago Huerta, managing director of AI and quantum computing at Moody’s Analytics, examined the role of AI in the financial sector. He asserted that open source alone was insufficient: “It’s about managing weights, orchestration, ensuring data interoperability, and handling access and licensing rights.” He also highlighted the potential of benchmarking open source models like the Llama family to tailor AI for specific applications. “Today, you can put on your laptop a single system that is a hundred per cent open source, giving you an army of software developers,” Mr. Gago said. “If that is not enough to transform an industry fully from the inside-out, then I don’t know what is.”

Stefano Maffulli, executive director of the Open Source Initiative, underscored the need for a deep understanding of the structure of open source AI. He said, “You need data, you need code, the code used for the training and the code used for cleaning the data.”



Governments will play a key role in facilitating permissionless innovation and removing barriers.

—*Stefano Maffulli, Executive Director, Open Source Initiative*

Mr. Maffulli also alluded to the emerging legal challenges and called for a do-no-harm approach before leveraging AI for the SDGs. “Governments will play a key role in facilitating permissionless innovation and removing barriers, especially for smaller developers and regions like the Global South,” he said.

As the panel wrapped up, Mr. Ramlal highlighted the potential of AI for cultural preservation, tying together the panel’s themes of development, openness and practical impact. The panellists collectively emphasized the importance of continued collaboration so that AI served the public good globally.

Spotlight panel: Open source in the Global South

- **Rahul Kulkarni**, Moderator; Volunteer Technologist, Indian Software Product Industry Round Table
- **Mitchell Baker**, Chair, Mozilla Foundation; Executive Chair of the Board, Mozilla Corporation
- **Ben Cervený**, President and Chair, Foundation for Public Code
- **Talla Kebe**, Coordinator, Interdepartmental Task Force on African Affairs, United Nations Office of the Special Adviser on Africa
- **Armando J. Manzueta Peña**, Digital Transformation Director and Director of Information and Communications Technology, Ministry of Economy, Planning and Development, Dominican Republic

This panel highlighted open source innovation in Africa, the Arab region, Asia and the Pacific, Latin America and the Caribbean. Moderator Rahul Kulkarni, a volunteer technologist at the Indian Software Product Industry Round Table (iSPIRT), opened by asking panellists about their work in building digital public infrastructure.

Understanding open source as a culture

Armando J. Manzueta Peña, digital transformation director and director of information and communications technology in the Dominican Republic’s Ministry of Economy, Planning and Development, positioned open source as a culture, a way of working, of developing applications for people and bringing accountability and transparency to the process, especially

for apps related to key government services within and outside the country's administration. In 2020, the administration outsourced roughly 80 per cent of all software applications.

In 2024, because of financial constraints and a sense of pride within teams, it brought most of its development in-house, building 80 per cent of applications. “We have leveraged open source technologies to build what we currently have,” Mr. Manzueta said. “Open source has helped us to break through silos and start aligning our processes.”



Open source has helped us to break through silos and start aligning our processes.

—Armando J. Manzueta Peña, *Digital Transformation Director, Ministry of Economy, Planning and Development, Dominican Republic*

Mitchell Baker, chair of the Mozilla Foundation, described how she started Mozilla to preserve the Internet Navigator and Communicator code base as a digital public good, when Netscape published it under a free license 25 years ago. She built an organization around it so that it would remain free, open and community based with a broad set of contributors.

Mozilla also pioneered quality assurance. Where commercial browsers offered four or five language options, Mozilla Firefox had 11 or 12, thanks to member localization and translation. With only a dozen or so employees, Mozilla was outpacing corporate giants at the time. It quickly became a leader because it put its users first.

Talla Kebe discussed his work as coordinator of the UN Interdepartmental Task Force on African Affairs: “We have a variety of activities, agencies, programmes and funds across the United Nations with various interventions crosscutting the continent,” he said.



Talking about how to leverage digitization and open source, we came up with the African DPI stack blueprint.

—Talla Kebe, *Coordinator, Interdepartmental Task Force on African Affairs, United Nations*

The task force was set up to synchronize such interventions and harmonize communications across the parties. It partnered with the Africa Union, composed of 54 African states, to align their work with national development plans and the work of UN country teams.

They have been discussing how to leverage digitalization and open source through partnerships, so that these countries could build and maintain digital public infrastructure. Together, they came up with the African DPI stack blueprint, to spearhead the digital sovereignty of African countries.

Cultivating communities of practice

Ben Cervený, president and chair of the Foundation for Public Code, highlighted the community of practice responsible for stewardship, including policymaker engagement. He pointed to Denmark's OS2, an informal public collaboration representing 84 per cent of Danish cities: OS2 was co-developing, sharing and maintaining open source solutions in a public process. While not explicitly an effort to make cities sustainable (SDG 11), it showed the power of mission-based open source projects.

On cultivating communities, Ms. Baker of Mozilla closed by saying that people coalesced around specific technical problems or ideas that touched on the human experience and attracted volunteers across disciplines, including marketing and finance.



Open source is a phenomenal training ground for leadership.

—Mitchell Baker, Chair, Mozilla Foundation

Leadership direction had to be clear, motivating, transparent and accountable so that volunteers continued to contribute after working elsewhere all day for a paycheck. Leaders had to articulate not only the goals, architectural plans and stack alignment but also the opportunities for mentoring, training and professional growth. “Open source is a phenomenal training ground for leadership,” Ms. Baker said.

Thematic track 2: Open source at the United Nations

Keynote speaker

Tawfik Jelassi, Assistant Director-General for Communication and Information, United Nations Educational, Scientific and Cultural Organization

Mr. Jelassi described open source as a paradigm shift in sustainable development within the UN system, where “the principle of openness is becoming the norm.” He gave examples of the Bangladeshi innovator who gathered open data to build a predictive model of flooding, and the Senegalese software engineer who developed a low-cost open source tool for education in Dakar. Rural educators in Brazil adopted the tool for their use. Such innovation was resulting not from “top-down decision-making but upstream empowerment.”

Open source bridged digital divides and brought quality education to those who otherwise could not access it. It underscored “the interconnectedness of our world and the huge potential of open



When we embrace openness, we tap into the collective intelligence and creativity of humanity.

—Dr. Tawfik Jelassi, Assistant Director-General for Communication and Information, UNESCO

solutions to address global issues.” According to Mr. Jelassi, “When we embrace openness, we tap into the collective intelligence and creativity of humanity, accelerating progress and fostering peace.” It went beyond open data to cooperation on other solutions. Leveraging open source that was “accessible, affordable and fit for the future” was a prerequisite for digital inclusion and sustainable development.

Mr. Jelassi referred to the work of Secretary-General António Guterres, specifically to the Global Digital Compact, where communities were harnessing open advances to “turbocharge the SDGs and help to close the digital connectivity gap, share data and build digital public goods.” He closed by quoting Kelsey Hightower, formerly of Google: “Open source is about collaborating, not competing.”

