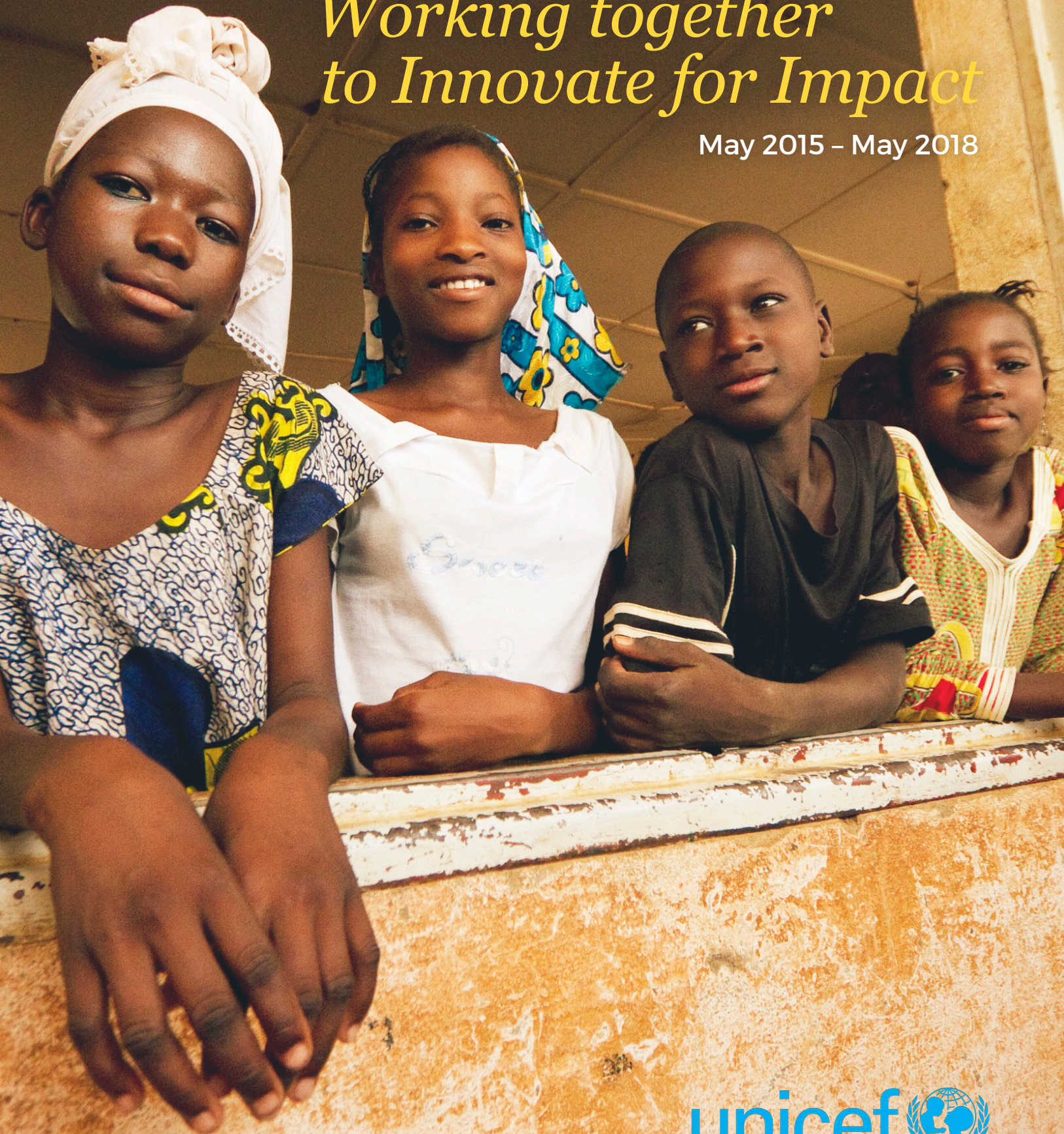


Arm + UNICEF Partnership Report

Working together to Innovate for Impact

May 2015 – May 2018



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1 Executive Summary

Since 2015, UNICEF has partnered with Arm to accelerate the development of new technologies and help the most vulnerable children across the world. Together, we have used technology to deliver real social value for children, through leveraging Arm's funding, expertise and network of partners and combining this with UNICEF's global presence and convening power across 190 countries.

To date, our partnership has directly benefited over **290,000 children and their families** through joint initiatives supported such as the *Wearables for Good Challenge* and U-Report. However, because of our influence and ability to bring others to the table, we have been able to deliver greater results on a wider scale.

Through Arm's investment in UNICEF's core technology and infrastructure, UNICEF has been able to **accelerate tested innovations and achieve greater impact for children**. This investment in our messaging technology for frontline community health workers and young people has multiple applications and has delivered real impact. In Indonesia, it was applied to provide real time tracking and trouble shooting for the country's largest ever measles and rubella vaccination campaign, resulting in **35 million children** being vaccinated. When Hurricane Irma devastated the Caribbean, UNICEF was able to use U-Report to scale emergency communications in less than an hour, across eight countries.

Our investments in driving technology growth, research and thought leadership has exposed challenges and opportunities for addressing the needs of children in urban contexts. This insight has enabled us to drive forwards new innovations and identify new ways of working with the private sector to address critical issues for children.

The *Wearables for Good Challenge*, launched in collaboration with Frog, attracted significant attention and has been hailed as the most inclusive

technology challenge ever. The two winners of the challenge – [Khushi Baby](#) and [SoaPen](#), have demonstrated that wearables can go beyond fitness to address challenges such as access to immunization and promotion of hygiene habits to prevent diarrheal diseases. Thanks to the support of Arm and UNICEF, both are now progressing to scale in India and beyond with support of partners such as the [Gavi](#), the Vaccine Alliance and [Johnson & Johnson](#).

Throughout the partnership, we have also been examining the intersection of business opportunity and the social value of technologies in emerging markets. With Arm's support, UNICEF has engaged many of the large technology players (including Google, Facebook, Microsoft) as advisors in partner-driven research on these emerging market opportunities. Working with [Dalberg](#), we completed research that outlines six big technology bets and highlights not only market opportunities, but also the potential to improve children's lives and make quantifiable progress towards the Sustainable Development Goals. With the resulting recommendations on how to use technology to forward UNICEF's mission in urban areas, UNICEF and Arm are positioned to be leaders in the field.

Across all areas of our work, we have demonstrated that we can initiate, support and scale solutions that drive social impact. By bringing together diverse ideas, experiences and approaches, we identify the best ways technology can improve the lives of vulnerable children. Going forward, we will work together with our ecosystem of partners to deliver technology solutions that achieve impact for children and make steps towards meeting the Sustainable Development Goals. Alongside other founding partners, the launch of 2030Vision will move the needle on this effort. In addition, our collective research on discovering technology's tech bets will provide the catalyst for more companies to join in to demonstrate that doing good is good business.









IMPACT FOR CHILDREN

290,000 children directly

35 million indirectly



PARTNERSHIP ACHIEVEMENTS

NEW ENGAGEMENT MODEL	IMPACT FOR CHILDREN	EXTERNAL RECOGNITION	INFLUENCE	ENGAGED PEOPLE	EXPOSED NEW GROWTH OPPORTUNITIES
					
<ul style="list-style-type: none"> Partnership co-created together, unique to our collective skills Funded core infrastructure to support cross-cutting innovation programmes 	<ul style="list-style-type: none"> 290,000 children directly +35 million indirectly 	<ul style="list-style-type: none"> Award winning partnership Media reach of 49.4 million Social reach of 162 million 	<ul style="list-style-type: none"> 2030 Vision Founding partners Engaged private sector in new ways including Google, facebook, Microsoft and others in advisory 	<ul style="list-style-type: none"> Senior leadership (C-level/ED) of both organizations are champions of partnership + 680 employees actively engaged Skills share pro bono value of \$240,000 	<ul style="list-style-type: none"> Driven new innovations and research to scale Exposed \$2 trillion market opportunity to invest in tech for good



Across all areas of work, we can initiate, support and scale solutions that drive social impact.

