Annual Impact Report

2017
Dharmi is so strong. She brought her child to work and was walking over rough footpaths in flip flops, with a rucksack on, and her 3-year-old balanced on her hip. While she gave care delivery, a young helper who followed us all day would keep her son occupied, but how amazing is that?...

Christine Kim’s Field diary
Nepal, July 2017
Simprints intern Rosie roleplaying with healthworkers

“The highlight of the afternoon was definitely watching Rosie and the healthworkers interact during the practice exam. The healthworkers were so enthusiastic to use the new tech and quickly became comfortable with it, animatedly discussing amongst themselves how to take a proper fingerprint scan.”

Christine Kim’s Field diary
Nepal, July 2017
Simprints exists for one purpose: impact. We are here to improve the lives of the world’s poorest and most vulnerable people. We believe that a lack of identification should never be the reason someone doesn’t receive goods or services. Our goal is nothing short of global, systemic change.

2017 was our first full year with projects on the ground. We are now helping to enable healthcare, education, financial access, and research in some of the most challenging contexts in South Asia, the Middle East, and sub-Saharan Africa.

Almost 50,000 beneficiaries have been enrolled in Simprints by now, from expectant mothers who receive affordable healthcare in their homes on Himalayan mountaintops, to children receiving quality education in savannahs of rural Zambia. Each of these beneficiaries’ fingerprints are linked to an accurate, consistent record, allowing our impact partners to quickly flag when a healthcare visit is missed or a child stops attending school.

The past year has also seen Simprints substantially increase our offering to partners through a dozen platform integrations including healthcare record and data collection apps, the development of new core features such as verification algorithms and 3D-printed mounted stands to broaden our use cases, and new training tools including a ‘step-down curriculum’ for local trainers and a remote workshop to empower frontline workers in dangerous and war-torn areas. We’ve taken on two new ambitious R&D projects in hopes of continuing to bring new innovations to the fight against poverty, and worked hard to improve the privacy rights of our beneficiaries and shared those learnings in a white paper written with expert human rights lawyer Ben Hooper.

Finally, we are determined to make the most of our partners’ support and become a self-sustaining social enterprise. After closing 2016 with 4% of our operational costs covered by earned revenue, this year we set ourselves the target of reaching 30% sustainability. We’re proud to report we surpassed this target, covering 34% of our costs with revenues in 2017.

However, these achievements have not come without the inevitable missteps and failures of growing a social enterprise. In this report we introduce our first Key Challenges section, detailing where we’ve stumbled most in 2017, and how we are growing from it. While failures are painful, as a small innovative team with an ambitious global goal, we need to fail and learn these lessons as early as possible.

This is especially important, because within 18 months, Simprints will be deploying on a national scale. In 2017, Simprints received the Saving Lives at Birth: Transition to Scale award, and will be joining a handful of social enterprises who have ever made the leap from thousands to millions of beneficiaries. In Bangladesh alone we will be reaching 2M mothers and children.

There remains a lot to learn, but with your help we’re confident we will make it happen.

Letter from the team

Dan Storisteanu,
Director of Research

Toby Norman,
CEO
Kenya Deployment

“Simprints makes our workflow flawless. We had challenges before, like supply bottlenecks. We’d end up giving too many shoes only to realise not too many of these children actually exist. So we tied our distribution to a fingerprint. Simprints basically brought the most beautiful cake we could expect. With icing on it.”

Nick Sabwa, Cohesu
September 2017
Simprints impact equation

**BREADTH**
Number of individuals

**DEPTH**
Impact per individual

**IMPACT**
Simprints

\[ \text{BREADTH} + \text{DEPTH} = \text{IMPACT} \]
How Simprints works

Beneficiaries
(Patients, students, workers, community members)

Service delivery
(e.g. healthcare, education, cash transfers)

Enroll and Identification

Accurate access
(data collection system)

Privacy and Data
Documents
Encrypts data between the scanner & the phone

Privacy and consent notices

<>/

Verification
(data validation)

User
(Frontline workers)

Connects to any Android device using Bluetooth
Nepal check-in visit

“Simprints helps to identify names as quite often people have the same names. I know many people called Jita...I was surprised how difficult it was to search the name before Simprints. Now it is very easy.”

