Update on the context and trends

The agenda laid out in the Sustainable Development Goals (SDGs) was always ambitious. With inequities growing acutely worldwide, delivering on the SDG targets and delivering for children urgently demands innovative problem-solving strategies outside pre-existing structures. COVID-19 cruelly exposed the scale of this challenge, highlighting the social, structural, and technological inequities that exist globally.

Its impacts were stark. School closures affected 1.6 billion children worldwide while the transition to remote learning revealed a world moving toward a digital future at the speed of light, while leaving billions in the dark with 2.2 billion children and young people lacking internet access at home.

To respond to these needs with speed and urgency, the Office of Innovation (OOI) in 2021 rolled out its new working structure: a core office inaugurated in Stockholm, hosted by the Government of Sweden, and two of nine envisioned thematic-specific innovation hubs - for innovative finance and learning innovation – were opened in Helsinki, hosted by the Government of Finland.

The new OOI and partners architecture is designed to resource the delivery of promising solutions that can accelerate results for children. This positions the OOI to be a catalyst for change across local to global innovation ecosystems, and to identify new champions and partners – whether public, private, or non-profit - to deliver for children.

History shows how great innovations can arise during times of crisis. Recent McKinsey & Company research shows that COVID-19 dramatically accelerated the adoption of new technologies, with many here to stay. Although COVID-19 slowed down the pace of development overall it offered a unique pathway for many technology and innovation trends to flourish. This grants us an opportunity to think differently and ensure the digital revolution closes equity gaps for children rather than widens them.

But technology alone is not a silver bullet: transformational impact will also arise from innovations in policy, behaviour, and ways of working.

To this end, the OOI has been building on its track record of collective action and bold engagement with the tech industry. In 2021 we provided seed funding via the US$35m Venture Fund, supported by industry partners, to 12 new frontier, open-source solutions and growth funding to 8 innovation models. This work includes exploring blockchain to improve financial inclusion and leveraging big data to generate new insights to shape public policies.

Our ambition to be a catalyst of accelerated change for children at scale is also illustrated by Giga, a joint UNICEF and International Telecommunication Union (ITU) initiative, with tech industry partners including Ericsson. Giga’s mission is bold: connect every school to the Internet by 2030 and every young person to information, opportunity, and choice. This unique UN-system tech start-up is the only named connectivity initiative in UNSG’s Common Agenda and Roadmap for Digital Cooperation. In 2021, Giga reached US$27m invested in 19 countries, with 1m+ schools mapped across 41 countries and 3,200 connected, supporting roughly 1.1m children and teachers.

In our pursuit of every child being afforded an individualised learning journey driven by a spirit of excitement and meaningful skill development, 2021 welcomed the Innovation Learning Hub which brings together better learning solutions for all children and set the vision of the Learning Cabinet, a platform to search for the best UNICEF digital learning solutions.
A significant trend in recent years is the increase of corporate partnerships with entities which, across multiple industries, wish to embed a leadership with moral purpose and an embracing of social impact as a part of their DNA. This purpose-driven approach is not only to establish industry brand advantage, but very much driven by consumer behaviour and talent acquisition. Individuals are demanding more social equity and environmental impact where they work, and what they buy.

This trend created opportunities for the OOI at a few key intersections. First, there is a growing necessity in many sectors for a blending of public sector funds and financing and delivery platforms with corporate innovations, such as healthcare, education, or access to safe water for all. UNICEF is well positioned to support this shift towards public-private partnerships and blended finance models, while also ensuring the highest levels of accountability and scrutiny are in place to guarantee the best interests of every child. We are driven by public-private partnership models grounded in shared values, concerted action, and joint accountability.

Second, the public and private sectors share an interest in gearing today’s youth with the skills and experiences to be ready for the rapidly shifting economic and employment realities of today and tomorrow. The OOI continues catalysing exciting solutions that offer sustainable pathways for countries to ensure the next generation have the right skill sets and attributes, and for all to be ready, not just some.

This global trend to become net contributors to society is putting the finance industry and investment flows under the spotlight. OOI is working alongside key finance stakeholders to identify analytics and model new investment vehicles that meaningfully contribute to the benefit of children and the wider society. A central tenant of our innovative financing ambition is to ultimately unlock large new funding streams for every child and young person to thrive.