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IMPACT SNAPSHOT

Arm's support has been integral to achieving improved outcomes for children

35 Million

Children vaccinated in Indonesia with improvements enabled on the RapidPro platform

7.5 Million

Number of messages exchanged by youth U-Reporters in over 100 countries

\$1.2 Million

Additional funding unlocked by Khushi Baby following Arm investment, mentoring and advisory from UNICEF

\$425,000

Value of private sector expertise secured for Wearables for Good incubation program

200,000

Youth engaged and recruited to be connected with policymakers & government through U-Report

80,000

Vaccination events recorded by the Khushi Baby system through their initial pilot, supported by GAVI

10,000

Units of SoaPens sold in India through trial of the prototype. Full scale manufacturing is being discussed with leading soap companies

1 Week → 1 Hour

Reduction in time to deliver emergency communications in the Caribbean during Hurricane Irma using Rapid Pro platform



2 PARTNERSHIP BACKGROUND

Arm is already a global success story. It has evolved into a worldwide organization whose technology is in more than 95 percent of smartphones and laced throughout the growing Internet of Things. More than 100 billion Arm-powered chips have shipped in the company's existence, and the next 100 billion will ship by 2021. Arm's business model, and the fact that they count a diverse ecosystem of major technology players as partners (over 1,000), has helped Arm to become the foundation of the advanced computing world.

UNICEF has a 70-year history of innovating for children. We believe that new approaches, partnerships and technologies that support the realization of children's rights are critical to improving their lives. UNICEF Innovation is a creative, agile team within UNICEF. We sit at a unique intersection, where an organization that works on huge global issues meets the startup

thinking, the technology, and the partners that turn this energy into scalable solutions.

Since May 2015, UNICEF has partnered with Arm to harness technology to transform the lives of the world's most vulnerable children. Arm has provided funding of **£2.4 million/\$3.7 million** to accelerate the development of new technologies to overcome the barriers that prevent families from accessing basic health, education, and support services. The current partnership (2015-2018) has **three pillars of activity** which support our vision to harness technology to transform the lives of the world's most vulnerable children.

These are enabled by significant joint communication efforts and the engagement of Arm's employees to support programming.

Three pillars of activity



Scale Up

Providing core funding to accelerate existing Unicef Innovation projects to scale, maximising reach and impact for children.



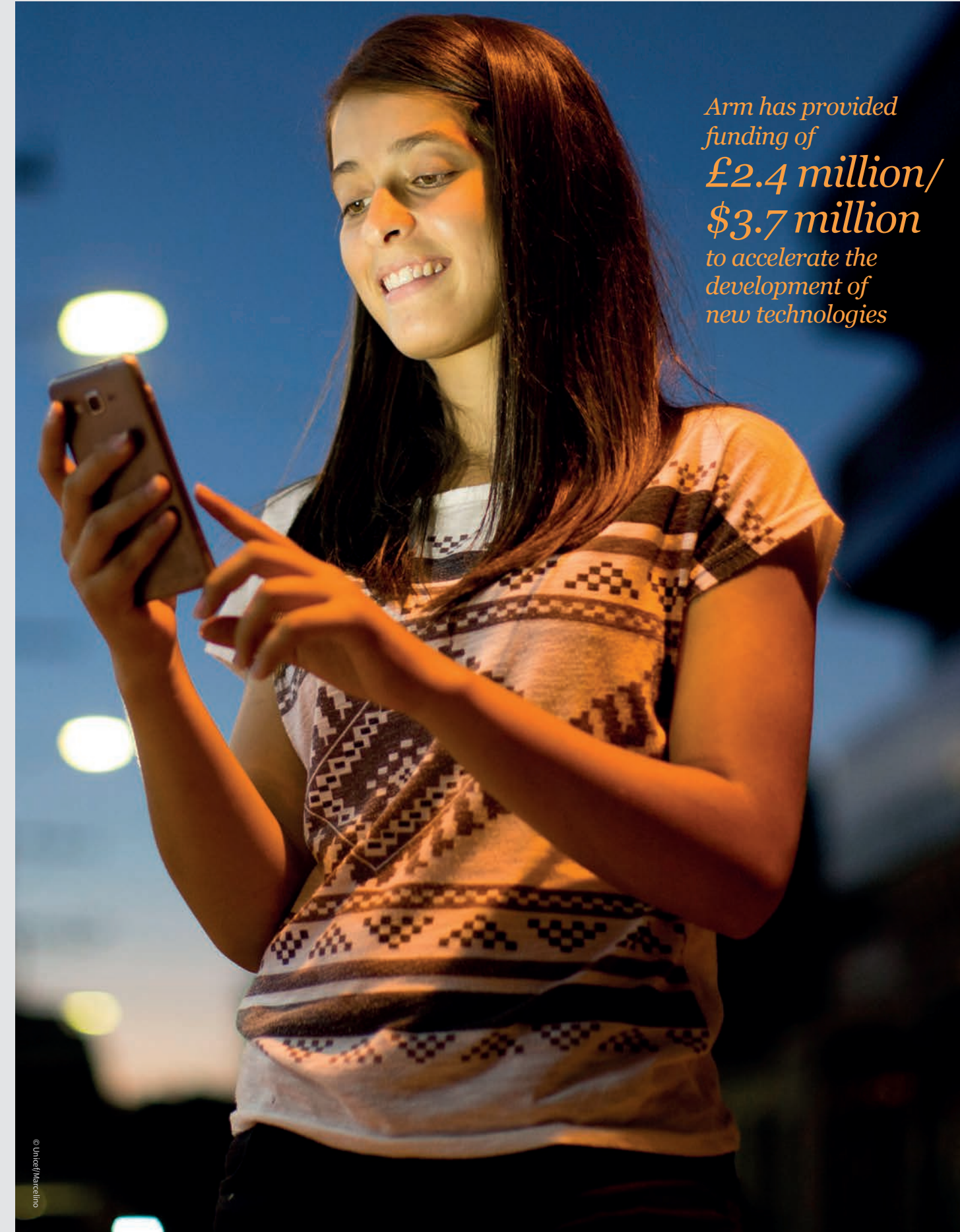
Technology Growth

Supporting Unicef Innovation to identify key emerging trends and challenges faced by children, and new areas for investment in technology growth that delivers social good to address these issues.



Exposing Market Opportunities

Working together to demonstrate the business case and market opportunity for investing in technology for good, as well as the potential impact for children.



*Arm has provided
funding of
**£2.4 million/
\$3.7 million**
to accelerate the
development of
new technologies*

3 ACTIVITIES AND IMPACT

3.1 PILLAR 1: SCALING UP PROVEN TECHNOLOGIES

Paramount to scale UNICEF's technologies for children

UNICEF Innovation takes game-changing innovations and deploys them at scale across multiple countries and contexts. The goal is to implement and scale locally adaptable global solutions that will help the world's most vulnerable children while using funds efficiently and effectively. We work to ensure that our projects can be easily replicated, set up, and utilized anywhere, allowing us to help children and families in the most hard-to-reach places.

A key focus within the UNICEF + Arm partnership has been to allocate a portion of funds to support existing UNICEF initiatives to scale. To date, Arm has provided funding to support two core areas of UNICEF's at-scale innovation programming, which focus on (I) youth empowerment and (II) real-time information sharing.

3.1.1 Empowering Youth Through U-Report



U-Report is a messaging tool that empowers young people around the world to engage with and speak out on issues that matter to them. It works by gathering opinions and information from young people on topics they care about – ranging from employment and discrimination to child marriage – or by directly providing timely life-saving information to the most vulnerable. U-Report is available via SMS or social media, and works on a basic mobile phone. It's free, anonymous, and easy to use.

U-Report enables interactions between young people, their community, their government, and civil society organizations – and data from its regular polls is made available in real-time – which when aggregated and analyzed at scale is a strength of the program. The data and insights are shared



with policy makers who make decisions that affect young people, but also the data and the outcomes of related advocacy efforts are shared back with U-Reporters.

U-Report has been used by UNICEF to support responses to disease outbreaks in Nigeria (Cholera), Latin America (Zika), and Uganda (Marburg); landslides in Sierra Leone, and conflict in the Central African Republic. In several countries, U-Report has also contributed to closing the gender gap. For example, 500,000 messages answered in U-Report provided information on menstrual hygiene management and sexual and reproductive health.

Enabling U-Report to Test and Integrate New Technologies

The financial support provided by Arm funded the scale-up phase of U-Report's integration with Facebook Messenger, WhatsApp, and other messaging platforms. The overarching objective of this integration was for UNICEF to be able to engage new audiences and recruit new U-Reporters, giving a voice to more young people on the issues that matter to them. WhatsApp's user base of 1.3 Billion, of which 1 Billion are daily users, provides a huge opportunity for UNICEF to connect with young people, using the platforms that they are already interacting with to ensure their voices are heard.