Panel

- **Omar Mohsine**, Moderator; Open Source Coordinator, Office of the Secretary-General’s Envoy on Technology, United Nations
- **Sameer Chauhan**, Director, United Nations International Computing Centre
- **Sunita Grote**, Lead, Venture Fund, United Nations Children’s Fund
- **Lucy Harris**, Chief Operating Officer, Digital Public Goods Alliance
- **Vincent Martin**, Director, Office of Innovation, Food and Agriculture Organization of the United Nations
- **Robert Opp**, Chief Digital Officer, United Nations Development Programme

In this panel, five UN entities and the Digital Public Goods Alliance (DPGA) shared their efforts to advance open source solutions across their organizations and the UN system. As moderator, Omar Mohsine of the Office of the Secretary-General’s Envoy on Technology began by describing how they came together at a meeting of the UN Systems Chief Executives Board for Coordination (CEB) in November 2023.

“The open source revolution reached the UN system a while ago,” Mr. Mohsine said. “Last year we created a community of practice of all the agencies passionate about open source, with presence and expertise in open source.”

Committing to digital public goods

This community moved quickly. “We are committed to open digital standards and open data,” said Robert Opp, chief digital officer of United Nations Development Programme (UNDP). As an organization working across 170 country offices and territories, UNDP was managing innovation projects that were part of local circumstances and coming up with new solutions, a good number of which were open source.

Mr. Opp added, “We actively support our partner countries in their digital transformation processes at the national or societal level.” Increasingly, UNDP saw value in taking a systemic approach, leveraging DPI such as digital identity platforms and introducing open source

solutions like iVerify for flagging suspicious content, and the National Carbon Registry for tracking carbon trading data.



We are committed to open digital standards and open data.

—Robert Opp, Chief Digital Officer, United Nations Development Programme

Lucy Harris, COO of DPGA, explained how the push for DPGs emerged from the Secretary-General's *Road Map for Digital Cooperation*. DPGA has been building out an online registry of DPGs available under open licences. The motivation was straightforward: "Public funds should go to creating public goods," she said. "Within the UN system, when people develop new technologies, they should do so publicly, develop them only once and reuse them everywhere across the system." Her team vetted each DPG submitted to the registry for its licence, documentation and relevance to the SDGs.



Public funds should go to creating public goods.

—Lucy Harris, Chief Operating Officer, Digital Public Goods Alliance

Debunking myths and ensuring cybersecurity

Sunita Grote, lead of the venture fund at United Nations Children's Fund (UNICEF), discussed her push for DPGs at the policy level. "How can we create and co-create platforms to implement our policy commitments, democratize innovation and empower talent?" she asked. As an organization, UNICEF saw how the principles and practices of open source aligned with its own goals and values such as transparency, democratization and local leadership.

In her experience, projects and partnerships that didn't put open source at their centre risked creating dependencies not in the interest of the UN system, partner governments or the

populations served. Through the venture fund, UNICEF could channel resources to open source capacity building and problem solving in developing markets, thereby demonstrating a different approach to investing in entrepreneurs and innovation. Its success has debunked such misconceptions as "open source solutions are not as competitive as proprietary ones."



How can we create and co-create platforms to implement our policy commitments, democratize innovation and empower talent?

—Sunita Grote, Lead, Venture Fund, UNICEF

Sameer Chauhan, director of United Nations International Computing Centre (UNICC), described his organization's role as a strategic partner with UN entities. Over the last few years, UNICC has built more open source solutions for its partners, looked for opportunities to reuse open source solutions developed elsewhere in the UN system, and added them to its service options for UN entities. It has also audited open source codebases and made sure that the security of each open source solution was fit for purpose. "We want to make the best of open source available throughout the UN system, internally and externally," Mr. Chauhan said. "What we've built for UN partners and the UN ecosystem, we're curating, scaling up and offering to Member States."

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We want to make the best of open source available throughout the UN system.

—Sameer Chauhan, Director, United Nations International Computing Centre

Transforming systems, one user at a time

Vincent Martin, director of the Office of Innovation at the Food and Agriculture Organization (FAO), discussed how obesity and global food insecurity have been increasing, after decades of improving nutrition and reducing hunger. He said that open source solutions were key to reversing those trends and transforming agrifood systems.

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We're changing mindsets and adopting new paradigms, ultimately changing behaviours.

—Dr. Vincent Martin, Director, Office of Innovation, Food and Agriculture Organization of the United Nations

For example, smallholder farmers often lacked infrastructure and advisory services. With open source, FAO could reach the last mile and deliver those to smallholders. FAO was also setting up a global network of innovation hubs and engaging women and young people in digital agriculture. Mr. Martin pointed to global collaborations like Open Foris, which stewarded open source solutions for collecting data, monitoring forests and managing land resources, and the

Digital Green Foundation, which was helping FAO to test open source solutions for sharing data with farmers. He said it was a good model for having impact at scale. "We're changing mindsets and adopting new paradigms, ultimately changing behaviours," he said.

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Open source is a culture. It's not a technology. It's a way of working.

—Omar Mohsine, Open Source Coordinator, Office of the Secretary-General's Envoy on Technology, United Nations

“Open source is a culture. It’s not a technology. It’s a way of working,” Mr. Mohsine added. “This is the kind of cultural change that must be grassroots, not top down from the big boss.” How UN entities went about adopting the open source way of working was key. Ms. Harris of DPGA said that investing in an OSPO would put open source on the radar, show an organization’s commitment and centralize open source resources. But it could appear as if the organization was relegating open source to an office rather than changing its culture around procuring technology. “Elevating open source to an OSPO is good but no substitute for full-scale cultural change,” Ms. Harris said.

Special presentation: Reboot the Earth

This section presents the opening remarks in their entirety of Amina J. Mohammed who recognized the winners of the Reboot the Earth hackathon, Inodai.

Keynote speaker

Amina J. Mohammed, Deputy Secretary-General of the United Nations

Thank you very much. I am delighted to be here today. The Reboot the Earth hackathon has, since its inception in 2019, showcased the incredible inspiration, passion and creativity of young people. By harnessing the power of technology, they have effectively contributed to addressing some of the greatest challenges we face today.

We are not merely discussing the problems; we are here to celebrate the solutions put forward by the winners of this initiative. It is easy to focus on the challenges, but it is essential to highlight how young people are overcoming these obstacles for the benefit of both people and the planet, particularly in the context of the climate crisis. Reboot the Earth underscores the remarkable creativity and innovation of young individuals united in developing solutions that make a tangible difference.



Inodai team Luann Akaydin, My Heong and Stephanie Nguyen for Reboot the Earth.

It is important to recognize that global youth are not just the leaders of tomorrow; they are providing the solutions of today. Their energy, creativity, and determination are vital in challenging the status quo, developing innovative solutions, and addressing the climate crisis.

We are honored to welcome you to the Open Source Program Office for Good conference, which represents the largest gathering of open source experts at the United Nations. I extend my congratulations once again for the outstanding contributions and achievements of the winning teams. Now, it is our responsibility to drive forward this change.

One of the main lessons from the pandemic was the need for robust cooperation and inclusive technological solutions. Open source software, artificial intelligence and big data can help strengthen our capacity to



Great solutions are within reach.

—Amina J. Mohammed, Deputy Secretary-General of the United Nations

counter environmental threats and improve the management of natural resources. Each of the winning teams this year has provided us with a beacon of hope in the face of existential threats, from building advanced AI-powered platforms for disaster resilience to implementing knowledge-sharing platforms for vulnerable communities, particularly women, and from developing AI-powered solutions for sustainable water management to using weather and agricultural data to optimize water management and decision-making.