In 2021, this saw the OOI developing blended finance instruments, such as the Digital Literacy Gender Equity Fund, linked to Generation Equality, to address the gender gap in digital literacy and tech industry employment. The UNICEF CryptoFund – a vehicle of the broader OOI Venture Fund – positions UNICEF as the first UN body to receive, hold, and disburse cryptocurrency, pioneering the use of digital currencies for good. Meanwhile, our UPSHIFT programme is a scalable and adaptable solution convening public and private partners, to develop a generation of young people appropriately skilled for the digital economy and for civic engagement.

As a trendsetter in innovation for equitable social impact, OOI continues to promote open-source solutions in the service of the SDGs – exemplified by our co-leadership of the Digital Public Goods (DPGs) Alliance, facilitating affordable access to appropriate, proven, and needed technologies as an effective means for technology transfer for developing countries.

**Major contributions and drivers of results**

Acknowledging the critical need to identify and rapidly scale up transformational solutions and forge new partnerships to increase momentum, the OOI established a new business model and architecture in 2021. An OOI core office was inaugurated in Stockholm, hosted by the Government of Sweden, and two of nine envisioned thematic-specific innovation hubs - innovative finance and learning - were established in Helsinki. This new structure allows us to mobilise innovation ecosystems, from local to global, and unlock their potential to impact positively the lives of all children.

In 2021, UNICEF for the first time committed US$36.12m of centrally-managed resources to innovation programming, with a view to identifying the most transformational innovative solutions across the nine portfolios, and pave the way for an acceleration of results for children across sectors.
The investment, managed by OOI, currently supports 34 priority innovations for scale across eight programme impact areas and across all seven regions.

To illustrate how these developments are delivering for children, below are selected 2021 results pertaining to innovation as an accelerator in several UNICEF Strategic Plan goal areas.

Innovation as a pathway for equitable, inclusive, sustainable health results

Pandemic response & vaccine delivery

OOI-supported solutions have demonstrated direct value to the global COVID-19 response.

**VaccineLedger**, developed by the Indian company StaTwig, is a blockchain-based vaccine supply chain management platform, and OOI Venture Fund beneficiary. Following initial pilot support **VaccineLedger** is now expanding to additional countries, aiming to reach twenty-five by 2023. The platform supports public authorities with vaccine safety and quality assurance, reducing administrative costs and wastage. With COVID-19 putting enormous pressure on health systems, more children are missing out on essential vaccines, making explicit the benefits offered by this solution.

**Somleng** in Cambodia, another OOI Venture Fund beneficiary, is leveraging its interactive voice response platform to deliver mass automated voice alerts to citizens in a country where 12 per cent of the population is illiterate. The platform supports government efforts to disseminate vital COVID-19 information such as safety guidelines on social distancing, and is an estimated twenty times cheaper than traditional alternatives.

Another beneficiary of OOI investment, the Brazilian startup **Weni**, built an open source chatbot called **HealthBuddy** which was incubated by UNICEF in partnership with WHO. The chatbot is used to educate people on COVID-19 and flag misinformation. By the end of 2021, the app was available in 20 languages with 300,000 users and had debunked over 17,000 pieces of misinformation.

Strengthening health systems

Accurate, quality and timely data are vital to improving health systems but it can be time consuming and costly to collect, analyse and use large amounts of aggregated data. UNICEF’s Population Data for Action links existing data sets with satellite imagery to estimate the number of people living in unsampled areas. Governments thereby get reliable, recent, and locally accurate population counts. The resulting data can be used in between censuses, complement existing census data, or be used to fill data gaps — for example, measuring populations in remote or conflict-afflicted areas. In addition to supporting health systems, these datasets can benefit other public services — from school systems to water resource management.

Ten African governments have already used the technology to generate population data and inform their decision-making. In the Democratic Republic of Congo, for example, the government generated data to improve vaccination coverage for hard-to-reach populations. In Nigeria, the approach increased polio immunization coverage country-wide.