In 2017 and 2018, UNICEF worked with Facebook and Nyaruka to integrate WhatsApp as a new way of connecting with U-Reporters. With the launch of access to the Application Program Interface (APIs), UNICEF was able **to integrate U-Report across various communication channels and develop the software platform**. This integration with Facebook Messenger and WhatsApp have allowed UNICEF to scale U-Report exponentially, particularly in countries where young people are not being considered by decision makers. With Facebook's free basics platform, U-Report can now also reach people on feature phones and in countries where the costs of SMS are prohibitive.

Shortly after the integration was completed, UNICEF launched a scale-up initiative using the WhatsApp platform. It was one of UNICEF's most cost-efficient campaigns to date, yielding **8,000 new U-Reporters in 21 days**. Early indications show that this audience is on average more engaged and comes from countries that are harder to reach with more marginalized populations.

U-REPORT + VIRTUAL REALITY

With additional funding support from Arm, U-Report and UNICEF also launched a **first-of-its-kind 360 Virtual Reality film** that has been **watched more than 2.2 million times**. This 360 degree video shows U-Report in the global context and that of Pakistan. Entirely based in and around the city of Peshawar, Khyber-Pakhtunkhwa (Pakistan), the characters in the video are real U-Reporters who have been making a difference in their communities through this SMS based engagement platform designed by UNICEF. The purpose of the video was to promote U-Report and show young people as the shapers of their own destiny. It shows young people as proactive participants, illustrating they have a voice through technology. See it here.



IMPACT

5 million U-Reporters across 42 countries

Arm's investment has enabled UNICEF to improve the core infrastructure of our technologies. Without this investment we would not have been able to integrate and activate other messaging channels, like WhatsApp. This has resulted in UNICEF recruiting an additional 200,000 young people, as U-Reporters and enabled the exchange of more than 7.5 million messages. This contributed to UNICEF recruiting 1,453,691 young people.



Emergency communications delivered in an hour

The investment in core infrastructure has also enabled Unicef to reduce the time to scale emergency communications from 1 week to 1 hour. With Arm's support, we were able to reach 125,000 people with life saving information in the aftermath of Hurricane Irma.

Snapshot on impact:

There are now more than **5 million** U-Reporters in 42 countries.

42 countries are using U-Report, with a global U-Report program also live

1 new U-Reporter signs up **every 30 seconds** somewhere in the world

200 partnerships (formal and informal) have been formed globally with government and civil society organizations to operate U-Report as a public service program

U-Report has been utilized to improve **health, education, child protection,** and **emergency programming** for children

U-Report was a vital tool during the **Ebola response** in West Africa and during Hurricane Irma in the Caribbean

Over **500,000 young people** received one-on-one advice from U-Report in 2017

U-Report content is value and trusted. Over **80% of users share it** with at least one other person

CASE STUDY

U-REPORT IN ACTION

Hurricane Irma



“I don’t know how to explain myself, but in my 15 years this is the first hurricane I’ve ever been through, and it really scared me. But I don’t know how to tell you that the information you sent me was some of the best information I got, and I shared it with my whole family by telephone.”

Katy Sabrina Estime, 15, whose home was severely damaged by Hurricane Irma, in Grand Turks, Turks and Caicos Islands.

Last Summer, Hurricane’s Irma, Jose and Maria battered their way through the Caribbean devastating communities. Hurricane Irma, the most powerful hurricane ever recorded over the Atlantic, left more than 1.4 million people—one third of them children—in need of humanitarian assistance. One important way that UNICEF helps keep children and families safe in emergencies is through providing information and advice to help those in the path of the storms prepare. UNICEF uses a variety of methods to share this information, from providing leaflets to radio messages. The development of the messaging platform, U-Report, has provided a new channel to provide potentially life saving information to affected communities. Previously, it would have taken UNICEF a week to plan and then deploy an outbound communication like this, but the Arm funded improvements to the core infrastructure of U-Report meant we were able to deploy this information within 24 hours. Overall

more than 125,000 people in the path of Irma were warned how to protect themselves in the days before the storm.

As well as being able to provide outbound communication messages, U-Report allows its U-Reporters to share information with UNICEF and ask questions. In the days following the storms, UNICEF was able to respond to 8,000 messages and questions from U-Reporters. The engagement with the platform was so great that UNICEF had to recruit an additional seven volunteers to respond to the queries.

Without the funding from Arm, UNICEF would not have been able to react so quickly to provide life-saving information to communities affected by the hurricanes.



WHAT'S NEXT

Based on U-Report results delivered with Arm support, UNICEF Innovation has been inundated with requests to help countries scale our work and has seen an increased demand for support across UNICEF in the area of digital expertise. In response to this, UNICEF has established a Digital Solution Centre. This centre of excellence, which was inspired by Arm, advises UNICEF country offices and U-Report campaigns to ensure that systems are accessible to as many young people as possible in an equitable way. UNICEF Mexico, Indonesia, India, and Latin America are all using the centre in its pilot phase.

In addition, since launching U-Report, UNICEF has effectively partnered with corporations to make it accessible, yet the technology (e.g. the website, app, and appearance of them) is dated and does not take full advantage of today's digital capabilities. A priority for UNICEF Innovation is to conduct a **redesign and revamp the U-Report product** based on a consultative process with U-Reporters and digital experts.

Size, growth and engagement of U-Report's members continues to be our primary metrics of success. Achieving this growth and sustained engagement requires U-Report to stay relevant and continue to prove its value to young people. This year **U-Report will**

receive 40 million messages via SMS and web-based messengers like Facebook and Viber, many of which indicate a demand for information on a range of issues including health, child rights, employment advice and education issues. Other messages can alert UNICEF and partner organizations to outbreaks of disease or impending emergencies. Currently the number of questions U-Report is able to respond to is dependent upon UNICEF being able to recruit expert resources and volunteers. Processing this volume of messages manually is no longer an option. **With Arm's support, we aim to build a 'Helpline for the 21st Century' using AI to improve responsiveness.** Imagine how many people could access information if we could provide round-the-clock responsiveness rather than scheduled key moments or dates. This is why UNICEF, with the support of Arm, is working to develop a **bot platform using Artificial Intelligence** so we can get more information to the people who desperately need it.

Planned Impact:

- 10 million message exchanges sending and receiving important information
- Efficiency of service: 500,000 questions answered
- 10 new U-report platforms in 2018 rolling out chatbot BETAs with potential for further exponential scale up in 2019



3.1.2 Facilitating Real-Time Information Sharing Through RapidPro



The ability to access credible, up-to-date information about the situation of children is indispensable to improving their lives and protecting their rights. **RapidPro** is an open source, SMS-based, mobile health monitoring tool developed by UNICEF that allows frontline workers in even the most remote corners of the world to reach those most in need using accurate and timely information.

RapidPro enables UNICEF and partners to easily design, pilot and scale real-time data systems that connect directly with a mobile phone user – often without the help of a software developer. The flexible platform can gather data on many vital areas such as health, education, child protection issues, and emergencies.

Health monitoring has been given a boost with the open source, SMS-based RapidPro tool.

DIGITAL HEALTH TOOLS TO STRENGTHEN HEALTH SYSTEMS: Powered by RapidPro (formerly 1000 Days)

Mobile phones are changing the way healthcare is delivered in the most rural and underserved parts of the world. Recognizing this potential, UNICEF leverages real-time information platforms like RapidPro to contribute to a digital health ecosystem. Drawing on years of experience with projects powered by RapidSMS and RapidPro, UNICEF is now working with a range of partners to deploy real-time information projects to address different constraints within health systems with the ultimate goal of improving health outcomes for women and children. **UNICEF is using RapidPro to support health programs in 18 countries.**

Funding provided by Arm has been used to support the expansion of digital health deployments based on RapidPro in Senegal and Sierra Leone, with the aim of reinforcing UNICEF health programming and building the foundations for national system change. Interoperability, openness, and scalability define UNICEF's use of RapidPro within the health space, and Arm's investment is helping UNICEF build better, more resilient health systems through our iterative approach and ability to amplify learnings in one country to others. Although funding has directly supported UNICEF's work in Senegal and Sierra Leone, this support has catalysed results in other countries.