Possible Community Health Worker
July 2017
every person counts

AFGHANISTAN

NEPAL

NIGERIA

UGANDA

KENYA

ZAMBIA

BANGLADESH
HEALTHCARE
Enabling better continuity of care for patients and health worker incentives with accurate visit monitoring

Background
Over 30% of expectant mothers in Bangladesh slums never see a health worker. Simprints is working with BRAC’s urban health programme to ensure healthworkers are reaching expectant mothers in time to detect, prevent, and treat potential health issues before they become dangerous complications. BRAC is the largest NGO in the world and Simprints’ biggest project to date. An identification here means a woman was visited by a health worker for a health or family planning visit.

Major achievement
With almost 28,000 beneficiaries, this has been our largest project to date. Early successes meant Simprints was quickly expanded from BRAC’s antenatal and postnatal care programmes to include family planning. This year we were awarded $2M in scale-up funding to reach an additional 2M beneficiaries. Preliminary data from Simprints is also currently informing how BRAC can make programmatic improvements to substantially improve the reach of their beneficiary population.

The "Enrol" graph shows cumulative number of people enrolled in the programme using Simprints. When it goes up, people are being registered into the programme. When everyone is enrolled or if the programme pauses, the line plateaus.
Lessons

As beneficiary numbers increased, the aging smartphones used in this programme went from taking milliseconds to match a fingerprint to a beneficiary to seconds. As this increased towards 10 seconds, we realised the phones could not process the increasing numbers. We set to work and stratified the database using Module IDs and User IDs, meaning that all our projects can now just search within the beneficiaries nested under a specific module or user. Organising this data allows for much more powerful use in the field as well as streamlined data analytics.

As visible on the graph, this project paused in the fall when funding ended. This is a pervasive problem when projects depend on philanthropic capital. When raising subsequent funding to scale this project to 2M beneficiaries, we sought a more sustainable scheme that involved BRAC supporting external investment to 30%, doubling the lifetime of the scale-up project to 6 years. Financial sustainability beyond the lifetime of our contracts are now part of the conversation with every impact partner.

Bangladesh deployment

“I thought it would be difficult but it is small and convenient...It gives more legitimacy to our work, the beneficiary says, ‘you know so much’!”

Nasreen, BRAC Community Health Worker
November 2016

Verification

The ‘ID’ or ‘Verification’ graph shows the number of times Simprints has been used that month. Depending on the programme, it can signify an expectant mother receiving a visit from a health worker, a school child receiving treatment for parasites, or a mother receiving a cash transfer.
Background

Cohesu is leading the fight against *Tunga penetrans* (Tunga), which affects school children in parts of western Kenya. These parasitic insects burrow into the bare feet of children, making walking painful, keeping children out of school, and risking infection and other serious health complications. Simprints helps Cohesu monitor and track the rate of Tunga infection in the area, deliver treatment, and provide children with shoes to prevent future infection. Each identification in this project means a child has been checked for Tunga or received treatment.

Major achievement

For Cohesu to continue their great work, they needed to prove to the Ministry of Education that they were not taking up excessive time from students’ education. With Simprints only requiring seconds to link a child’s fingerprint to their record, they reduced their in-school work times from 1-2 days to under 4 hours. Also, shoe requests used to be made for unverifiable lists of students, many of whom did not exist! Now, one set of fingerprints mean one set of shoes, demonstrating higher value for money to Cohesu’s funders and making the programme more sustainable. Cohesu is now...
experimenting using Simprints in clinics to offer Tunga detection and treatment to the general population, which can be seen on the ID graph as the low consistent level of IDs after the school treatment cycles conducted during spring term.

