Update on the context and trends

Through exploring emerging technologies and embracing new approaches, the UNICEF Office of Innovation addresses some of the biggest challenges facing children today. In 2020, many of these challenges were unprecedented, driving innovation in new directions to meet urgent needs.

Innovation has always been central to the work of UNICEF. The organization has a long history of creating and realizing innovative solutions; for example, in pioneering ways to bring safe water to communities, in identifying and treating child malnutrition, and in technologies to keep vaccines cold during delivery. The global reach of UNICEF has allowed new solutions to be scaled up in 109 of the 190 countries and territories in which it is present.

As the past year has shown, the threats of the future are difficult to predict. Innovation is inherently forward-looking; it is about meeting today’s challenges with tomorrow’s solutions. With the emergence of the COVID-19 pandemic, the need for innovative solutions became urgent – to allow children and young people to access remote learning, to create new financing options for vital supplies, to expand and improve connectivity, or to access vital data on the impacts of restrictions to control the spread of the virus. In all these areas, and more, the Office of Innovation made significant contributions to the UNICEF response to the pandemic.

At the beginning of 2020, it was estimated that only 53.6 per cent of the world’s population used the internet, leaving an estimated 3.6 billion people without access. The least developed countries are the least connected, with only 19 per cent of their populations having internet access. Even for those who do have access, the most useful information is often inaccessible due to language, content or infrastructure barriers. The United Nations Secretary-General’s Roadmap on Digital Cooperation emphasizes the need to address challenges in access to digital solutions. Improving connectivity and access is vital – the Office of Innovation has ongoing work in this area, which was at the forefront of efforts to respond to the global threat of COVID-19, and will continue beyond the pandemic.

In January 2020, the Office of Innovation published the *Global Innovation Strategy and Framework 2.0*. This strategy outlines why innovation with and for children is important, why UNICEF is well placed to achieve this innovation, and how the organization will work with others, strengthening its own capabilities while applying innovation and delivering results for children. The *Global Innovation Strategy and Framework 2.0* is thus an important step towards an approach that will align innovation with the overall strategic goals of UNICEF, and that will ultimately help to realize the child-related Sustainable Development Goals (SDGs).

At the core of the *Global Innovation Strategy and Framework 2.0* are the ABCs of innovation: A for accomplishments – the demonstrated successes in applying innovation to improve children’s lives; B for bending the curve – through applying a portfolio approach, focusing innovation to influence and accelerate the arc of progress for children; and C for capability and culture – collaborating with partners, contributing to innovation as a catalyst and convener, and evolving organizational capability and becoming more fit for purpose.

The Office of Innovation strives for innovation across a range of areas, including in financial, digital and physical products, and in data, social and programmatic innovations. As UNICEF works with children and young people in some of the world’s most challenging environments, innovation that is both affordable and effective is vital. As an organization, UNICEF is committed to developing and
using digital public goods and is committed to open-source products wherever possible.

The Office of Innovation continues to adapt and create new solutions to confront the challenges facing children today. This report describes some of the Office of Innovation’s key results, achievements and lessons learned in 2020.

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**Major contributions and drivers of results**

| **Strengthening innovation at UNICEF** |
| **Improving the effectiveness of innovation at UNICEF** |

In January 2020, the Office of Innovation released the *Global Innovation Strategy and Framework 2.0*. This publication was created from a commitment to strong internal collaboration and will guide everything that UNICEF does to innovate with and for children. At its core, the strategy seeks to guide all investments in innovation towards furthering the global aim of ensuring that every child can survive, thrive, and live and learn in a safe, inclusive space. The strategy takes a systematic approach that enables innovation to be applied to the greatest challenges faced by the most vulnerable children and young people.

**Platforms supporting global innovation**

With the Information and Communication Technology Division (ICTD), the Office of Innovation developed INVENT, a global platform for innovation and technology for development. INVENT strengthens the value and impact of innovation investments by enabling all of UNICEF to explore, discover, connect and contribute to the landscape of innovation and technology for development across the organization’s global footprint through a single, searchable inventory. INVENT will help UNICEF to become more effective by enabling resources and investment to be targeted towards the specific programmatic problems for which innovation can be a strategy for change. INVENT will also boost the visibility of country and regional projects, allowing initiatives with the potential for scale to be identified and connected with opportunities for resourcing and support.