IMPACT

Arm funding supported the successful completion of the following RapidPro improvements and tasks:

- Trained the Senegal Ministry of Health and UNICEF country Office on new system
- Designed communication flows of how system would work alongside existing processes
- Conducted educational messaging formatting, design and capacity building on RapidPro
- Supported the Ministry of Health to develop registration modules for pregnant women and mothers.
- InfoSante, powered by RapidPro, has been used to coordinate emergency medical transportation **over 50 times**, connecting health workers to ambulance services while alerting the medical community that referrals are happening.

With the investment support given to make development improvements to the platform, UNICEF **Sierra Leone** was able to use RapidPro to support the National Malaria Control Program's preparation, distribution, and stock monitoring of long-lasting insecticide-treated nets to **1.5 million households** in the Western Area in order to prevent morbidity and mortality among children under the age of five.



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CASE STUDY

RAPIDPRO IN ACTION

Indonesia

“It used to take four people to prepare the reporting. Now I can report the children I have immunized from anywhere, any time.”

Ms Enung Nurhayati,
Immunization coordinator of Puskesmas
(Community Health Centres)

In Indonesia, RapidPro provided real-time tracking and troubleshooting for the country’s largest-ever measles and rubella vaccination campaign, reaching over 35 million children between the ages of 9 months and 15 years.

Indonesia has the fourth highest number of under-immunized children in the world – 1.9 million. In 2017, UNICEF supported the Government of Indonesia to deliver the country’s largest-ever immunization campaign which aimed to vaccinate 70 million children against measles and rubella, in two years.

This campaign used RapidPro to facilitate real-time data and analysis at the level of the community health centres, or Puskesmas. There are 3,617 such centres spread across Java, and never before has coverage analysis reached this level of detail. RapidPro is able to provide daily, weekly, or monthly digital reporting, via a dashboard, providing a scorecard that shows which provinces,



districts, and Puskesmas are hitting vaccination targets. This enables more effective and timely monitoring, as well as the quick identification of any problem areas.

Ms. Enung Nurhayati, the immunization coordinator of the Puskesmas, has become a fan of RapidPro. “It is easy to report. Before, I had to remember and write it all down and come back here to the Puskesmas office to report. It used to take 4 people to prepare the reporting. Now I can report the children I have immunized from anywhere, any time. We are happy, yes, about the campaign, but we need to RapidPro everything!”

The proof is in the results – the district’s routine immunization coverage is 90% but this campaign reached 96.8%. Feedback from health workers towards the integration of RapidPro to the immunization campaign has been overwhelmingly positive. They have also expressed how they can see this platform used in other areas of their work that require monitoring from routine immunization and nutrition monitoring.

WHAT'S NEXT

Over the last year, the number of UNICEF countries using RapidPro increased from 37 to 51, including in 18 countries where digital solutions powered by RapidPro supported UNICEF health programming. In 2018, UNICEF will continue this work to support the Senegal Ministry of Health in scaling these efforts through the training of trainers, training of health workers and developing a strong communication plan.



3.2 PILLAR 2: DEMONSTRATING THE POTENTIAL OF TECHNOLOGY GROWTH AREAS

Pointing UNICEF to transformative new technologies

Together, Arm and UNICEF set out to demonstrate the potential of investing in technology areas as an important way to deliver social good. The Wearables for Good Challenge was the centerpiece of this pillar of activities. The second strand of this work has been a piece of work to examine the future technology trends and opportunities that exist to create technological innovations that improve the lives of vulnerable children in cities. This included the development and publication of an **urbanization use case handbook**, and engaging the Bill & Melinda Gates Foundation on a first-of-its kind collaboration around the **Global Grand Challenges**.

3.2.1 Wearables for Good



Arm's partnership with UNICEF began with the launch of the **Wearables for Good Challenge**. With an official public launch at Quartz's 'The Next Billion' conference, the Challenge invited start-ups from around the world to submit their best ideas for a durable and affordable wearable device that would address a UNICEF focus area and had the potential to change the lives of women and children globally.

The Challenge attracted significant interest and press coverage and was hailed as the most inclusive technology challenge ever, with 250 applications received from 46 countries. The winners were **Khushi Baby**, a necklace that stores immunization records for children in the first two years of life, and **SoaPen**, a soap crayon that encourages hand washing. Each winner received funding of \$15,000 and entered a 4-month incubation program with UNICEF, Arm, and partners. This consisted of 4 phases:

- Phase 1 – Business Sustainability**
- Phase 2 – Branding & Marketing**
- Phase 3 – Platform & Product Testing**
- Phase 4 – Manufacturing & Go-to-market Strategy**

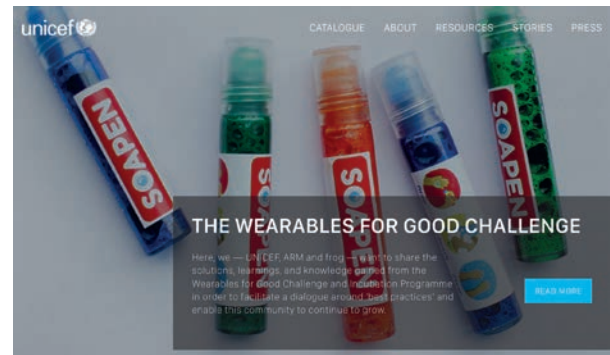
Through the Challenge, UNICEF and Arm were able to demonstrate that that wearables can go beyond fitness to address challenges such as access to immunization and promotion of hygiene habits to prevent diarrheal diseases. Arm was also able to gain rich insight into some of the most important long-term markets and make inroads with new business partners.

Following the Challenge, a collection of open-source designs and concepts was curated and made available to the tech and design communities so that these products and the process will inspire others. This collection can be found at www.wearablesforgood.com (see image below) where winners, finalists, other top applicants, and all resources from the challenge are featured, alongside a catalogue of ideas. The website also includes a film which UNICEF produced with the support of Andela to highlight how our partnership pulled in a new generation of motivated tech talent to tackle the Challenge.

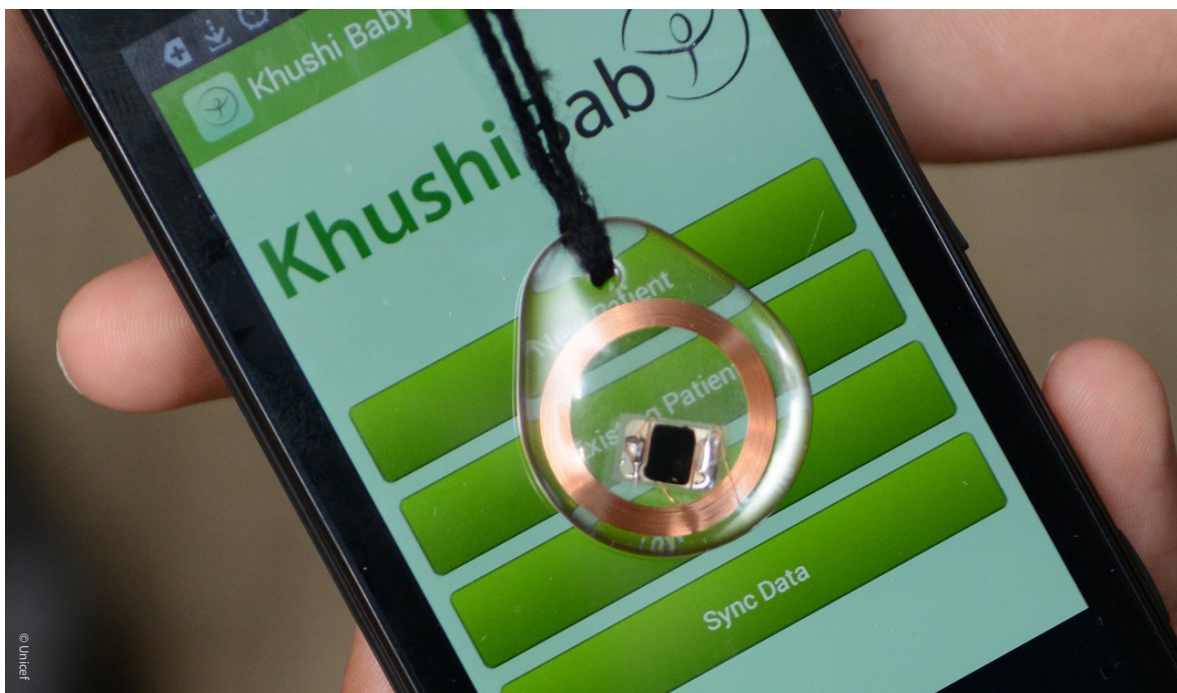
The partnership between Arm and UNICEF made the Wearables for Good Challenge and the sustainability of each of the start-up ideas possible. Since the Challenge, UNICEF and Arm have continued to support the winners by providing access to funding, development tools, and mentoring from experts, helping both winners take their inventions from paper to the production line.