**Lessons**

Cohesu is a lean community-based nonprofit without secure funding to continue the project beyond 2018. Simprints is exploring how we can ensure that local grassroots NGOs that have a high depth of impact can sustain their projects, including assistance with funding applications and cross-subsidisation business models.

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**Kenya deployment**

“The very first class took the 8 enumerators an hour to get through about 35 students. But very quickly we were able to go through classes faster and faster and very soon we were able to average one child per minute (from walking into a class and walking out). This is precisely what the core team were hoping for, and made it realistic that they could get through a whole school within a day...”

*Ridwan Farouki’s Field Diary*

*Kisumu, April 2017*
Background
For the past 10 years, Possible has worked with the Nepal Ministry of Health to provide community healthcare delivery programs and manage Bayalpata Hospital, which serves approximately 70,000 outpatients and 2,000 inpatients per year. Simprints deployed biometric identification to help with case management for community-based healthworkers who were visiting patients in villages scattered across a mountainous region in remote Nepal. Each identification in this project means a woman received a healthcare visit at her home. This was Simprints’ first project, deployed in Aug 2016.

Major achievement
Our first project brought a wealth of challenges and lessons that are now part of our core technology. Launched in August 2016, everything in our deployment was new. With Possible we worked closely together to fine-tune our workflow to be more intuitive to healthworkers, iterated our training curriculum, and improved our remote communications mechanisms when the team is spread across the globe.
Lessons

We learned a lot from this project. Hardware and software challenges initially seemed relentless, and we had to iterate constantly to reduce the burden on our partners. As well as major improvements to our core technology, we advanced our remote communications structures when an early critical technical bug induced by intense heat appeared. Our field team worked with our HQ engineers over 7,000 kilometers away to recreate and successfully resolve the issue. Soon after, this first batch of our hardware required critical firmware updates, which resulted in longer hours from Possible staff to manually update healthworkers’ scanners. A data “sharding” issue (see Key Challenges section below) later resulted in misalignment between the Simprints and Possible databases. After months of troubleshooting, we decided to step back and take a deep breath. Our system was burdening Possible’s healthworkers, diverting their thinly stretched time, which fundamentally ran against our values. It has been a painful process to recognise that we have let down the healthworkers we sought to help. We must own our mistakes and do everything in our power to fix them.

So together, with Possible, we paused the project in fall 2017 in order to redesign our process and product to better suit this engagement. Indeed at the onset of this first project, we failed to appreciate its complexity and scale of ambition. Our team has now established a rigorous scoping process to better match our own capacity to our projects. We are also building ‘over the air’ firmware updates and database sharding resolution features so that these problems do not affect other projects. We aim to be re-launching our programme with Possible to implement an upgraded system to the community and local hospitals they work in, allowing for electronic infrastructure that links medical records from the home to the hospital.

Nepal. Simprints’ first deployment

“The highlight for me was simply watching the community health nurses – they were so fast at picking up on the way the app and scanner worked! Numerous times, they’d be steps ahead of the presentation, pairing their scanners to their phones before that demo slide appeared, or asking questions about troubleshooting before Dan had a chance to get to those sections. It was great to see them so engaged....”

Christine Kim’s Field Diary
Nepal, August 2016
Background
With over 400M people lacking access to essential health services and up to 40% of healthcare funding wasted due to system inefficiencies, Watsi is trialling an ambitious new universal healthcare project to change all that. Watsi uses Simprints to enrol entire villages and accurately identify them when they step into the clinics. They’ve enrolled 98.2% of the catchment population with Simprints, a level of coverage which surpasses health coverage in some developed countries. Each identification in this project means a villager visited the clinic.