Congratulations to all the winners for their innovative and impactful solutions. This journey, I believe, is just beginning. The upcoming Summit of the Future has energized us all with discussions on new technologies, particularly AI. The winning teams will now receive industry-leading mentorship from our partners to amplify the impact of their innovations.

Thanks to all our partners, initiatives like Reboot the Earth can continue to empower, support and inspire young people around the world to make a difference. Let us leave this ceremony with one key takeaway: great solutions are within reach. These solutions can be developed by anyone. Together, we can reboot our earth for future generations. Let us seize this opportunity to create a sustainable, equitable and prosperous world for all. Thank you.

Thematic track 3: Open source and governments

Keynote speaker

Pearse O'Donohue, Director, Future Networks, Directorate-General for Communications Networks, Content and Technology, European Commission

The track opened with a keynote by Pearse O'Donohue, director of Future Networks under the European Commission's Directorate-General for Communications Networks, Content and Technology (DG CONNECT). In his remarks, Mr. O'Donohue highlighted lessons learned from open source policymaking during the development of the European Commission OSPO and its

role in supporting other OSPOs. He engaged with the open source community in drafting the Cyber Resilience Act in Europe. He also highlighted lessons learned on open source software development and reuse from European public administrations.

Mr. O'Donohue described digital commons as open technologies that benefitted from healthy communities, robust governance and support, and that public authorities could more easily adopt and reuse. He advocated for such adoption and usage. In his view, investing in digital commons was a natural extension of the open source paradigm around code development, stewardship and contributions from public administrations.

"We are very happy to be firmly locked into the global efforts to ensure that open source works for governments in a way that is adapted to local needs and cultures" as well as to local economies. "It's on the agenda of many authorities across the world," he said.

Mr. O'Donohue also recognized open source as a natural tool for the SDGs. He said he'd like to see governments, universities and small businesses creating and reusing the digital commons without the risk of abusing licences or suffering from lock-in and with full sovereignty over deploying and adapting it to local needs. "That is a vision we all share," he said.

Panel

- **Sarah Espaldon**, Moderator; Head of Marketing, Open Government Projects, Singapore
- **Aeva Black**, Section Chief, Open Source Security, Cybersecurity and Infrastructure Security Agency
- **Bastien Guerry**, Head of the Free Software Unit, French Inter-Ministerial Directorate for Digital Affairs
- **Markus Richter**, State Secretary, Federal Ministry of the Interior and Community and Federal Government Commissioner for Information Technology, Germany
- **Juliano Seabra**, Manager, Knowledge, Innovation and Communication Sector, Inter-American Development Bank

The panel on open source and government surfaced insights into public-private partnerships, the value of co-development and the need to build bridges for collaboration. Panellists elaborated on collaboration, silo-busting and multistakeholder exchange. "Germany has one of the biggest public sectors worldwide," said Markus Richter from the chief information office of the Federal Chancellery of Germany. "But still it is an island. We have many islands." He viewed open source as a means of bridging those islands.

The panellists largely agreed that the public sector was like an archipelago. They shared their experience in building bridges among them for collaboration, then connecting them with the

islands of the private sector. As an example, Juliano Seabra of the Inter-American Development Bank (IDB) described how the Small Islands Developing States were co-developing code and participating in the

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[Open source is] on the agenda of many authorities across the world.

—Pearse O'Donohue, Director,
Future Networks, DG CONNECT



Markus Richter, State Secretary in the Federal Ministry of the Interior and Community and Federal Government Commissioner for Information Technology, spoke on the opening plenary for OSPOs for Good 2024. “We are obliged to be as inclusive as possible for every citizen,” he said.

community of practice through the IDB Code for Development programme.

Panellists also explored the challenges of collaboration among public and private sector islands. They concluded that governments faced much complexity when participating in open source development, adaptation and usage. They required new business models, new frameworks for reform and a new logic of collaboration.

Making collaboration easier in five areas

Mr. Richter identified five common elements ripe for reform: legal frameworks, public procurement processes, standards and open data, cybersecurity, and capacity building. On legal frameworks, Mr. Richter noted how their rigidity and the requirements they placed on software development presented challenges as well as opportunities for new types of partnerships and collaboration that leveraged the public sector’s strengths in inclusion and capacity-building.

“From a legal point of view, we are obliged to be as inclusive as possible for every citizen,” said Mr. Richter. “From a practical point of

view, when we develop [any] open source application, we promote a code of conduct and good practices in terms of communication and inclusiveness.”

On legal frameworks, Mr. Richter gave the example of the Centre for Digital Sovereignty (ZenDis in German) to show how governments could upend the business model for public sector partnerships with the open source community.

ZenDis created a regulated public sector co-development platform called Open CoDE, a mirrored instance of GitLab, to support public administration’s adoption and use of open source technologies. The model could be highly relevant to other governments looking to adopt and contribute to the digital commons.

On procurement, Bastien Guerry of the Free Software Unit (an OSPO) of the French Government noted how principles of openness and service orientation were valuable in rethinking the outdated logics of public procurement.

In Mr. Guerry's view, it came down to dependencies and lock-in. "Government should have a more proactive role about the pile of dependencies that we rely on every day," he said. "We need the software bill of materials during the build of the project, at the end of the project and after three years."

On standards and open data, panellists largely agreed that public sector authorities viewed open source as a risk, especially where developers had not been transparent in their work. By reinforcing open code development with good open data practices, and sharing what they had developed with peers across borders, champions of open source could steadily earn government trust and minimize replication.



Open source software provides the freedom to study and the freedom to modify.

*—Aeva Black, Section Chief,
Open Source Security, Cybersecurity and
Infrastructure Security Agency*

On cybersecurity, Aeva Black of the Cybersecurity and Infrastructure Security Agency said that open technologies were both enablers and beneficiaries of enhanced cybersecurity practices. When compared to some proprietary technologies, open technologies could be guarantors of security.

"Open source software provides the freedom to study and the freedom to modify," Mx. Black said. They described this openness as a three-sided spectrum, representing the interests of code developers, the organization that arbitrates code development and the code maintainers.

Those three communities collectively developed, reviewed and maintained the code that was a shared dependency, and they constantly negotiated security, adding transparency and visibility to the process. When they found vulnerabilities, they were ready to fix them. "In terms of our policy, that's what makes open source safe," Mx. Black said.



We need to build the entire ecosystem, including vendors that can support the implementation of open source.

*—Juliano Seabra, Manager,
Knowledge, Innovation and Communication
Sector, IDB*

Building capacity across society

On capacity-building, Mr. Seabra of IDB noted the importance of developing people's skills, not just across the islands of public authorities within a country's border, but also in the private sector and civil society. That was a way of helping public authorities to adopt and reuse open technologies and to strengthen their relationships and engagement with open source

ecosystems. “Some countries have the internal capacity to adopt open source solutions, but not necessarily the means to do so systemically, especially in regions with many federated levels,” Mr. Seabra said. “We need to build the entire ecosystem, including vendors that can support the implementation of open source.”



We need the software bill of materials during the build of the project, at the end of the project and after three years.

—*Bastien Guerry, Head of the Free Software Unit,
French Inter-Ministerial Directorate
for Digital Affairs*

Capacity building included supporting people who developed and maintained open source software within the government. Mr. Guerry of the French OSPO noted that the “Public Money, Public Code” campaign — that publicly funded code should be openly licensed and free to review and edit — could demotivate some personnel.