Accelerating the scale up of workable innovations is critical to strengthening health systems, particularly given the additional burdens of the COVID-19 pandemic. This does not always imply new technology but rather improving the delivery of proven solutions. As such, in 2021, OOI worked to extend its SPRINT model (Scaling Pneumonia Response Innovations) which supports governments in expanding access to oxygen therapy and antibiotics by identifying country-specific bottlenecks and harnessing existing knowledge to overcome them.
SPRINT has already demonstrated life-saving impact in Ghana and Senegal – after a year in Senegal for instance, 64 clinics had access to new oxygen equipment and 157 clinics were dispensing life-saving antibiotics to treat pneumonia-affected children. More than 20 countries have since indicated interest in adopting a similar programme.

**Mental Health**

It is estimated that 20 per cent of adolescents have a serious mental health problem or condition and, according to a UNICEF-Gallup poll, a median of 1 in 5 young people aged 15–24 often feel depressed or have little interest in doing things. COVID-19 has deepened this crisis. The OOI’s mental health and psychosocial wellbeing portfolio has started to invest in frontier technology solutions to address shortfalls in mental healthcare provision for adolescents, including via *USupportMe*.

This platform pioneers a user-led approach to on-demand psychosocial support services, connecting them to existing mental health resources. Pilots of parts of the platform across Eastern Europe and Central Asia saw an estimated 500,000+ parents and adolescents in Kazakhstan participate in online support sessions covering common mental health topics for teenagers, and more than 5,000 online counselling sessions with adolescents in Ukraine. Scale up of the full platform has already reached 1m people, with 520,000 unique visitors to the website to date. *USupportMe* has an overall potential reach of 52m users in Eastern and Central Europe.

The OOI is also partnering with and championing young social innovators and changemakers, such as 16-year-old Gitanjali Rao, TIME’s first-ever Kid of The Year, as they create solutions to the challenges, they and their peers face for their digital world. Rao conceptualized an open-source application to engage children in ending cyberbullying, by detecting abusive intent in messages before they are sent and offering young users the chance to modify them. The OOI supported the development of this idea into an artificial intelligence-powered interface called *Kindly* which is now featured on a public repository of scalable and open-source digital public goods.

**Innovation as a pathway for quality education & learning**

COVID-19 has exacerbated inequity in education. Even before the pandemic, more than half of children in low- and middle-income countries were unable to read and understand a simple text by the age of 10. Currently, around 129m girls are out of school. This learning crisis demands swift, innovative responses that benefit the hardest to reach. As such, UNICEF’s Learning Innovation Hub, established in 2021, will become a global home for the architects of the future of learning, supporting the Reimagine Education initiative, and accelerating equitable access to world-class digital learning solutions by testing and scaling innovations hand in hand with field offices.

UNICEF is already proving its worth in this field via the Giga initiative, launched with the ITU in 2019, to connect every school to the internet and every young person to information and thereby support stronger education systems. Working with 14 corporate and non-profit partners, Giga has now mapped the location of over 1m schools across 41 countries on the Project Connect platform, and to date raised over US$27m, plus valuable non-financial assets, from partners including Ericsson, Dubai Cares, the Musk Foundation and others, to develop technologies and business solutions to connect schools and their surrounding communities affordably and sustainably. In a first for the UN, Giga also launched a set of 1000 data-driven non-fungible token (NFT) artworks to mark UNICEF’s 75th anniversary, to raise additional funds for OOI.

OOI also continued support for projects aimed at improving learning both at home and in school in 2021.

*Pixframe* and UNICEF Mexico are developing *Matemat-IA*, a digital learning platform for
personalised learning with 52,000 students enrolled. Meanwhile, the Kenyan digital platform for remedial learning Angaza Elimu, which works offline in poorly connected locations, was piloted in refugee camps. Over 2021, student users of the platform grew from 9,000 to 31,000, with the teacher base growing to nearly 3,000.

OOI also continued its work to equip all children and young people, especially from vulnerable backgrounds, with the skills needed to thrive in their personal and working lives. UPSHIFT, a training programme that blends leading approaches to youth and adolescent development with social innovation, and entrepreneurship, is now operational in 42 countries and has reached 2.2 million young people with over 45 million learning hours.