Major achievement
This was our first project using verification algorithms and workflow instead of identification ones. Over a 3-day deployment, the Simprints system was used to enrol 98.2% of a village into a universal healthcare scheme. The programme has been successful, with the majority of beneficiaries having a free health visit since deployment (see ID graph). This success lead to the enrolment of a second village seen in the July jump in beneficiary numbers (see Enrol graph), and we are currently scoping another potential project with Watsi.
Lessons

While the project has run smoothly, there were some substantial concerns about the accuracy of Simprints verification when about 10% of beneficiaries were being rejected by the system, a percentage substantially higher than the estimated fraud rate. Subsequently, a custom analysis into the rejected biometric templates suggested that often incorrect fingers were imaged during visits. In response to this, Simprints is working with our impact partners to ensure robust refresher trainings occur, and we continue to explore ways in which we can improve the correct use of the system from a training and human design perspective.

Uganda Deployment

“I’m learning a ton from chatting to the Watsi team, especially because they’re similar to us in a lot of ways: smart, young, design-focused, engineery, and very hard working. I had a blast. We walked through a super in-depth ‘Biometrics 101’, sailed through the enrolment modules, and not a single thing went wrong. It was really fun and rewarding to see how engaged they were, not to mention show off our stuff...”

Toby Norman’s Field Diary
Uganda, February 2017
Background
Impact Network uses e-learning tech to deliver quality education to schools in rural Zambia, improving literacy and numeracy skills of students at a fraction of the cost of other schools. Simprints helps Impact Network digitally track the attendance of their teachers, to monitoring absenteeism, and their students, in hopes to recognise lapses in a student’s attendance faster than paper-based attendance tracking. An identification here means a child was in school for the day.

Major achievement
On remote, dusty savannahs where even consistent electricity can be hard to come by, Impact Network has successfully enrolled all their students and consistently used the system at the beginning of every class to monitor attendance. The only drops in ID numbers coincide with summer and winter holidays when students are on breaks (see ID graph). Impact Network now plans to expand the use of Simprints to a total of 9 schools.
Zambia Deployment

“We’ll be able to troubleshoot issues, track down students who have been absent, and work more closely with our communities. We’ll have accurate data in real-time, rather than unreliable data at the end of the term or year.”

Reshma Patel, Executive Director of Impact Network

The Power of Partnerships, May 2017

Lessons

Simprints integrates into existing mobile apps that handle processes such as data collection or record management. The selected platform used in this project is limited in several ways that make it difficult to retrieve data from, meaning that reviewing attendance data is a manual rather than automatic process. Through all our projects, we are better understanding the power and limitations of the wealth of existing mobile apps and are better able to consult our impact partners in their selection. As for Impact Network, we will help them move to a new app to enable real-time attendance monitoring.
Background
Simprints has joined a partnership between Unicef and the Economic Policy Research Institute (EPRI). This project utilises social protection cash transfers to increase mothers’ participation in maternal, neonatal, and child health (MNCH) services, and increase birth registration and immunisations for newborns. Unicef-EPRI will use Simprints to monitor the uptake of health services and verify that beneficiaries receive their financial incentives. Simprints has already deployed fingerprint identification for this study, which should launch in early 2018.

Major achievement
This project represents the first use of Simprints to enable financial access to beneficiaries who might not have robust, existing ID mechanisms, broadening the eligibility of who can participate in these lifesaving programmes. Also, because this project required a deployment in Northern Nigeria in areas at higher risk of terrorist attacks by Boko Haram, Simprints created a comprehensive Risk Strategy which is now used for all operations. To help other small organisations better train and prepare their staff, we will be sharing our learnings and recommendations on how to build a risk strategy in an upcoming white paper.

Lessons
After training operators in the use of Simprints in August, we have all been collectively frustrated at the need to delay the launch of the project, first into Q3, then into Q4, with current plans to launch Q1 2018. Delays arose due to efforts to improve the app’s workflow, resulting in a slow procurement process within other third-party organisations. We’ve learned that these external dependencies can create bottlenecks that we have limited control over. Indeed, we now better recognise that in every project, Simprints exists in a large web of stakeholders and dependencies. We are also exploring having our project managers trained in building workflows on different apps to decrease external dependencies and increase the support we can offer.
Background
This is a project between the University of San Diego, D3 Systems, and the Ministry of Education of Afghanistan, aimed at uncovering the extent of ghost teachers in the education system. Teacher absenteeism is unfortunately a long and pervasive issue. Regular monitoring with Simprints will help uncover the extent of the problem and open avenues to improve the system. Simprints deployed fingerprint identification for this study in late 2017 and the programme is currently launching a pilot.