Telling developers within government (and the policymakers who supported them) to open their code could backfire if those developers and policymakers were not yet comfortable within the open development community and did not truly believe in their code’s public value and reusability. It illustrated the tension between legal and policy frameworks and the human and organizational structures that created and were subject to them.

Panellists returned to the idea that collaboration was not just part of the answer — it was *the* answer. Governments should be collaborating within each island, across their islands and with islands around the world.

Day 2

This section summarizes in turn each of the sessions that took place on Day 2 of OSPOs for Good 2024.

Thematic track 4: Open source at work in the world

Keynote speakers

- **Adriana Groh**, Co-founder, and CEO, Sovereign Tech Fund
- **Andreas Reckert-Lodde**, Interim Managing Director, Centre for Digital Sovereignty of Public Administration



The success of open source software is eating open source software. ...
We really need to take care of it.

—*Adriana Groh, Co-founder,
Sovereign Tech Fund*

This track returned to the theme of the digital commons, characterized by public-private collaboration spaces. In their keynote, Adriana Groh of STF and Andreas Reckert-Lodde of ZenDiS described how parts of the government were investing in open source, and how new types of cooperation and production logics could support open source ecosystems and technologies so that they flourished as a digital commons.

Investing in digital public infrastructure

Ms. Groh discussed some of the open source initiatives that the STF, a German public sector investment fund for open digital infrastructure, was funding to strengthen the ecosystem, particularly its security and sustainability. She noted the success of open source software and

collaboration in the world as well as the energy and investment required to maintain it.

Ms. Groh built on the familiar expressions, that software was eating the world and that open source software was eating commercial software even faster, with humor and poignancy: “Actually, the success of open source software is eating open source software.” By that, she meant, “We have this amazing ecosystem that we created largely bottom up, with people who pour their heart and soul into it all the time — and we take it for granted.” She implored users, “We also really need to take care of it.”

Mr. Reckert-Lodde described the work of ZenDis, a “start-up in the state,” to engage open source developers and champion cooperation between the open source community and German public administrations. He reflected on the process of making open source code development both feasible and desirable for public administration and public service delivery.



Andreas Reckert-Lodde and Adriana Groh gave the opening keynote of the track on open source at work in the world.

He also talked about what ZenDiS did to bundle requirements for open source development in the public sector and to create unique, regulated spaces for public administrations.

Encouraging adoption of open source

To encourage the adoption of open source technologies, ZenDiS launched a regulated public sector co-development platform, Open CoDE, that German public administrations at all levels could use and start contributing code. Mr. Reckert-Lodde said it had 4,500 registered users and 1,500 repositories in a mirrored instance of GitLab.

The model was highly relevant for other governments seeking to adopt and contribute to open source projects in a digital commons. But its success depended on trust. ZenDiS was working to educate and build the trust of public

administrators who would, in turn, do the same for the public. As he summed up, “In the end, it’s all about trust. The public administration has to trust open source.” By modeling co-development and reuse, publishing a knowledge catalogue, offering guidance on licensing and reforming procurement rules, ZenDiS was functioning like an OSPO.

The STF was investing in a strong foundation for integrating secure and sustainable open source technologies in society-wide infrastructures. Together, the STF and ZenDiS demonstrated how to govern and invest in open source as a digital commons and highlighted the unique logics that underpin open source ecosystems.

They stressed the obligations of heavy users, especially organizations, to the maintainers of those ecosystems. Together, they offered a strong vision for public sector cooperation on open source projects, one that the Federal Government of Germany was proud to share with the world.



In the end, it’s all about trust. The public administration has to trust open source.

—Andreas Reckert-Lodde, Interim Managing Director, Center for Digital Sovereignty of Public Administration

Panel

- **Sophia Vargas**, Moderator, and Researcher and Analyst, Open Source Programs and Operations, Google Inc.
- **Demetris Cheatham**, Chief of Staff to the CEO, GitHub Inc.
- **Anir Chowdhury**, Policy Advisor, Aspire to Innovate (a2i), Government of Bangladesh
- **David Nalley**, President, Apache Software Foundation, and Director, Open Source Strategy and Marketing, Amazon Web Services
- **Mike Milinkovich**, Executive Director, Eclipse Foundation

The first panel of the second day got back to basics — open source at work in the world. Moderator Sophia Vargas of Google sought to explore what fostered cooperation and why people from various backgrounds coalesced quite organically around, and contributed over long periods to, open source technologies.

Motivating participation

The panellists shared their own motives for participating. Mike Milinkovich, executive director of the Eclipse Foundation, “was fascinated by the idea that communities could come together and develop software productively,” often without the hierarchical control or in-person meetings that typified corporate work. “Building sustainable communities that were working productively together for the betterment of our societies and economies was why I wanted the job,” he said. After 20 years of doing it, he still found it “endlessly fascinating.”

Software development, particularly in open source, could be transformative. “My mom was a single mom with three kids in college. She was making \$13,000 a year when I graduated from high school,” said Demetris Cheatham, chief of staff to the CEO at GitHub. “When I learned about open source, I asserted that it was the lowest barrier to entry for people who wanted to participate in software development, computer science, or technology.” Open source inspired her to get as many people as she

could, especially from underrepresented and marginalized communities, into tech so that they could experience life-changing transformations, too.

Ms. Vargas highlighted the diversity of motivations that brought people to open source, including the desire to solve problems, educate others and learn new skills. But such intrinsic motivation was not enough to engage people over time. Ms. Vargas said that she’d stayed because she had fun and met others who were solving similar problems.

Panellists discussed how open source communities formed around problems.

David Nalley, president of the Apache Software Foundation, said, “While there might be an Apache community, there are really a couple hundred communities oriented around a problem.” He thought of Apache’s work more as a “community of problems” than as a “community of practice.” As long as a problem existed, he hoped that a community would continue to exist to solve it, and he cautioned against taking these problem-solving communities for granted.



Open source was the lowest barrier to entry for people who wanted to participate in software development, computer science, or technology.

—Demetris Cheatham, Chief of Staff to the CEO, GitHub Inc.

Giving coders and non-coders alike an opportunity to contribute meaningfully could also help. Ms. Cheatham of GitHub pointed out some of those opportunities, such as managing budgets, contributing to documentation, advocating for the community and mentoring others.

Sustaining communities around open source

Trust was crucial in sustaining open source collaborations, particularly public-private partnerships. “Open source has become foundational to everything we do in software,” said

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All these bits of documentation that set up cultural expectations really help.

—Mike Milinkovich,
Executive Director, Eclipse Foundation

Mr. Nalley of Apache. Consumers of open source benefitted far more than they could ever contribute back. “But we must protect against it from becoming a tragedy of the commons,” he added. One way of sustaining the commons was to compensate software developers and treat them fairly.

Another was to create norms of participation. Said Mr. Milinkovich, “Community codes of conduct, contributing guides, and even channel guidelines — all these bits of documentation that set up cultural expectations — really help,” as long as the rules were clear, known and enforced.

As projects changed, community stewards would need to reset those norms and rules. Failing to do so could lead to burnout.