In 2021 we explored further scaling up of UPSHIFT with a focus on integrating delivery within education systems. For example, Vietnam not only promulgated the national scale of UPSHIFT through secondary schools but extended UPSHIFT delivery to all technical and vocational education and training (TVET) institutions aiming for 8 million adolescents completing an UPSHIFT training cycle by 2026. Other governments have set themselves objectives of building a generation of innovators and 31 Country Offices are interested in similar scale models for UPSHIFT.

To support these efforts, we are engaged in the development of UNISOLVE, a promising digital solution to facilitate integrating UPSHIFT into education systems. After an initial pilot in 4,041 schools with 23,881 (58 per cent girls) completing the six-week blended course, UNISOLVE received $1.84m and ongoing technical support from the OOI to develop and further scale to five states in India targeting 30,000 schools by December 2022 (paving the way to 100,000 schools by 2026), alongside adaptation and pilot rollouts in education systems in Bhutan and the Maldives.

In Kazakhstan, UNICEF partnered with the government to deliver a free five-month course that teaches young women how to develop and launch nanosatellites or small spacecraft. The UniSat programme addresses chronic and global gender equity gaps in science, technology, engineering and mathematics, and is now being scaled up with UNICEF Uzbekistan and UNICEF Kyrgyzstan with a second phase launched in August 2021.

Ten start ups working on solutions that bridge learning or connectivity gaps graduated from UNICEF OOI Venture Fund support in 2021. This included the Egyptian company VRapeutic which provides personalised virtual reality content for children diagnosed with ADHD and autism to support skills-based learning. VRapeutic solutions are being piloted in UNICEF Vietnam, to test a library of modules to improve cognitive skills for children from 6 to 12 developmental age.

**Innovation as a pathway to access water, sanitation and hygiene and lives in a safe and sustainable climate and environment**

Globally, 2.1 billion people lack access to safe, clean water. At the current pace of progress, we will fail to meet the full ambition of SDG6; identifying solutions that can be rapidly scaled up is critical to move forward, faster and requires collaborative effort. In 2022, the UNICEF Sustainable water, sanitation and hygiene (WASH) Innovation Hub, in partnership with the Government of Denmark, will therefore aim to be a global home for building, accelerating and scaling transformational solutions for a WASH secure future.

In 2021, the OOI invested close to US$4.5m in promising WASH innovations that have demonstrated early potential for global scale. One such example is the More Water More Life initiative - a novel combination of satellite remote sensing, weighted GIS overlay analysis, hydrogeological mapping, and geophysical surveying to map sustainable groundwater and raise successful borehole drilling rates from around 30 to over 92 per cent, allowing more people to access safe water quickly. The initiative has already improved water access for 1.2m people in Ethiopia and Madagascar, including 740,000 children. The scale-up phase is projected to benefit 40m children in four countries in Eastern and
Southern Africa.

In West and Central Africa, a revolving funds mechanism for sanitation micro-credit was introduced to offer credit to 5,000 households previously unable to afford toilets, to purchase them from local sanitation businesses. The initiative has been proven to contribute towards ending open defecation and has shown a five-fold return on the initial investment. It has the potential to be rolled out to 24 countries in West and Central Africa by 2026.

Another key priority for OOI is to source, pilot and scale climate innovations, with a particular focus on engaging young people in climate and environmental policy development, fostering climate smart schools and healthcare facilities, and monitoring climate impacts on children. Over 2021, OOI investments included Youth for Clean Air & Climate in Mongolia, a social innovation championing young people as climate change makers. This solution engaged more than 1.5m young people through the creation of a teen parliament, a national youth air pollution innovation challenge, and an air pollution monitoring platform.

Innovation as a bold enabler for gender equality

With gender equality integral to progress on all SDGs, it is paramount that we tackle longstanding barriers to the full realisation of the rights of women and girls, and OOI is focused on steering the tech and innovation ecosystems to deliver in this regard.

We demonstrated this collective ambition alongside leading public and private stakeholders in 2021 through our leadership in the multi-stakeholder Generation Equality Action Coalition on Technology and Innovation for Gender Equality, where we agreed on four key catalytic, scalable and measurable action areas to drive impact for women and girls by 2026, in partnership with the Government of Finland, the Rockefeller Foundation, Microsoft, USAID and others.