In partnership with the Division of Private Fundraising and Partnerships, the Field Engagement and Capacity Building team enabled the roll-out of UNICORN, the global UNICEF platform for running innovation challenges and innovation fundraising. UNICORN allows UNICEF staff to run online idea generation challenges (internally and/or externally), build repositories of ideas during offline innovation challenges, build communities of innovators within UNICEF and increase the visibility of fundraising ideas and innovation at UNICEF. UNICORN provides an important way of sourcing solutions through open innovation and challenges, and an accompanying series of learning events and resources were also launched to support effective sourcing strategies and use of these platforms.

**Innovative finance**

Within the Office of Innovation, the Innovative Finance team is working to accelerate results for children through new partnerships and creative financing solutions. Through innovative financing approaches and frameworks, the team leverages funding and financing for children via new financial structures and makes new and existing resources more efficient or results-oriented. Within UNICEF, the Innovative Finance team works in close collaboration with Private Fundraising and Partnerships, Public Partnerships Division, Division of Financial and Administrative Management, Programme...
Division and other stakeholders.
In 2020, UNICEF developed the first *Global Strategy on Innovative Finance*. Developed through extensive consultation with stakeholders, this strategy provides a forward-looking lens for innovative finance within and beyond UNICEF, defines and presents a framework for innovative finance and establishes goals and opportunities for scale. The strategy will be finalized and implemented in 2021.

The Innovative Finance team aims to amplify financing for children using innovative solutions such as blended financing and/or outcome-based financing, guarantees, parametric risk transfer instruments and donation-linked securities. Through striving to align and accelerate public and private capital for the SDGs for children, the team is implementing the *Global Strategy on Innovative Finance*, including child-focused innovative finance standards, creating new investment opportunities and aligning with United Nations inter-agency frameworks.

The FAST Fund, a guarantee facility that protects upfront payments for COVID-19 supplies (such as PPE), was developed in collaboration with UNICEF United States. In just two weeks, the FAST Fund raised

**Prototyping and testing**

**The UNICEF Innovation Fund**

The UNICEF Innovation Fund continues to invest in and grow technology solutions that create real change for children around the world. In 2020, UNICEF invested in 11 companies in 9 countries to address 4 ‘global breakthrough’ areas identified as opportunities in the Generation Unlimited agenda: job-matching, remedial learning, remote learning and work, and digital connectivity. The Innovation Fund received over 350 submissions from more than 60 UNICEF programme countries. This cohort focuses on solutions that bridge learning or connectivity gaps towards employability and features two technology areas, data science and extended reality.

In January 2020, Ethereum Classic Labs committed US$1 million to the UNICEF Innovation Fund. Of this, US$750,000 was directly invested in global startups that have graduated from the Fund. The startups will also receive support for project creation and developer training and mentoring.

Thanks to the strong leadership of UNICEF country offices, numerous solutions were developed and implemented over the course of 2020. So far, nine of the Innovation Fund’s portfolio companies’ solutions have been used by 14 country programmes.

**CryptoFund**

In addition to the traditional investments made in United States dollars, in June 2020 the Innovation Fund announced its largest investment yet in startups in developing and emerging economies, with investments made in a cryptocurrency. Eight technology companies from seven countries will use the investments of 125 ether each to develop prototypes, pilot or scale up their technologies over six months. In response to the ongoing threat from COVID-19, several of these companies are working to tackle the challenges of the pandemic for children and youth around the world. For example, through communicating vital messages, improving literacy via remote learning, and working to relieve pandemic and isolation-related anxieties. This was the first investment in cryptocurrency to companies working on data science, artificial intelligence and extended reality/virtual reality companies.

The UNICEF CryptoFund was also proud to announce its second donor, Animoca Brands. For the first time, a non-fungible token (a type of cryptographic token representing something unique, such as digital imagery) was sold in support of UNICEF. Animoca Brands auctioned a piece of virtual land in *The Sandbox*, a unique virtual gaming world, with the proceeds going to the UNICEF CryptoFund.
Drones for good

In 2020, the Office of Innovation expanded drone-focused projects in country offices across a range of key applications, from vaccine delivery to aerial imaging for better emergency preparedness and response.