Anir Chowdhury, policy advisor to the Bangladesh government’s digital transformation program Aspire to Innovate, said that open source advocates could help to educate governments on the risk of burnout when working with open source communities. Ms. Cheatham of GitHub highlighted the economic costs of burnout: a community could not secure and sustain open source software or infrastructure if it did not fund the health and wellbeing of its maintainers. “The whole logic of open source falls apart,” she said. Investments like those of the STF could help here.

Shifting the production paradigm

For entities in the UN system to use DPGs in addressing large-scale challenges, open source communities must not only empower developers but shift the production logic. The old paradigm of relying on technical people’s own intrinsic motivations to build and maintain DPGs has broken down in certain cases, which would likely require “putting some real economic incentives into the mix,” said Mr. Nalley.

For example, with the Cyber Resilience Act, communities have been demanding more and more of the developers on these projects, which was unsustainable without better economic nudges. There were no one-size-fits-all solutions; all solutions required investment of some kind and continuous follow-up.

If open source was to succeed over time as sustainable infrastructure, these logics needed to change. While panellists differed in how they viewed the possibilities, they all acknowledged common problems and potential solutions. Ultimately, they agreed that collaboration was key, and they were fundamentally optimistic about working together towards common goals with a shared vision.

Spotlight panel: Youth and open source

Keynote speaker

Chris Szymczak, Innovation Manager and Digital Public Goods Lead, Office of Innovation, UNICEF

In his opening remarks, Chris Szymczak said young people wanted to be among the decision-makers and not just consumers of what the community had produced without their participation. A UNICEF survey showed that young people did not feel in control of, or in a position to, influence their digital futures. The people in the room could not assume that the

next generation would accept and use the digital infrastructure currently under construction without including young people in its development.

Open source could play a key role in a more inclusive development of our shared digital future. Open source allowed for the development of local

digital capacity and increased power rather than diminishing it. Open source excited young people and could contribute to much-needed optimism around tech. For these reasons, the intersection of open source and young people would be important for the future of digital transformation. Indeed, it could be the only intersection that mattered for digital transformation and the development of digital public infrastructure that was sustainable, just and fair.

Mr. Szymczak expressed the solid and clear commitment of UNICEF to open source. Through its venture fund, UNICEF supported open source products exclusively. For example, in its Global Digital Compact consultations, UNICEF advocated for open source as foundational to digital public infrastructure. UNICEF also



We must protect against [open source] from becoming a tragedy of the commons.

—David Nalley,
Director, Open Source Strategy and Marketing,
Amazon Web Services



Our commitment to open source is solid and it's clear.

— Chris Szymczak, Innovation Manager and
Digital Public Goods Lead, Office of Innovation,
UNICEF

worked with partners and governments to add elements of open source to digital upskilling curricula in the Global South so that young people could be maintainers and owners of this infrastructure.

Panel

- **Chris Szymczak**, Moderator, Innovation Manager and Digital Public Goods Lead, UNICEF
- **Ruth Ikegah**, Open Source Manager, OSPO Now, and Program Lead, All in Africa
- **Mark Pereira**, Founder, Zed Labs, and Tech Lead, Kolektivo Network

Ruth Ikega described the All in Africa initiative aimed at promoting open source education across the continent. The program empowers regional ambassadors to lead the open source movement and foster a new generation of skilled contributors. To date, the initiative has graduated over 250 participants from 37 African countries. It has equipped them with the necessary skills and community support to participate actively in open source projects. The overwhelming response to the initiative was a testament to the eagerness of Africa's young, vibrant population to learn and engage with open source.



A great way to engage young people in projects is through hackathons with prizes.

—Mark Pereira, Founder, Zed Labs

Mark Pereira highlighted the power of role models in inspiring young people to engage with open source and pursue careers in technology. He said that young people naturally gravitated towards collaboration. When exposed to open source environments, they adopted a mindset of abundance and broke free from the competitive, limiting mentalities often found in closed systems. Mr. Pereira emphasized the potential of software development boot camps for training young people and instilling open source principles from the start.

From left to right: Mark Pereira of Zed Labs and Kolektivo Network, Chris Szymczak of UNICEF and Ruth Ikegah of OSPO Now and All in Africa.



Young people were eager to enter the tech industry, and open source offered a low barrier to entry that could enhance their careers and promote social good. While they were willing to collaborate and contribute, supportive conditions were essential. The challenge now was to expand access — how to bring open source to more young people, identify untapped talent, and give them an opportunity to join, develop skills, and thrive in the international open source community. Seeing more young people represented at events like OSPO for Good was also important.

Thematic track 5: Open source networked cities

Keynote speaker

Lindsay J. Thompson, Professor of Practice, Carey Business School, Johns Hopkins University

In her keynote, Professor Thompson asked, “How are people going to live well on this planet?” More specifically, how could we design and build cities so that everybody could live well within them? She began by inviting conferees to put down their devices and breathe. She reminded the group that human neurology had evolved over hundreds of thousands of years. Yet, some of the problems we faced were only days old, and innovations were coming at us faster than our fastest adaptive capabilities. As yet, no technology had hacked our nervous

systems deeply enough to speed up human adaptation. “We are so smart, and we can think so fast, but we have bodies, feelings and limited capacities to cope,” she said. “We have never been in this place before.”

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How livable is your city?

*—Dr. Lindsay J. Thompson, Professor of Practice,
Carey Business School, Johns Hopkins University*

As a start, Professor Thompson suggested thinking of cities or human settlements as laboratories in which to collaborate and experiment with each other and the people living in these settlements. For this experiment, she provided a framework, which distilled all the knowledge and expertise on the subject into five domains: a livable planet, healthy people, resilient communities, empowered citizens and shared prosperity.

She suggested that, if the people in the room — the innovators and policymakers — worked together on improving those five domains with the people whose lives would most benefit from those improvements, then we could make real progress on all the SDGs.

Equally critical to this process, she suggested rethinking the use of “pernicious capitalism” as a driver of planetary development because of its negative impact on the planet, and instead studying the “economics of a livable future” in an increasingly urban world.

Professor Thompson said that “the mantra of capitalism, the wealth of nations,” did not represent “the whole truth,” at least “not the human truth.” In addition to measuring gross domestic product, we should measure the wealth and the livability of cities and neighbourhoods. We could make real progress on the SDGs at a neighbourhood level, where people were born, lived and died. Neighbourhoods were the drivers of sustainable change.

“How livable is *your* city?” she asked in closing. “How much time have you spent in neighbourhoods outside your own, where people like you don’t go?” She urged people to get out of their heads, get into their bodies, and take their hearts to some of the places where they didn’t want to go. That was the path to leadership.

Panel

- **Jacob Green**, Moderator, and Founder, OSPO++ and Mosslabs
- **Duaa Abaoud**, Advisor, Ministry of Municipal and Rural Affairs and Housing, Kingdom of Saudi Arabia
- **Richard Gevers**, Founder and Chief Strategy Officer, Open Cities Lab, South Africa
- **Lindsay J. Thompson**, Professor of Practice, Carey Business School, Johns Hopkins University
- **Mark Anthony Thomas**, President and Chief Executive Officer, Greater Baltimore Committee
- **Dirk Schrödter**, Minister, Digitalization and Media Policy, and Head of the State Chancellery, Schleswig-Holstein, Federal Republic of Germany
- **Viraj Tiyaagi**, Chief Executive Officer, eGovernments Foundation, India
- **Gesa Ziemer**, Professor of Cultural Theory, Vice President of Research, and Director of City Science Lab, HafenCity University; and Academic Director, UN Innovation Technology Accelerator for Cities–Hamburg

Jacob Green, founder of OSPO++, said that the OSPO was a relatively new organizational construct for solving mission challenges by leveraging open source assets. Seeing the OSPO as a greenfield for working across silos and city limits, Mr. Green asked how it could assist in sustainable development.