These joint Generation Equality commitments include closing the gender digital gap, building transformative innovation ecosystems driven by girls, and leaving no space for online violence. Results will hinge on successfully developing sustainable funding mechanisms and blended finance instruments such as a digital literacy equity outcomes fund to address gender gaps in learning and earning, expected to launch in 2022 with US$10m.

We are indeed already supporting women and girls as innovators, in partnership with public and private actors. Oky is a mobile phone period tracker and menstruation education app, unique among the 200 such apps that already exist, having been designed by and for adolescent girls. Oky provides girl-friendly information on issues from puberty, to reproductive health, nutrition, and COVID safety.

Oky is open-source and already features on the digital public goods repository. It is currently operational and tailored to local contexts and languages in Indonesia, Mongolia, Mexico, and India, having gained over 100,000 users in 2021. Roll-out in six further countries is already underway, with the goal to reach 10m girls in at least 20 countries by 2025.

Developing the innovation ecosystem by aligning international development and the tech industry

Illustrated by our leadership of the Generation Equality Action Coalition on Technology and Innovation, OOI’s commitment to using the UN’s weight to bridge and align the work of traditional international development stakeholders and leaders in the tech industry is robust.

OOI continues to promote open-source and open data solutions in the service of the SDGs – digital public goods (DPGs) – which can be an effective means for technology transfer, facilitating affordable...
access to appropriate, proven and needed technologies for developing countries. We are a co-founder of the multi-stakeholder DPG Alliance, which now boasts a pipeline of over 600 DPGs across different SDGs, 86 of which have been fully vetted and feature in a public repository.

A rapidly growing part of OOI’s work is its long-term exploration of the use of digital currencies for good. Through our pioneering CryptoFund – a vehicle of the broader OOI Venture Fund – UNICEF is receiving, holding, and disbursing cryptocurrency in a first for the UN system, introducing unprecedented, full and real-time transparency to funding flows, with <1% transaction costs on disbursements.

In 2021, the OOI Venture Fund welcomed Huobi Charity’s pledge of US$1m over the next three years marking the first extensive institutional Bitcoin donation accepted by UNICEF. Additionally, the CryptoFund’s anchor donor, the Ethereum Foundation, renewed its commitment to support early-stage, open-source digital solutions with a 260 ETH donation (value of ~US$725,000 as of 18 March 2022).

**Developing innovation ecosystems by aligning international development finance**

In late 2021, OOI coordinated the work of a range of HQ divisions to craft the global UNICEF Innovative Financing Strategy: a first of its kind, which will steer efforts to create synergies between public and private finance, and leverage resources and funding streams for initiatives that deliver significant benefits for children.

The Innovative Finance Hub launched in Helsinki, in late 2021, is a critical element of demonstrating this approach. It will serve as an incubator for new, alternative social goods and for financing instruments centred on boosting the realisation of children and young peoples’ rights. It will also generate standards for child-centred impact investing, a methodology for sourcing pipeline initiatives and impact reporting criteria with industry experts.

In 2021, OOI supported the launch of the Innovative Finance framework with the UNDP – a UNICEF flagship initiative to align a more significant share of the capital markets towards child-related SDGs. This includes new child-aligned global standards (e.g. the Child Bond Standard developed with the UNDP).

**Systems to strengthen the internal innovation culture at UNICEF**

OOI launched various global capacity building initiatives in 2021, to support UNICEF staff in designing and delivering innovative solutions to the challenges facing children around the world. We accompanied over 3,000 staff in 70 countries in building both attitudes and aptitudes to innovate.

Activities included the 2021 Green Shark Challenge – a call for innovative solutions from UNDP and UNICEF staff that respond to global challenges and accelerate progress on climate-linked SDGs. This generated 121 proposals from all regions, with over 1,400 participants: US$750,000 was ultimately awarded to three initiatives in Malaysia, Tanzania, and North Macedonia.

More than 42 country offices actively engaged in a multi-month capacity development programme covering human-centred design, participatory innovation, and systems innovations during the year. Furthermore, the OOI in partnership with the Division of Human Resources and Harvard trained 35 UNICEF Country Office Deputy Representatives.