In 2020, the work of the six drone startups began to come to fruition. In Uruguay, Dronfies Labs, which supports drone operations during emergency situations, is collaborating with the country’s Civil Aviation Authority to incorporate their open-source unmanned traffic management system in the development of regulations for unmanned aviation. In South Africa, Cloudline Africa is building long-endurance autonomous airships for the delivery of medical supplies to remote areas. In 2020, Cloudline engaged with the global open-source autopilot software for drones, PX4, by submitting code and documentation upstream to enable airships equipped with PX4 to benefit thousands of users.

In Malawi, UNICEF sponsored the African Drone and Data Academy, operated by Virginia Tech in partnership with the Malawi University of Science and Technology. The academy provides technology education for postgraduate African students in the physics of drone flight, communications, data analysis, and more. In doing so, the academy will provide students with the skills needed to join the rapidly growing technology workforce in Africa. More than half of the students in the inaugural class were women.

Since mid-2020, UNICEF has been expanding the model of the African Drone and Data Academy to other countries and developing an online, open-source curriculum and certification process that can be used as a DPG.

Data science and artificial intelligence

The COVID-19 pandemic drew focus to the urgent need to rapidly generate and disseminate critical insights on vulnerable populations. Ongoing investment in Magic Box, the collaborative data-sharing platform at UNICEF, was vital from the onset of the pandemic. Using big data and artificial intelligence, Magic Box generates real-time insights across UNICEF programmes. In 2020, this included insights into responses to the pandemic, the mapping of socioeconomic indicators to inform policy and programmes, and emergency responses.

Blockchain

UNICEF continues to explore blockchain – from cryptocurrencies to smart contracts and from tokens to building overall capacity – to better understand where the technology can create internal efficiencies and/or play a role in programme delivery, and to accelerate impact.

The Innovation Team supported UNICEF Kazakhstan in leveraging a public blockchain network to establish its potential as a transparent way for the public and donors to see how funds are spent, while also increasing internal efficiencies. The prototype was intended to test smart contracts (i.e., digitized rules) and explore whether this could potentially decrease banking fees for transactions, shorten the time spent on spot checks, and improve efficiency in dealing with partners. Early results were positive, confirming initial hypotheses about where UNICEF could benefit from a technology like blockchain.

In 2020, the blockchain team developed Juniper, a set of tools to help UNICEF and other public-sector organizations to use cryptocurrency and to publicly showcase blockchain transactions while also easily managing back-office operations. Juniper encompasses a visualization website, a portfolio tool and extensive research on the custodianship of cryptocurrencies. The visualization tool was created to help the public to understand how and why UNICEF uses cryptocurrencies, while the portfolio tool was developed to allow different UNICEF teams to understand how cryptocurrencies flow through the organization.
The Office of Innovation continued to explore blockchain-based recognition, including through working with the Digital Public Goods Alliance to crowdsource reviews of DPGs. In this initiative, open-source projects are reviewed against the Digital Public Good Standard to determine whether they qualify as DPGs. Reviewers are awarded with a blockchain-based badge provided by the Blockchain Team.

**Digital Public Goods Alliance**

The Digital Public Goods Alliance is a multi-stakeholder initiative that aims to accelerate the attainment of the SDGs in low- and middle-income countries by facilitating the discovery, development, use of and investment in DPGs. Incubated by the Government of Norway and UNICEF, the Alliance is formed from partners and stakeholders in different sectors who contribute to these aims, including by creating and providing software, data, content and algorithms. The Office of Innovation co-hosts the Alliance’s Secretariat and is a member of the Alliance’s Interim Strategy Group, leading the implementation of several key areas of the Alliance’s strategy.

In 2020, the Digital Public Goods Alliance achieved several significant milestones and was highlighted by the United Nations Secretary-General’s Roadmap on Digital Cooperation. The Alliance launched the DPG Standard: a set of nine indicators designed to maximize consensus about whether a project conforms to the definition of DPGs as set by the United Nations Secretary-General. The DPG Standard represents a baseline for recognition as a DPG and is an open project.

DPGs that are nominated for review against the DPG standard, as well as those that are confirmed to do so, are now collated in the DPG registry. The registry continued to grow throughout 2020, with 471 nominees and 20 verified DPGs announced. These include high-priority digital public infrastructure solutions for financial inclusion. In line with the open-source ethos, public participation was invited in the review of projects against the DPG Standard. Teachers, students, tech practitioners and others have engaged in the project, which continues into 2021. In addition to co-hosting the Secretariat, the Office of Innovation is supporting 10 country offices to pilot new ways to identify, accelerate and deploy DPGs. UNICEF is also leading the development of a number of prototypes exploring the use of new technologies and partnerships to channel new resources and contributions to DPGs.