Code is a product to help achieve open science.

—*Jacob Green, Founder, OSPO++ and Mosslabs*

OSPOs for sustainable cities

Mark Anthony Thomas, CEO of the Greater Baltimore Committee, said that cities around the world collaborated well on economic development. But, in the United States, they did a terrible job of managing abandoned properties and sites available for such development. OSPOs could

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Technology can never replace ... the human side of cities.

—Viraj Tiyaqi, Chief Executive Officer,
eGovernments Foundation

help organizations across post-industrial America to scale their efforts, creating market solutions and processes.

Viraj Tiyaqi, CEO of eGovernments Foundation, argued that OSPOs and OSPO-like entities could help (1) convene governments around public services, identify the most pressing problems, and create synergies in using open source to solve them; and (2) set standards and frameworks for reusability and interoperability so that a town of 20,000 people could reuse software originally developed for a city of 20 million people.

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When we ask people, ‘What do you want from your city?’ ... I’ve never heard ‘mobility, efficiency or technology’ as an answer.

—Dr. Gesa Ziemer, Director of City Science Lab,
HafenCity University, and Academic Director,
UN Innovation Technology Accelerator for
Cities–Hamburg

Gesa Ziemer, academic director of the UN Innovation Technology Accelerator for Cities in Hamburg, observed that NGOs tended not to connect with the cities where they were based. “They come a bit like [unidentified flying objects],” she said.

If city OSPOs could connect cities, then they could also connect with — rather than hover over — the people in those cities. She also noted that cities regularly competed with each other. The idea of cities collaborating was quite new, and OSPOs could help cities to share tools and code.

OSPOs for digital sovereignty

Richard Gevers, chief strategy officer of Open Cities Lab, expressed concern for the extent to which cities relied on vendors whose revenues were often larger than the gross domestic products of those cities or their countries. They risked outsourcing their digital governance to vendors. He wondered whether networks of cities via their OSPOs would have more power to negotiate. Urban resilience, housing and mobility should not be modules within vendor technology systems but components of digital public infrastructure, he said. For example, his organization has deployed the open data platform CKAN (comprehensive knowledge archive network) in the cities it has worked.

Duaa Abaoud, an advisor on digital transformation and innovation within the Ministry of Municipal and Rural Affairs and Housing in Saudi Arabia, said that the OSPO was a

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Across the board, people are reimagining cities at a pace that is very difficult for the public sector to keep up.

—Mark Anthony Thomas, President and Chief
Executive Officer, Greater Baltimore Committee

relatively new concept there, but the Saudi government was quite familiar with open source. In 1979, it launched what was now called the National Information Centre, which has integrated data from 240 government systems in its national data bank. In 2019, it launched the Saudi Data and AI Authority to govern the data bank. The next phase was regulating and authorizing an open source platform for the public to thrive.

Dirk Schrödter, minister of digitalization in the German state of Schleswig-Holstein, said that Germany recognized how digital sovereignty was as important as energy sovereignty. It has used open source technology in its state ICT solutions for a fully digital workplace: “We replaced Microsoft office with LibreOffice, ... and we



Dr. Duaa Abaoud, advisor to the Ministry of Municipal and Rural Affairs and Housing of the Kingdom of Saudi Arabia, contributed to the panel on cities.

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Digital sovereignty is as important as energy sovereignty.

—Dirk Schrödter, Minister, Digitalization and Media Policy; and Head of the State Chancellery, Schleswig-Holstein, Federal Republic of Germany

OSPOs for equality in cities

Professor Thompson expressed concern about digital inequity, that some neighbourhoods would have great experiences and reap great benefits, and others would not. How could city governments develop digital services and manage digital public infrastructure so that all residents benefited equally?

Mr. Tiyaqi suggested two action items: (1) offering “building blocks of capabilities” (such as the process of paying a bill) that citizen innovators, government entities and NGOs could use to solve problems specific to a neighbourhood’s or a population’s context, and (2) creating a “Linux kind of operating system” on which markets, governments and NGOs could run their programs at scale.

made this solution available for the community of 200 million users,” he said. Mr. Schrödter saw potential to do the same for Germany’s industrial policy, its domestic digital economy and its business models.

The goal was to create energy in the system so that groups could solve problems in their own context and take ownership of their own piece.

According to Ms. Abaoud, the Saudi government created a sandbox for experimentation in each neighbourhood, where it could change regulation, try different software and determine what worked best in each before expanding it to similar neighbourhoods in different cities: “By connecting all the dots — government, academia and the investment ecosystem — we can thrive together.”

For effective cross-border collaboration, Mr. Gevers said community curation was critical in identifying neighbourhoods with similar needs and developing solutions that they could share.

Also, communities of practice worked better at local levels than commercial models. Academics on the ground could help not only in documenting and transferring knowledge but also in matching open source talent with problems via mechanisms like hackathons.



How we build tech needs to change for government. Commercial models do not work.

—Richard Gevers, Executive Director and Founder, Open Cities Lab

Scorecard for action

Using open data, Baltimore launched an annual economic scorecard and collaborated with seven jurisdictions to quantify investment in the region. According to Ms. Thomas, the cities of Miami, Pittsburgh and Charlotte had similar models that helped stakeholders to make investment decisions as well.

Mr. Tiyyagi suggested forming several action networks of cities targeting a specific geography and problem, perhaps with the United Nations in a convening role. In his experience, local bureaucrats in public service were risk averse and wanted proven solutions, not experiments. With concentrated efforts on common problems at the city level, the global open source community could develop technologies that had global impact.

But Mr. Tiyyagi cautioned, “Technology can never replace ... the human side of cities.” Professor Thompson agreed. “You have to have real relationships, ongoing relationships, with people. You can’t just throw something out there,” she said.

Spotlight panel: Engaging the open source community

- **Sachiko Muto**, Moderator, Chair, OpenForum Europe, and Senior Researcher, RISE Research Institutes of Sweden
- **Omkar Arasaratnam**, General Manager, Open Source Security Foundation
- **Hilary Carter**, Senior Vice President, Research and Communications, The Linux Foundation

- **Arun Gupta**, Vice President and General Manager, Open Ecosystem Initiatives, Intel Corporation
- **Tajh Taylor**, Vice President, Data Science and Engineering, Wikimedia Foundation

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Open source is completely democratized.

—*Omkar Arasaratnam, General Manager, Open Source Security Foundation*

panellists and audience members to think of how they could incorporate the SDGs into their current projects. She also emphasized the need to make open source communities more diverse and inclusive.

The final panel focused on concrete ways to leverage open source communities in making progress on the SDGs. In her opening remarks, moderator Sachiko Muto reminded conference participants that everyone had a role in contributing to the goals. Ms. Muto challenged

Applying open source to sustainable development

Hilary Carter presented the Linux Foundation’s research on how its open source projects contributed to the SDGs. The Linux Foundation Research analyzed all projects under its stewardship to understand how they aligned with the SDGs. Certain project portfolios inherently advanced sustainability such as LF Energy, which was accelerating affordable electrification through open

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Rallying up people around the open source community is super important.