Both solutions have demonstrated significant results and impact. In just two short years, Khushi Baby finished tracking 15,000 mothers and children across 375 Villages and registered over 80,000 vaccination events. In addition, the intervention led to a decrease in time to obtain data from field to backend from 30 days to 4 hours and improvement in health camps being held on schedule by 40%.

SoaPen has sold over 10,000 SoaPen products and 15,000 units of SoaPens will be manufactured in 2018 for the US market. SoaPen is on track with manufacturing to allow production of ~1,000/units per day and is exploring distribution models. Each social enterprise is now progressing to scale in India and beyond with the help of partners like UNICEF India, Gavi, the Vaccine Alliance, Johnson & Johnson, and local government support.

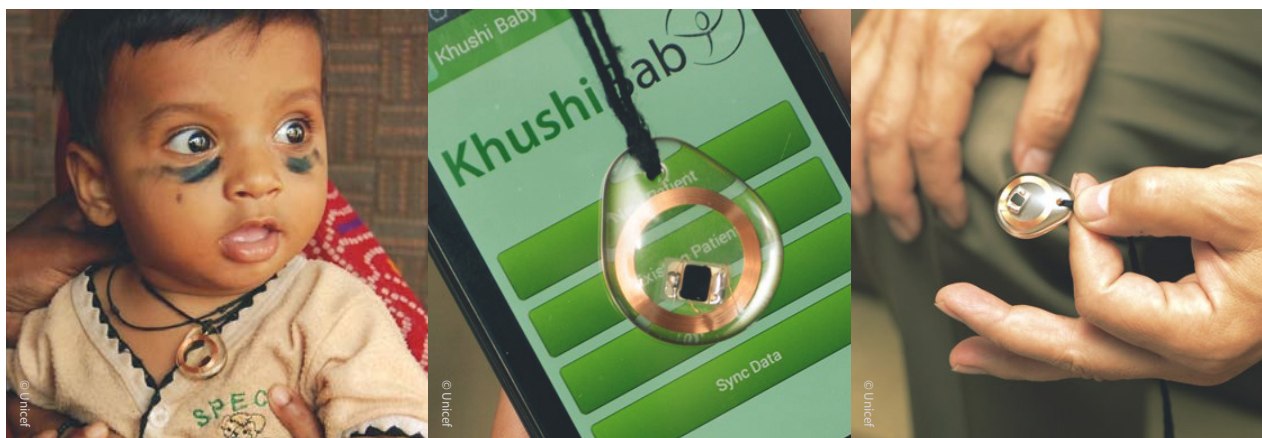


The Wearables for Good Challenge invited start-ups from around the world to submit their best ideas for a durable and affordable wearable device that would address a UNICEF focus area



IN FOCUS

Khushi Baby



Khushi Baby is an award winning maternal and child health platform which leverages Near Field Communication (NFC) technology to provide beneficiaries with a decentralized, digital health record. Since winning the Wearables for Good Challenge, Khushi Baby has been focusing on deployment of its system and field trials in the Udaipur District of Rajasthan, India. In the last year, much was achieved with additional funding support via Arm. This included the following activities:

- **Launched KB 2.0** platform with 87 frontline nurses
- **Tracked** 15,000 mothers and children across 375 Villages, over 80,000 vaccination events, and over 33,000 mother and child health checkups
- **Completed** over 70,000 voice call reminders to beneficiary families
- **Surveyed** over 1100 mothers as part of their second ongoing randomized controlled trial for Midline results
- **Grew team** to include 21 full-time and 14 part-time members between India and the US
- **Raised over \$750K in funding** for the next two years

Khushi Baby has demonstrated:

- **Increased engagement** in discussion and satisfaction among mothers attending the immunization camp.
- **Mothers were better able to retain their child's record** in the wearable form compared to traditional card.
- **More complete data** on the KB pendant vs. paper card and more consistent data between patient health record and backend system than the government equivalent
- **Decrease in time** to obtain data from field to backend from 30 days to 4 hours.
- **16% increase in immunization coverage** and timeliness for vaccines through PENTA3 for beneficiaries receiving our KB Voice Reminder Calls.
- **40% increase in camps being held on time** after tracking feature introduced on Dashboard and WhatsApp Groups
- Accredited Social Health Activists (ASHAs) reported **time saved, reduced distance travelled, and mobile balance saved** because mothers are already reminded via the Voice Call system.

With the support of UNICEF Innovation, Khushi Baby has been able to raise an additional \$1.2 Million in funding since 2014 including a \$500K grant from Gavi, the Vaccine Alliance, to continue to scale their work across India.

Khushi Baby has established its HQ Office in Udaipur and secured their first government partnership with the Udaipur District Health Society. They have received approval to roll-out universally across 5 blocks of the Udaipur District (to cover 1000 villages and 70,000+ beneficiaries) over the next two years.

Khushi Baby has also received external recognition receiving the following awards and publications:

- SPO Conference Emerging NGO Award 2017
- Aquent Design For Good Award
- NFC Forum's Best Mobile App of 2017
- Digital India Awards 2017: Technology for Good in Healthcare
- Featured as part of the Digital India Heroes Series by Times Network
- Grand Challenges Canada Round 8 Stars in RMNCH Phase I Grantee
- Pierre Fabre Foundation Laureate of the Global South E-Health Observatory
- Published results of first trial in peer-reviewed journal: Vaccine
- UNESCO Case Report: KHUSHI BABY
- Johnson and Johnson Gen H Grand Prize winner
- Best Innovation at the Geneva Health Forum 2018

Looking Forward

Khushi Baby will look to grow its footprint by making Udaipur a model district for maternal child health for others to scale and replicate. KB has been in talks with consultants for the Rajasthan State MOHFW to build custom analytics solution on maternal child health data quality on the existing State database.

This represents an important first step towards generating non-grant revenue and towards integrating into the State infrastructure for scale-up. Khushi Baby will also continue to work with the state and central government to design frameworks for integrating multiple data streams from Mother and Child Health with Vaccine Inventory and Cold Chain, High Risk Pregnancy Tracking, and Disease Surveillance.

UNICEF Innovation is also working with Khushi Baby to explore further collaborative opportunities with UNICEF Immunization teams for expansion in the field and opportunities for transition to scale in other geographies.

IN FOCUS

SoaPen

SoaPen is a personal hygiene tool in the form of a soap crayon, designed to encourage the habit of handwashing among school children from the ages of 3-6 years. Since winning the Wearables for Good Challenge, SoaPen has been moving forward with the development of their formula and business model. The team has updated their formula to one that is Sulfate and EDTA free, made in an FDA regulated facility, and uses ingredients approved by the EU, China, US, Canada etc. SoaPen is now registered as a Public Benefit Corporation in the USA, and has acquired a registered Trademark in the US. SoaPen is also operating as an independent LLP in India as a registered, for-profit social enterprise.



Key updates:

- Over 10,000 SoaPens have been sold in India.
- 15,000 units of SoaPens will be manufactured in 2018 for the US market. SoaPens for the US market are in 35 ml bottles and come in pink, blue and purple. This will increase the number of hand washes per pen and is suitable for a classroom. It is also easier for children aged 3 and 4 to grip this size of the product.
- Production will become more efficient and economical for larger bottles instead of the small bottles. The bottles are still fit for on the go usage.
- Created numerous packaging iterations for future versions of the liquid soap such as a two-sided tube with different colors on each end.
- Led successful Kickstarter campaign raising nearly \$30K to enable further funding for the Bar Soap Development. The campaign had a component of donation, and 500 units of SoaPen will be donated to low income groups. <https://www.kickstarter.com/projects/1263579738/soapen-make-hand-washing-fun-for-kids>
- The Reece School, a special needs school in New York City, has pre-ordered SoaPens for Fall 2018. The team has received a lot of interest from occupational therapists and other schools for children with special needs and is exploring opportunities.
- Imagine Early Learning Center by Mt. Sinai Kids will be sponsoring SoaPen distribution in their partner school in Nairobi in Fall 2018.