**Scaling innovation**

**Giga**

In 2019, UNICEF and the International Telecommunications Union (ITU) launched Giga, a global initiative to connect every school to the internet and every young person to information, opportunity and choice. Giga aims to provide connectivity to every school in the world, bringing the power of meaningful connectivity to fast-track young people’s access to educational resources and opportunities. Giga will ensure that every child is equipped with the DPGs they need and empowered to shape the future they want.

As with other areas of work, COVID-19 fast-tracked the approach to Giga. In 2019, connectivity was desirable; in 2020, it became essential. The Giga team responded to the pandemic by accelerating work on key initiatives in this co-creation partnership with country offices, focusing on providing connectivity and necessary services to 13 high-impact countries between April and September 2020.

To date, more than US$22 million has been raised for school connectivity. In August, UNICEF and Ericsson announced a global partnership to map school connectivity in 35 countries by the end of 2023 – a vital first step towards providing every child with access to digital learning opportunities. Ericsson’s multi-year, multi-million-dollar commitment will support the collection, validation, analysis and visual representation of real-time school connectivity data. The data generated through the
mapping will enable governments and the private sector to design and deploy digital solutions that enable children and young people to learn. Ericsson will also engage its extensive customer base to further advance the goals of the Giga initiative.

Thanks to Giga, the first schools in Kenya are already being connected, and similar pilots in Kazakhstan and Rwanda are in place, with thousands more to follow soon.

**U-Report**

U-Report, a mobile empowerment platform created by UNICEF, was featured in the book *Eat, Sleep, Innovate* (published by Harvard Business Publishing in November 2020) as an example of innovation in action. The book also featured the UPSHIFT social innovation and social entrepreneurship programme and its inventive programming approach to build future-ready skills among the most marginalized adolescents and youth.

In 2020, a U-Report COVID-19 chatbot was developed to support Risk Communication and Community Engagement during the COVID-19 pandemic. By June 2020, the chatbot had been accessed by over 11 million people in 72 countries.

**UPSHIFT**

UPSHIFT is a forward-looking programme that blends social innovation and social entrepreneurship. Through workshops, mentorship, incubation and seed funding, UPSHIFT supports young people to learn skills for the future while creating change in their communities. Building on the progress made in 2019, in 2020 13 new countries joined UPSHIFT, bringing the total to 35. To date, 1.35 million young people have benefited from UPSHIFT.

UPSHIFT supports and empowers young people in various important aspects of their lives. The programme supports young people from different communities and countries to work together and build understanding through collaboration in social projects. In countries such as the Plurinational State of Bolivia, Jordan and Tajikistan, UPSHIFT is empowering girls to learn new skills and create social enterprises. In Burundi, UPSHIFT is supporting young people displaced by climate change to integrate into and contribute to their new communities. In Ukraine, young people used UPSHIFT to support older people to learn digital skills, allowing them to stay connected during the pandemic.

In response to the emergence of the COVID-19 pandemic, 17 countries developed eUPSHIFT, a virtual version of the programme that includes online events and workshops. Country UPSHIFT teams demonstrated that the programme can be digitized in as little as two months, while retaining key characteristics of the programme such as a high level of user engagement, experimental learning, and personal connections with mentors. Further, eUPSHIFT reduced costs by up to 50 per cent, compared with the face-to-face version of the programme. While eUPSHIFT was initially developed as a temporary measure, the approach has since evolved, with the majority of UPSHIFT countries now considering a long-term digital option in the form of either digital approaches to integration of UPSHIFT into national systems, blended learning programmes or self-paced e-courses.

**Generation Unlimited Youth Challenge**

UNICEF has adopted an innovative approach to youth employment through the creation of the Generation Unlimited Youth Challenge, designed and delivered by the Office of Innovation on behalf of Generation Unlimited.