Additionally, OOI, in partnership with the Information and Communication Technology Division (ICTD), continued to develop INVENT, UNICEF’s global inventory for innovation and technology for development, with nearly 3,000 registered UNICEF staff members in 2021. This database is a one-
Lessons Learned and Innovations

Following on the insights from the global evaluation on how innovation can deliver for UNICEF and children, 2021 was a critical year that marked a range of major milestones aimed at fully reimagining how innovation functions and how innovation management can evolve to accelerate results for children.

The OOI’s new business model has already made impressive growth in seeking this vision. We are particularly grateful and recognize the Government of Sweden, who aligned with us quickly in agreeing to host the core office of innovation in Stockholm. The strong and diverse local innovation ecosystem in Sweden, across public and private partners, will be instrumental in designing and delivering innovative solutions in step with local innovation ecosystems across the globe.

We are also very appreciative to the Government of Finland, who quickly aligned in support of two global innovation hubs focused on one of the largest impact gaps for children, quality learning in today’s digital revolution, and one of the largest trends in international development deliver, innovative financing.

But we cannot stop there. Innovative financing, harnessing the potential of blockchain and cryptocurrencies, and strategies to de-risk investments in last-mile connectivity, can be game-changing. UNICEF is well-positioned to grasp these opportunities thanks to the 2021 recalibration of the OOI.

One of the key lessons learned in 2021 relates to the need to use blockchain to track schools’ connectivity over time, and in some cases facilitate payments. As a decentralized technology platform, blockchain offers unprecedented levels of transparency and capability to connect to those in the hardest to reach areas.

Another area for development in 2022 onwards – an area in which OOI is well placed to engage – is mobilising the development finance industry to value children, including designing and bringing alternative financing instruments to market. Traditional public financing and philanthropy will not be enough to address the current challenges for children as set out in the SDGs, and for sure will not build sustainable financing approaches for the scale of demand that we can forecast.

In education, COVID-19 shone a harsh light on the inequities that exist both in the classroom and in family homes. The hub component of our new architecture will be an essential path to mobilising local innovation ecosystems at public, private, and academic spheres. This structure can be game-changing for aligning partners globally to accelerate ideation, testing and supporting the scale up of solutions.

The hubs are designed to be UNICEF’s innovation engagement engine across the private sector, research and development, start-ups, academia, civil society, government partners, philanthropists, young people, working together to promote joint partnerships and investment in innovation for children and young people everywhere.

The OOI also needs to use its comparative advantage with partners and communities to leverage digital technologies to benefit the most marginalized children and families and strengthen data for programme and system improvements. Since the inception of the OOI, UNICEF has played a leading role in the United Nations family of sourcing and deploying cutting edge technology to help children, families
and communities to survive and thrive. OOI will also continue to promote open-source solutions in the service of the SDGs. These can be an effective means for technology transfer, facilitating affordable access to appropriate and needed technologies for developing countries. There is also a pressing need to ensure digital innovations that benefit society can be in the hands of the many and not the few. It is important that equity-thinking sets the pace of the digital revolution and is not constantly playing catch up. The Digital Public Goods Alliance (DPGA) and our activities are living this in practice by ensuring solutions and tools are created and openly available to use for free.

The OOI Venture Fund continues to support and attract cutting-edge, out-of-the-box solutions from across the world and will continue to align and act as a pipeline for solutions based on problems and poised to scale as UNICEF expands its innovation capacity.

The massive growth of crypto and blockchain use over 2021 was also a clear signal that there is immense opportunity in the space for digital fundraising. The crypto and blockchain ecosystem presents a new opportunity to engage contributors and donors, and there is an increased desire from donors to fund programmatic work with cryptocurrency, which is not currently possible under the approved prototype cryptocurrency framework. In addition, UNICEF Country Offices have expressed interest in both fundraising cryptocurrencies and using cryptocurrencies in their native form. OOI and colleagues from across UNICEF are looking at how to address the volatility of crypto, including the opportunities and risks presented by stablecoins. In 2022, the prototype period of the CryptoFund will end, and the Crypto Working Group will put forward a recommendation on the institutionalisation of cryptocurrencies.

In the past year, the Office of Innovation has continued to sustain and grow existing partnerships, while establishing new beneficial relationships. We look forward to connecting with many more global champion and partners for innovation for children.