Within India , SoaPen has quickly been on the fast track to transition to scale. Activities have included:

- Started distribution through retail stores, online platforms, and non-profit partners and currently working on expanding their reach further
- SoaPen is now registered as Khello Khillo Design LLP in India, as a business entity
- The roll-on liquid soaps are in local production in orange, green, and blue colors with the capacity to produce 800 units per day
- Introduced SoaPens in 30 schools through their awareness campaigns and with the help of their NGO partners
- A Delhi based non-profit is currently conducting a campaign to raise money to provide a year-long supply of SoaPens to 1,200 students from MCD (Municipal Council Delhi) Schools across North and South Delhi

SoaPen has also received external recognition:

- The SoaPen team was recognized as on the Forbes 30 under 30 list for Healthcare and Science
- SoaPen was selected as National Runners Up for the James Dyson Award in 2016
- Chosen as “Agents of Change” for video series produced by Dyson and Uproxx Media (will launch Q3 2018)
- SoaPen’s Kickstarter campaign was recognized by a new initiative by Intuit called #BackedByQuickbooks. The SoaPen team was invited to speak at an annual conference in San Francisco: <https://quickbooks.intuit.com/blog/customer-profile/backed-quickbooks-week-two/>
- SoaPen also became a member of the Global Handwashing Partnership and was featured in one of their blogs: <https://globalhandwashing.org/soapen-joins-handwashing-learning-and-play/>

Looking Forward

SoaPen and UNICEF Innovation are exploring opportunities for expansion in the field with UNICEF India and UNICEF Supply. They are also exploring opportunities to collaborate with both commercial and non-profit partners who can help further their social mission and build distribution in India and other geographies.

A key focus is recruiting engineers to develop more colors and product typologies, as well as new partners and processes for producing the bar of soap. SoaPen is actively researching the switch to sustainable packaging. SoaPen will identify new partners to design custom and patentable packaging using eco-friendly bioplastics for liquid and bar SoaPen.

WHAT'S NEXT

Our partnership has already demonstrated how sensor based and ICT technologies can transform the lives of children through our Wearables for Good challenge. We will continue to advise Khushi Baby and SoaPen in their endeavors. However, we want to build on this work together and **continue our investment in exploring how frontier technologies can grow and scale profitably, whilst improving health outcomes for children.**

In 2018, with Arm's support, UNICEF will conduct a pilot initiative exploring wearable biomarkers for children in Malawi. The project aims to bring and test technologies – including but not limited to wearables and sensors – that measure various biomarkers and consider possible integrations with its existing innovations, in order to inform how to improve the mental and physiological development and overall well-being of children.

3.2.2 Urban Innovation



Cities are centers of the greatest human challenges and opportunities. Today, cities are home to over 55% of the global population and generate more than 80% of global GDP. By 2050, over 66% of the global population will reside in cities, and 92% of this urban growth is expected to occur in low to middle income countries. Amidst this unprecedented and transformational urbanization, **there is a growing need to address emerging challenges and tap into new opportunities, especially as they relate to vulnerable children and youth.**

The handbook “Innovating for Children in an Urbanising World” frames the opportunities for urban technology that supports UNICEF’s mission.

In partnership with Arm, UNICEF has developed an urbanization handbook, “*Innovating for Children in an Urbanizing World*” which frames the need and opportunities for urban technology that supports UNICEF’s mission. Through our research, we identified five priority areas where needs and opportunities for children are greatest across many developing urban contexts. These included: infrastructure, basic services (health and education), human mobility, violence and hazards, and connectivity. The handbook provides a blueprint for how UNICEF and partners can think about designing and implementing technology-based solutions in order to improve children’s lives in rapidly urbanizing areas, recognizing that technology is increasingly embedded into the physical infrastructure, operational systems and networks, individual interactions and socio-economic institutions that make up today’s cities. Companies and governments who are developing these technologies need guidance on how to design their products, services, and platforms to support the equity and welfare of young people, and UNICEF is uniquely positioned to provide guidance. Starting with the framework offered in the handbook, UNICEF urban innovation projects take a partnership-based approach to identifying and scaling technology-based solutions, working together with the private sector entities such as Arm to reach more children in more effective ways.

URBANISATION WORKSHOPS

To share the insights and findings from our use-case handbook, and to gather diverse and relevant feedback, the UNICEF Innovation team led internal and external workshops with Arm's participation and expertise. Throughout our sessions, we brought in human-centered design principles to encourage participants to work together, actively engage, think creatively, and ideate to arrive at the most inspired and inspiring set of questions. These workshops were critical to sharpening the focus of the handbook and to ensuring that its content, language, and guidance resonated with the appropriate audiences. Below is a summary of the key events and learnings:

UNICEF Global Innovation Meeting: Deep Dive Workshop

“Shifting Towards an Urban World”

Amman, Jordan, May 2017

Key Takeaways:

- Urbanization is now a priority across the organization, i.e., due to the demographic shift we are seeing all across the globe with half the world's population living in cities.
- Country office specific examples were shared that could explore the creation of technology-based solutions for the five categories identified as priority challenge areas for children in urbanization contexts (infrastructure, transportation, basic services, violence and hazards, and connectivity).

Bill and Melinda Gates Foundation, Grand Challenges Meeting

“Innovating for Children in an Urbanizing World”

Washington DC, USA, October 2017



Key Takeaways:

- Explored the question: “What challenges do children face in a rapidly urbanizing world, and how can technology-based innovations help to address them?”.
- Outlined opportunities with key experts in the design, technology, and social impact communities to work together to create technological innovations that improve the lives of vulnerable children in cities.
- Examined the opportunities to develop accessible technologies to support the entire family unit in the emerging urban context.

IMPACT

KUSHI BABY

80,000+ vaccination events recorded

And the Khushi Baby system has been heralded for their achievements most recently being named the Johnson and Johnson Gen H Grand Prize winner and the Best Innovation at the Geneva Health Forum 2018.

SOAPEN

10,000+ units of product sold

SoaPen will be receiving R&D support from Unilever Singapore on their latest formulation to improve product stability and performance.

In addition,

we published an urbanization use case handbook and identified a pilot project in Mongolia that aims to improve the health of **120,000+ children.**

WHAT'S NEXT

Urban Wash Innovation: Gates Global Grand Challenges

With support from Arm we have been examining the trends and opportunities that exist for investing in technology growth. Our partnership has already achieved a lot in this area. Together, we have driven new innovations through our Wearables for Good Challenge, we have identified key challenges children are facing in a rapidly urbanising world along with new opportunities for investment in technology to address these issues, and we have invested in new research which has exposed a \$2 trillion opportunity for investing in Technology for Good and highlighted 6 Big Tech Bets for future investment. As we go forward into our fourth year of partnership, we want to build on our work to identify and test areas for technology growth in an urban context.

To support this ambition, UNICEF has secured the opportunity for Arm to work alongside the Bill & Melinda Gates Foundation (BMGF) and UNICEF, to launch a Global Grand Challenge Exploration, in Fall of 2018. This proposed collaboration with the private sector represents a **first of its kind engagement** for the foundation and presents a

huge opportunity for Arm and UNICEF. It would enable us to leverage the funds and expertise of others, and to drive technology innovation for the Sustainable Development Goals, supporting our shared 2030Vision. Funding provided by Arm would support the management of UNICEF and Arm's involvement in the challenge, as well as up to \$1million in seed funding to match the investment from BMGF.

We have identified the issue of access to Water, Sanitation and Hygiene (WASH) as the priority for the challenge call-to-action based on the need and opportunity for innovative solutions. The lack of access to WASH affects 1 billion + people around the world. Finding scalable innovations to address these issues and improve access is a core priority for UNICEF and aligns with Arm's own goal to deliver measurable health benefits through technology. The Gates Grand Challenge provides the opportunity for Arm to show leadership in this space, and encourage other 2030Vision partners to follow suit with other of the six tech bets areas described later in this report.