—*Arun Gupta, Vice President and General Manager, Open Ecosystem Initiatives, Intel Corporation*

source technologies (SDG 7); OS Climate, which was accelerating climate finance, analytics and tooling (SDG 13); and the Zephyr Project, which was aiding wildlife monitoring (SDG 15). All LF technical projects and their communities significantly accelerated industry innovation and infrastructure (SDG 9).

Arun Gupta of Intel said global collaboration was essential to addressing global challenges, and open source was a key enabler. He described his work with the TED AI conference in San Francisco. The conference included an open source hackathon on the SDGs. Participants from around the world submitted over 90 proposals, with more than 30 teams hacking solutions over two days.

A similar initiative, the Cloud Native Hack at KubeCon in Paris, attracted 13,000 developers. These events demonstrated the potential of leveraging the global open source developer community to address the SDGs. Mr. Gupta encouraged audience members to talk with their corporate social responsibility teams about aligning with the SDGs in their day-to-day work.

Making it easy to participate

Omkhar Arasaratnam of the Open Source Security Foundation urged everyone to consider the preconditions of success, such as the security of any DGP used in service of the SDGs. If an open source solution for improving water safety or food safety was insecure, then it would do more harm than good. The wonderful, diverse nature of open source, its complete democratization, meant that anybody could contribute in any way. “You could be an engineer, you could work on documentation. You could, as part of an OSPO, generate interest, gather input and get the word out,” Mr. Arasaratnam said. “All these are very valuable. These are ways that we can make the SDGs part of every day.” Tajh Taylor of the Wikimedia Foundation emphasized how open source software empowered the Wikimedia community to do what they did. The communities of editors and code contributors significantly overlapped.

Many people saw the software as a tool to do what they wanted to do. If their interest was curating knowledge about the history of wars in Europe, then they could use tools to collect lists of pages that they wanted to work on, check the citations, and write open source software to support those activities. The open source work that Wikimedia engaged in directly, that it supported within the community, also contributed directly to open knowledge.

The Linux Foundation has worked to have free childcare on site at its events so that parents could bring their children. “It’s something structural that organizations can implement,” said Ms. Carter. “We do need to be seen to be believed, and take every opportunity to increase visibility.”

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We need to be seen to be believed, and take every opportunity to increase visibility.

—Hilary Carter, Senior Vice President, Research and Communications, The Linux Foundation

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It's incumbent on all of us to contribute to making progress on the SDGs.

—Sachiko Muto, Chair, OpenForum Europe

Closing plenary: Envisioning the next decade of open source

Keynote speakers

- **Amandeep Singh Gill**, Secretary-General’s Envoy on Technology, United Nations
- **Bernardo Mariano Joaquim Junior**, Chief Information Technology Officer and Assistant Secretary-General, Office of Information and Communications Technology, United Nations

The final segment of the event was a moment for both reflection and forward-thinking. It emphasized the importance of the discussions held and the work that lay ahead.

Bernardo Mariano Jr. expressed his appreciation for the hard work and dedication of the organizing team, partners and participants, highlighting the collaboration that made the event possible. He specifically acknowledged the contributions of the co-hosting governments of Kenya and Germany.

He also emphasized the human element in technology and open source. The success of open source and its impact on SDGs depended on the commitment and capacity of people, making continuous investment in building human capacity an imperative within organizations and across the global community, particularly in the Global South. He viewed capacity building as essential to technology's having a meaningful impact.

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Open source is no theory. It is practice.

—Amandeep Singh Gill,
Secretary-General's Envoy on Technology,
United Nations

Amandeep Singh Gill underscored the multi-stakeholder nature of the event and the work ahead. He discussed maintaining a balance between government efforts and those of various stakeholders in the open source community. Mr. Gill also encouraged ongoing action beyond the event. He suggested forming groups to continue working throughout the year and weaving these efforts into discussions at global forums like the Summit of the Future.

Mr. Gill emphasized the role of open source in advancing the SDGs, advocating for the creation of “digital champions” who could leverage technology for sustainable development. He called for a more diverse and inclusive approach to technology, moving beyond coding to embrace

Panelists invited contributions from all conference attendees.



broader, multidisciplinary efforts that could contribute to global goals. The vision was to form a network of digital commons that united the world through shared values of openness and transparency.

What's next for open source?

After the OSPOs for Good 2024 symposium, three organizations — OSPO++, the Apache Software Foundation and the Linux Foundation — hosted a separate event, called “What’s Next for Open Source?” The first panel discussed how to continue the OSPOs for Good conversation. Panellists explored how to turn the ideas of the symposium into actions that aligned open source initiatives with goals such as sustainable development. Through broad, inclusive participation, they looked to sketch out a positive, forceful vision for how the United

Nations and the open source community could work together.

The event attracted dozens of enthusiasts from the symposium.

Many of them explored what they

could do next within their own organizations. While they appreciated what they had heard at the symposium conference and how it had brought the community together, they wanted a stronger vision for OSPOs for Good and what they could do to realize it over the next year.

Throughout the day, participants sought to move beyond good intentions to tangible actions. Most agreed that the OSPOs for Good conference was a good first step. The next step was active and purposeful collaboration between the UN system and the open source community, such that their respective work and values would mutually influence the open source agenda.

One idea was to draft a charter that operationalized such collaboration, one that encouraged both parties to share their respective lessons learned and apply open source solutions towards the SDGs. However, participants debated the most effective means of aligning the values and interests of these two

communities. Some attendees highlighted the need to make moral decisions (right v. wrong) about which actions had intrinsic and extrinsic value in achieving mutually desirable outcomes.

Peer collaboration networks could connect diverse organizations and communities at an international level.

Regarding the UN role, participants sought to align open source initiatives with the UN agenda and engage governments and other organizations in adopting open source principles. On achieving the SDGs, they largely agreed that they needed to review the 17 goals, especially partnerships (SDG 17), and explore how the open source community could support them (as

through OSPOs within UN entities) and develop open source solutions (or DPGs) that supported them.

Participants also asked for the United Nations to build more bridges among different parties in the open source ecosystem and direct their energies towards common goals. Some advocated for more peer collaboration networks that could connect diverse organizations and communities at an international level. Others wondered how to operationalize such networks at the local level, to include under-represented communities, build capacity, and extend open source initiatives that aligned with global goals. Finally, participants discussed incentive structures that aligned the normative and ethical frameworks of the United Nations with the open source community's own goals and culture.

To achieve some of these ambitions within the open source community, participants debated whether to start with broad, strategic goals or specific, tactical ones. Someone suggested using “moonshots” — ambitious, transformative goals — to drive significant change, but most attendees preferred smaller, more tangible actions that their organizations could take to catalyse change over the next year. Despite broad agreement, some attendees voiced scepticism: institutions needed to evaluate their existing capacity to address complex global challenges, particularly because of the complicated economic logic of contributing to or maintaining open source.

The open source community needs a greater diversity of voices around the world.

For both communities, attendees stressed the importance of including diverse voices, especially from marginalized communities, younger generations and those most

affected by global crises. The group acknowledged the barriers to participation, such as accessibility, language and logistics, from the timeliness of event invitations to the costs of travel. Addressing these barriers would facilitate greater collaboration. Attendees also expressed a need to bridge the gap between technical and non-technical communities, not just within the open source community and the UN system but also within the broader field of international cooperation.