In December 2020, the eight winning teams of the Generation Unlimited Youth Challenge were announced: Education on Air (India), The Green Project (Kenya), Femme & Stem (Mexico), Hydrolution (Nicaragua), Team Muda (Nigeria), eBionics (North Macedonia), CreaDeaf (the Syrian
Arab Republic) and Muallim (Thailand). Ideas ranged from the Venus Arm from eBionics, an affordable 3D printed bionic arm, to an online-offline community learning hub for adolescents (Street2School) from Team Muda, and a board game to raise awareness of bullying (DAWN) from Muallim. Each winning team will receive further funding of up to US$15,000, along with a tailored global incubation programme from Generation Unlimited partners to support their ideas to reach greater scale.

The global incubation programme for the five winners of the inaugural Youth Challenge concluded in 2020. Team Andrometa (Speakout – North Macedonia), Team RedCode (Pakistan), Team Amigo (Zimbabwe), Team Muntjatna (the Sudan) and The Fantastic Four (Thailand) remained active and engaged throughout the process and are steadily expanding their impact: Team Amigo’s EdTech platform has 165,000 subscribed users and the Red Code has directly provided 35 home-based jobs for female workers to support the distribution of 4,500 reusable sanitary pads.

To date, over two cycles, the Generation Unlimited Youth Challenge has reached 15 million young people in 40 different countries.

**Capacity building**

**Innovation capacity building**

The Field Engagement and Capacity Building team supported UNICEF innovators in more than 70 country offices, regional offices and in the headquarters to capture, learn and share ideas, knowledge and valuable experiences on innovation, with the aim of strengthening the culture of innovation in UNICEF and the capacity to scale up proven innovations. The Field Engagement and Capacity Building team created useful and easy-to-use tools for innovators, facilitating a thriving innovation community of practice across a range of internal digital platforms.

**Innovative engagement**

In 2020, the Office of Innovation released a series of articles created with augmented reality storytelling. The Office of Innovation also released several stories on frugal innovations: products or services that are born out of necessity where resources are limited.

With UNDP, UNICEF led the Big Think Challenge, in which entrepreneurs and innovators were given the opportunity to pitch their ideas to investors. Five selected finalists, from 196 entries, pitched their ideas to a panel of 4 judges that included UNICEF Executive Director Henrietta Fore. The finalists received funding of up to US$500,000 from UNICEF and UNDP.
Lessons Learned and Innovations

Amid the challenges of 2020, there were many unprecedented opportunities for learning and innovation. At the same time, the organizational shift that began in 2019, towards a focus on delivering impact through innovation and learning and improving from mistakes, continued into 2020. Fundamentally, this approach recognizes that innovation requires taking risks, learning from mistakes, adjusting and improving. Embracing this ethos meant that the Office of Innovation was, and continues to be, well-placed to respond to the ongoing challenges and evolving environment created by the COVID-19 pandemic.

Across most areas of work, a key learning theme for 2020 was an understanding of how to work during a pandemic. Internally, this involved navigating a switch to fully remote working while minimizing the impact on programmes and projects. Externally, this involved recognizing the importance of sustained communication and collaboration with partners, despite the additional challenges.

While UNICEF was able to employ some important partnerships in responding to the challenges of 2020, it also became clear that engagement with partners could be improved further. There is also an ongoing need to identify ambitious partners who can provide both expertise and flexible funding.

Some of the most important lessons learned and innovations driven in 2020 by the Office of Innovation arise from some of the past year’s most successful programmes and initiatives, including INVENT and innovative finance.

The greater visibility across UNICEF’s innovation landscape afforded by INVENT has the potential to deliver significant benefits by creating greater opportunities for collaboration and surfacing the most promising approaches, techniques and tools for wider learning, adoption and scale-up. Continued investment in strengthening innovation culture and communities is needed to drive deeper engagement and capitalize on the full potential of this platform. Ultimately, INVENT will allow UNICEF to become more effective by enabling resources and investment to be targeted towards specific programmatic problems.

In innovative finance, a key learning was the importance of a programme-first or problem-first approach. This ensures that the drive for innovative financing does not overshadow the needs or goals of a programme. This learning applies to all innovation work by UNICEF and is embedded within the Global Innovation Strategy and Framework 2.0, which promotes a portfolio-driven approach to guide innovation investments towards programmatic challenges. This ethos allows for deliberate, evidence-informed choices that align resources with overall strategic goals, and the innovations best suited to solving the complex challenges and stubborn barriers that must be overcome to meet those goals.