3.3 PILLAR 3: EXPOSING MARKET OPPORTUNITIES

3.3.1 Catalyzing Private Sector Investment in Technology for Urban Environments

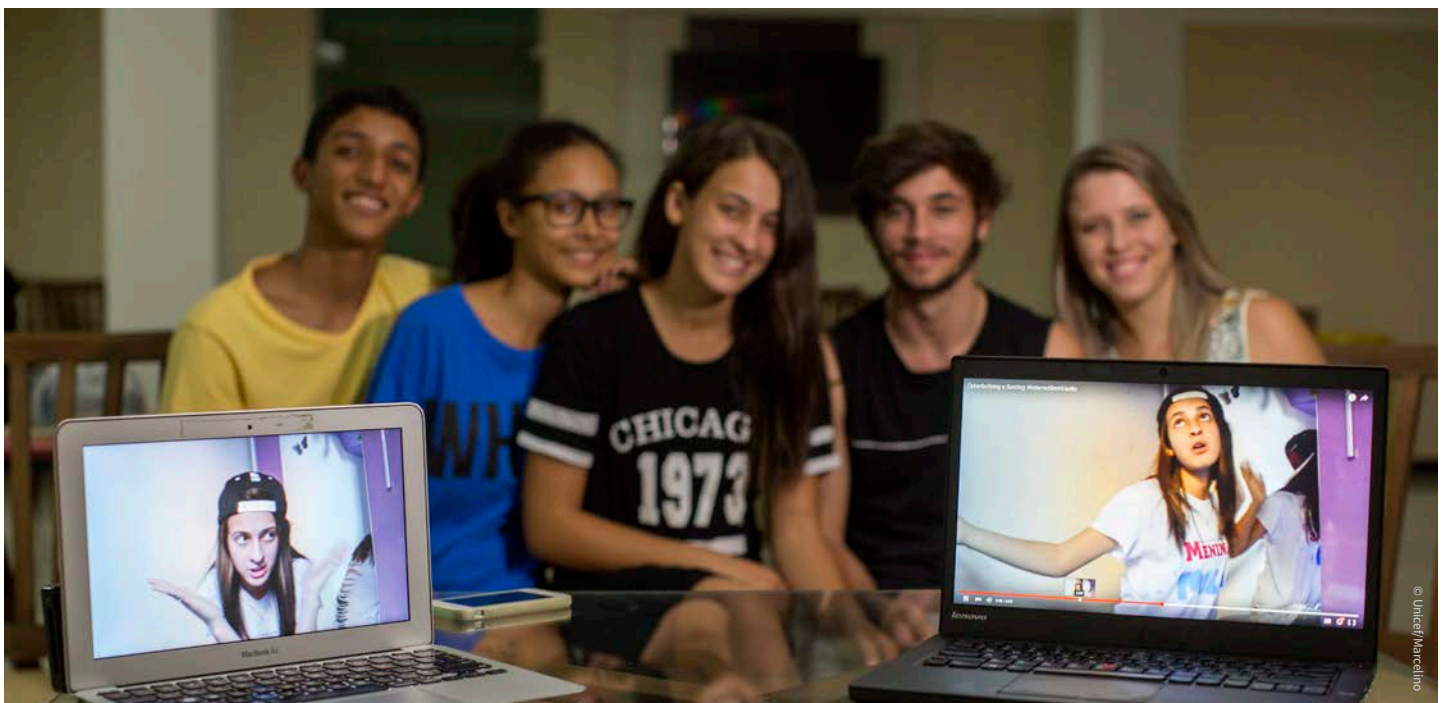


While Arm and UNICEF see great promise for emerging technology solutions to deliver social impact across a range of development priorities (from access to basic services to emergency response), the most promising use cases in emerging markets, and the business rationale for tech actors to enable these use cases, has not been well captured. **Arm’s investment allowed UNICEF to commission a study and convene a tech sector steering committee, to identify the most exciting opportunity areas for technology actors to reach the urban poor in emerging markets across the globe, profitably and at scale.**

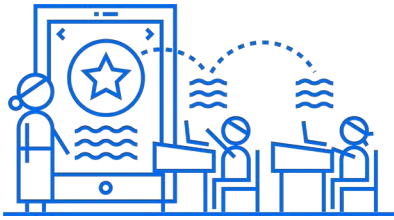
Building on the learnings from the urbanization use-case handbook, UNICEF and Arm, alongside Dalberg Advisors and Dalberg’s Design Impact Group, conducted immersive user-level research and market analysis in Jakarta, Nairobi, and Mexico City to identify globally relevant use cases and share insights on the addressable opportunity for the technology sector (see urbantechbets.org). In addition, we also sought the input of an advisory council – which was comprised of leading technology actors such as Facebook, Google, and Microsoft – that helped us validate our findings and recommendations.

The research illustrates specific market opportunities to develop technologies and addressed the following goal areas:

- Offer specific insights into the types of technology (hardware, software, information, and/or partnerships), as well as their use cases that will improve outcomes for children and women living in rapidly urbanizing environments across the globe
- Identify market opportunities for businesses to create and tailor these technologies in ways that support UNICEF’s mission
- Connect technology actors and UNICEF country offices with the resources and partnerships necessary to bring these solutions to life.



Through this research we identified the following 6 Big Tech Bets:



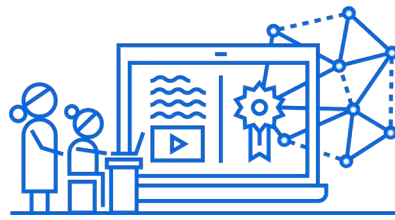
Digital Learning

Platforms that allow teachers to integrate online tools in classrooms for better engagement and learning outcomes.

Potential market size (by 2022):

7.15 billion USD

200-300 million users



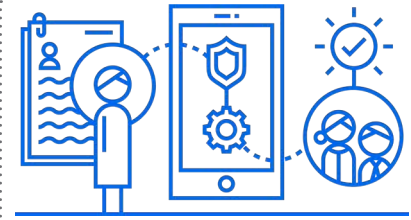
Multi-Modal Skilling

Services that mix online education with in-person mentoring to expand access to the skills that people need to get better jobs.

Potential market size (by 2022):

20.35 billion USD

25-45 million users



Smart Recruiting

Platforms that connect individuals and employers with workers for short term jobs, finding the most suitable candidates for customers and providing security for workers.

Potential market size (by 2022):

0.5-2 trillion USD

0.8-1.2 billion users



Water Metering

IT networks of sensors and meters that monitor the flow and quality of water, ultimately improving access to clean, fairly-priced water.

Potential market size (by 2022):

20-30 billion USD

1.5 billion users



Emergency Response

Platforms that link people in urgent need to the full range of public and private emergency response services through one interface.

Potential market size (by 2022):

70-90 billion USD

2-3 billion users



Commuter Ride-Sharing

Car pooling services offered to workers by employers to ensure they get to work safely, reduce their impact on the environment, and reduce time wasted travelling to work and not spent with their families.

Potential market size (by 2022):

30-70 billion USD

300 million users

Unlocking a \$2 trillion market for 4 billion lives

IMPACT

\$2 trillion worth

of opportunities exposed in urban context that can help transform the lives of up to 4 billion people.

6 Big Tech Bets

identified which could deliver

\$100 billion profit to

improve outcomes for children and their families. These include blended learning, multi-modal skilling, smart recruiting for informal economy workers, smart metering for water, emergency response systems, and commuter ride sharing.

WHAT'S NEXT

The partnership with Arm enabled the identification of baseline metrics on the market opportunity for future technology areas and the demonstration of the business case for technology reaching the urban poor and those at the last mile. This work helped identify key areas where Arm and UNICEF can take big bets together for children in future years of the partnership and beyond.

The research findings illustrate specific market opportunities for developing key technologies, offer insights into the types of technologies that will improve outcomes for children and women living in rapidly urbanizing environments, identify market opportunities for businesses to create and tailor these technologies in ways that support UNICEF's mission, and connect technology actors

and UNICEF country offices with resources and partnerships to bring these solutions to life. With Arm's continued support we will make targeted investments in social enterprises and engage partners on initiatives that advance their core business and address one or more of the six 'tech bets' identified through our Market Research. We plan to invest in 1-2 social enterprise startups in Year 4 of the partnership and work with Arm to engage other technology players in this work.

The research will also form the basis of 2030Vision's communication plan for 2018 and seek to engage other companies around the tech bets. We will form and encourage other partnerships to leverage further funds to catalyze investment in these areas.

4 Communications Summary

The Arm and Unicef partnership is based on a shared vision to draw on our joint expertise, knowledge and resources to harness technology which transforms the lives of the world's most vulnerable children.