Next steps in realizing the vision for OSPOs for Good

Over the next year, the OSPOs for Good community must work to promote good governance of open source technologies, empower actors in the open source ecosystem with the funding and resources they require to do their work, and promote suitable digital regulations that reflect the interests of the open source community. If the United Nations engaged fully in the open source ecosystem, then it could tap the spirit and imagination of open source developers and digital policymakers in addressing global challenges. The United Nations is uniquely positioned to lead.

In the short term, the United Nations could advocate for and promote adoption of open source technologies within the UN system and among Member States. It could also work to investigate good practices that improved open source efforts, direct resources that would strengthen the open source community, and double down on its convening role through OSPOs for Good conferences, events, and fora.

Governments and NGOs could embrace and advocate for open source technologies.

In the longer term, the United Nations could embrace openness in its digital agenda and lay the groundwork in the forthcoming Global Digital Compact and at the Summit for the Future. This section summarizes the actions that the United Nations could take between now and next year's symposium to fortify its position as a leading advocate of digital public goods and open source communities. It also includes recommendations from the "What's Next for Open Source?" event.

Priority recommendations

1. Widen the scope of "OSPOs for Good" to "UN Open Source Week"

The main recommendation is to enlarge the OSPOs for Good movement to a full UN Open Source Week, with OSPOs for Good as its main event. This would help make OSPOs, and open source more broadly, a central feature of the Secretary-General's advocacy. OSPOs would remain on the agenda in the wider exploration of the benefits of open source and its potential contributions to the world.

In the follow-up to this report, members of the UN system could publicly support such expansion and reaffirm what an annual UN Open Source Week in New York City would add to UN advocacy of open source, such as enabling more fundraising, increasing the possibility for travel support and shoring up more resources for logistics. In so doing, the United Nations could also identify and build on existing local and regional fora on open source, such as FOSS Asia, Open Source Community Africa and the EU Open Source Week in Brussels.

2. Develop a mechanism for individuals and organisations to endorse the use of open source and express commitments

Despite the favourable impressions of the event, many commented on the conference feedback forms and in the "What's Next for Open Source?" workshops that they wanted to understand what they could do to prepare for next year's conference. In this context,

developing a manifesto or charter that outlined the rights, responsibilities, structure and purpose of Open Source for Good could mobilize participants to use open source for good. Such a charter could rally the community around specific actions to take before the next year's conference.

Any proposed Open Source for Good charter would be lightweight, outlining the importance of open source and identifying gaps in global collaboration that the community could fill via funding, governance, project work and targeted cooperation. In doing so, the charter would highlight the value of OSPOs and other mechanisms that business, government, and civil society could use to advance the open source movement.

Development of the charter would benefit from an expansion of UN Open Source Principles, endorsed by UN agencies and under revision to release publicly for endorsement. Volunteers from the open source community could work with those involved in planning the OSPOs for Good symposium and the UN Open Source Week to design a campaign around the principles that drums up attention and support before the next conference.

3. Engage more Member States and UN agencies around open source

The United Nations has worked considerably to promote open source across various agencies and departments. To centralize lessons learned from these initiatives, the UN open source community of practice could seek consultative meetings with the UN Secretariat and other UN entities to inform ongoing work and share outcomes of engagements with the community. Documenting this work would increase transparency and create opportunities for broader engagement with the open source ecosystem, especially with those interested in supporting the work of the United Nations.

4. Encourage Member States to establish OSPOs as institutional infrastructure

To advance the OSPO agenda and build capacity, the United Nations could continue promoting the development and networking of OSPOs as institutional infrastructure of its Member States. First, it could advance the OSPO agenda through programs like the Open Source Ecosystem Enabler initiative of the UN Development Programme and International Telecommunication Union. Moreover, the UN Office of the Secretary-General's Envoy on Technology and other UN agencies could cooperate in promoting OSPOs through their own work, particularly convening and networking existing OSPOs. Linking these efforts to a broader UN effort would be vital.

5. Explore options to engage more in funding and governance of open source technologies

While the community debated how best to steward and govern open source technologies for government reuse, particularly DPG projects, many agreed that the community must promote the global governance of these open technologies as digital commons, including appropriate funding and support. The United Nations could explore how it might tap into the open source energy and expertise. It could do so in the context of developing the agenda for future editions of the OSPOs for Good conference and exploring other themes.

6. Build on the success of Reboot the Earth to pilot other sectoral applications of open source

For the United Nations Office of Information and Communication Technology (UN OICT), the Reboot the Earth initiative succeeded in piloting new initiatives and raising awareness of open source technologies in solving global challenges and advancing the SDGs. Many participants have recommended transferring and applying the efforts of the global open source community to other large-scale, global challenges. Building on Reboot the Earth, the United Nations could explore opportunities for piloting other initiatives that develop solutions for topical or functional areas of UN activity and seeing what works.

Other recommended action items

Over the three days, participants suggested action items that could cultivate an open source community that was more inclusive, diverse and truly global and that could contribute substantially to open source projects with sustainable development in mind. Among their other suggestions were the following:

- Revisit the SDGs through an open source lens, to see what the open source community could do specifically to support each goal.
- Create and sponsor fellowships that combine open source and social sciences.
- Communicate more effectively between open source and social science communities.
- Create an OSPO dedicated to the SDGs within the UN system.
- Foster university connections to OSPOs.
- Develop resources to communicate UN goals more effectively to the open source community.
- Address logistical barriers to participation, especially for under-represented communities.
- Establish a UN Volunteer community dedicated to open source.
- Build networks that connect diverse organizations and communities, particularly local ones, and collaborate on open source initiatives that align with global goals.

Conclusion

The two-day symposium was another milestone in open source for good. It dispelled myths around open source innovation, and it brought open source mindsets, methods, and technologies to sustainable development. Everyone agreed that open source, individual privacy, and security go hand in hand. Suggestions for raising awareness of digital public goods within the UN system ranged from the particular — such as applying open source solutions in ICT change requests within UN entities and requiring open source solutions from outside contractors — to the general, such as establishing OSPOs within UN entities and linking open source code repositories to relevant SDGs.

The proceedings were lively and upbeat. Speakers showcased the contributions of the Global Majority in building out and maintaining digital public infrastructure. Cultivating this human capacity was a top priority, along with creating incentives for young people to stay and lead the digital transformation of their communities.

The open source community could also offer an open operating system and components of capabilities that cities could use to solve local problems at scale. Ultimately, most attendees recognized that open source was both a culture and a product of that culture; the more voices and views it accommodated, the more robust and effective its solutions would be for sustainable development.

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The people behind OSPOs for Good 2024

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Their hard work and dedication were instrumental in curating a thoughtful program, fostering diverse and meaningful participation, and ensuring clear and effective communication

throughout the event. The success of the conference directly results from their commitment, collaboration, and professionalism. The organizers deeply appreciate their contributions and the significant roles they played in bringing this initiative to life.

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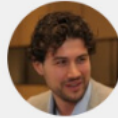
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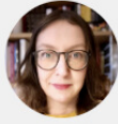
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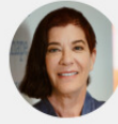
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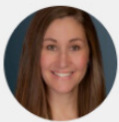
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