The first year of the Arm + UNICEF Innovation collaboration saw the launch of the partnership and the Wearables for Good Challenge in collaboration with [frog](#) (which has been hailed as the most inclusive technology challenge ever with entries from 46 countries.) To support the launch of the partnership externally, we developed a joint comms strategy which used the Wearables for Good Challenge as a media hook for launch. The media plan was executed with the support of Arm's media team Racepoint and included two media events in London and New York where we secured attendance from **journalists working across target titles including Reuters, Wall Street Journal and The Financial Times**. On the back of this, the comms teams from Unicef and Arm together with Arm's PR agency support delivered significant

coverage which included **three national broadcast titles, four UK regional titles and 10 magazine articles across a wide range of media including The Guardian, Bloomberg and Financial Times**.

In the second year of the partnership, the comms team used the success of Wearables for Good challenge to leverage further coverage opportunities and showcase the benefits of the partnerships. A comms strategy and plan was developed for Kushi Baby and SoaPen, the Wearables for Good challenge winners. Through a combination of feature pitches and drafting and distributing tailored press materials to target media we secured coverage in top target titles such as Fortune, Forbes, BBC, and Money Magazine. In addition, we produced a short film which highlighted the success and impact of the Wearables for Good challenge and featured the two winning products. The film was launched on social media channels by the Arm and UNICEF comms team, using the World Economic Forum in Davos as a media hook.

Wearables for Good Challenge film produced for the World Economic Forum



WEARABLES
FOR
GOOD
CHALLENGE

External recognition

Since launching our partnership we have been recognized with the following awards:

- Selected for **'Best in Show'** Wearables award at Augmented World Expo
- **Finalist for 'Best Business NGO partnership'** by the Ethical Corporation Responsible Business Awards
- **Finalist for the Bond International Development Awards** in 'Innovation Category' and 'Best Business NGO Partnership'
- Received **Honorable Mention for Fast Company Innovation** by Design Awards (Social Good category) for the Wearables for Good Challenge

WHAT'S NEXT

In the third year of the partnership, our communication objectives are to:

- 1) Continue to generate awareness of the partnership's achievements and importance
- 2) Support 2030 Vision, which aims to connect business, NGOs, academia and Governments with the technology solutions needed to realize the Global Goals and improve the lives of the most vulnerable children around the world

The first landmark comms moment for 2018 will be the launch of our market research which identifies 'six big tech bets' that will do good by helping vulnerable children across the world and deliver good business. Working in collaboration with Arm, we've developed a strong strategy and comms plan which uses an industry forum as a platform to announce the key findings of the research to target media across technology, business and CSR sectors. This will be supported by comms activity including securing an Op Ed in an influential title such as The Economist or The Financial Times, developing a targeted press release for media across the tech,

CSR and development media and securing interviews and briefing opportunities between media and Arm and UNICEF Innovation spokespeople.

We're laying the foundations for this launch with a panel opportunity at Smart Cities, an industry event held in New York. This will provide us with the perfect opportunity to engage media and stakeholders and lay the foundations for the research which will be launched later in the year.

In addition we will be looking at ways to bring the partnership to life and demonstrating its impact by seeding a variety of success stories and case studies across different segments of target media. By providing tangible examples of the UNICEF Innovation and Arm partnership, we will continue to support the business objectives of the partnership. These are to unlock demand and catalyse private sector investment in more social enterprise technologies in order to scale and accelerate progress and improve children's lives.

5 Employee Engagement

Throughout the partnership, we have sought to inspire Arm's people to get behind our partnership and joint mission to innovate for impact. Since our partnership began, more than 680 of Arm's people have directly engaged with our partnership. This includes:

- 12 people provided mentoring support to the Wearables for Good Challenge winners
- 9 people have participated in field visits to Kenya, Jordan and UNICEF OPSEN, in New York
- +160 people participated in Lunch and Learns sessions in Cambridge, San Jose, Noida and Shanghai
- 87 people have either donated to an emergency appeal or participated in fundraising for UNICEF

- 113 follow the UNICEF Yammer page
- 294 people participated in Innovation Challenges including the Wearables for Good Challenge, Graduate Challenge and Peoples Innovation Challenge.

We have kept Arm colleagues informed of the progress of the partnership and of key UNICEF activities through providing relevant internal communications. Key moments we have shared with Arm employees include updates on commemorating the first anniversary of the partnership, scale-up activities, and the publication of the urbanization handbook.

WHAT'S NEXT

We want to build on the incredible engagement we have already built with individuals and teams across Arm. We will continue many of the activities that we have in place and will continue to seek opportunities to draw on Arm employees' skills and expertise to support UNICEF and the work of UNICEF Innovation. Arm employees have unique access to an area of expertise that may be beneficial to solving some of UNICEF's key programmatic problems while engaging staff. We want to make sure we are tapping into

the potential across the business to support the partnership on a global level.

We will use existing Arm channels to promote the partnership with tailored communications and regular updates to be circulated to staff, including during emergency appeals. We are also exploring the opportunity to host a field visit with Khushi Baby in India, as well as a field visit to see Unicef's innovation work in Malawi, [alongside the below planned activities:](#)

- Provide updates and launch the Market Research internally through delivering a series of 'Lunch and Learns' in Arm office locations, including headquarters in Cambridge
- Launching the Intern Innovation Challenge focused on UNICEF
- Supporting Arm work experience week.
- Exploring opportunities for Arm employee to share skills and be involved in mentoring opportunities.
- Secure opportunities for Arm and UNICEF to share a platform at external events.
- Execute a comprehensive internal communications plan, with targeted, relevant, timely and authoritative communications that strengthen our partnership and mission
- Feature blogs by UNICEF & Arm employees on associated communications channels

6 Looking forward to 2018 and beyond

Working together to Innovate For Impact

Building on our existing success and the transformative innovations laid out over three years of the Arm + UNICEF partnership, together we delivered critical new insights and impacts for children. Arm's explicit commitment to the Sustainable Development Goals informs their guiding vision: to create technology that enables opportunity for a globally connected population. To capitalize on the work already done in the first few years of our partnership, the increasing need to focus on solutions to deliver on the SDGs, as well as the fit for Arm-based products to deliver value in an urban context, we will use this lens to guide our work in 2018 and into the next phase of our partnership.

UNICEF + Arm will work together with both of our ecosystems of partners to deliver technology-driven solutions that deliver on UNICEF's strategic plan for children and to help meet the SDGs

Given Arm's reach, we will prioritize a visionary partnership to create significant change to transition ideas to scale. Together, we aim to:

- 1 Engage and mobilise the global tech community**
 - Be a 'best in class' example of how the private sector can work effectively with the third sector to deliver meaningful change for children and commercial success for business.
 - Play a core role in driving 2030 Vision and our shared ambition to inspire and convene the technology sector in addressing the sustainable development goals for children.
- 2 Strengthen local tech eco-systems**
 - Invest and deliver technology solutions which align to the SDG's, demonstrate positive impact for children and good business at the same time.
 - Invest in pilot projects and new research to evidence the value and impact of investing in technology for good.
- 3 Advocate for inclusive technology**
 - Work together to advocate for inclusive technology which enables opportunity for everyone, everywhere and does not leave vulnerable children and communities behind.
- 4 Drive employee engagement**
 - Provide opportunities for Arm to use their expertise to help UNICEF solve critical challenges for children around the world.

Moreover, UNICEF will help to:

- Expand and deepen our support to government to put policies, practices and resources in place to enable achievement of the SDGs, and create space to innovate in the field
- Expand and implement tailored and proven programs at scale that lead to sustainable behavior changes in communities, building on a deep understanding and experience in and with community dynamics
- Bring government, private sector, development partners and community stakeholders together
- Strengthen systems of results reporting based on collection of robust data in real-time and innovative ways

The world needs innovative leadership now more than ever. In 2018 and beyond, we will continue to bring forth our shared vision for improving the lives of vulnerable children and families while unlocking the massive potential of bringing technology to those who will benefit most and identify how these ideas can be grown and scaled profitably and inclusively. We will continue to pair changing realities on the ground with efficient, effective and creative ways of addressing them and make progress towards the Sustainable Development Goals. Our ability to meet the SDGs requires ongoing innovation to shape these global efforts and implement cutting-edge solutions. Whether through wearables that allow mothers to track the health of their newborns, mobile messaging platforms that connect youth to their political leaders to weigh in on critical decisions that affect their lives, or IoT-based water-metering devices that allow us to preserve life's most precious resource, we will research, create, and scale meaningful solutions that allow children to survive and thrive.