Major achievement
As well as being our first research project, this project also requires us to deliver a comprehensive interoperability and privacy/security analysis to assist the Afghan government with a large-scale biometrics project. This has involved reaching out to mentors who include world leaders in their field, as well as technical testing and number crunching, and has helped Simprints substantially develop our consulting capacity.

Lessons
After the deployment in Northern Nigeria, this was the first project to test our new risk strategy. After reviewing the local security statuses and potential deployment options, we found that we did not have the capacity to safely have our project managers in Kabul. Instead, we decided to train the trainers of frontline workers abroad in Washington DC, creating a new step-down training curriculum to help ensure the quality of training of frontline workers by our implementation partners. Our first set of surveys indicates our trainers have done a fantastic job! The launch for the project has also been delayed due to a variety of reasons: the legal contract for this project was more complicated given a broader array of deliverables Simprints offered, and we did not estimate sufficient time for this process to be completed before our target launch date. Also, heavy snowfall in mountainous regions have made some schools inaccessible. We’re now looking forward to a Q1 2018 launch.
Historically, biometrics have been deployed only by large public institutions and, in the development sector, by major organisations such as the World Food Program and the United Nations High Commissioner for Refugees. Why? Because the barriers to entry are significant: high costs, complex integrations into existing systems, unreliable performance, and concerns around privacy and data security. We seek to make biometrics widely available by tearing down these barriers, but it hasn’t happened without occasionally running into them. Here, we document how we’ve converted our missteps into education, and the corrective measures taken to ensure they don’t happen again, especially as we move from a series of small projects to larger scale deployments in 2018.

Our greatest technical challenge to scaling is **data sharding**. The Simprints database encrypts biometric (fingerprint) information that, through an anonymous ID made of a unique string of letters and numbers, links that information to our impact partner’s database, such as one holding patient healthcare records. In this way, biometric data can be used to accurately identify a beneficiary without the risk of biometric information being linked to a specific individual if ever hacked. However, two of our projects have at times struggled when one database makes changes without notifying the other.

For example, if our partners move a patient from one catchment to another, our database won’t know to look for that patient in the new catchment. As a result, frontline workers would suddenly find that they aren’t able to use Simprints to identify and bring up the case records of that patient. In our first project, with Possible, this issue compelled us to temporarily halt healthworkers’ use of Simprints—definitely a key setback, but also an immense learning opportunity. To prevent these issues from occurring in the future, we are now building features such as conflict resolution between databases and enabling the tracking of migrant beneficiaries.

In another key challenge we will tackle in 2018, we need to get better at **measuring everything we do**. While we have no shortage of anecdotes from our impact partners of how Simprints enables their work, we need to better understand where Simprints does and doesn’t make an impact, and how we can improve it. How can clients best use Simprints data to improve their programs? Is it preventing fraud? Or improving people’s continuity of care? What more can be done? That we cannot yet assess this with existing data processes is sobering. This year we are improving our data analytics infrastructure as well as building formal monitoring and evaluation processes across Simprints, from operations to sales to product development.

In the project sections of this report above we’ve further reviewed some of the major achievements and failures we’ve come across in each of our projects active in 2017. However, the takeaway is that biometric identification can work. In different geographies and in different sectors, we’ve seen health workers, enumerators, teachers, and nurses successfully enabling longitudinal care using Simprints.
Financial sustainability

Over the past year we have built a dedicated Impact Partnerships team to manage the increasing influx of commercial opportunities. Over the course of about 250 calls and meetings, we closed 8 new projects and have expanded the number of potential impact partners to almost 200 organisations, representing a variety of high impact sectors around the world.

One important lesson learned arose after recognising that our Impact Partnerships and Project Operations teams became too decoupled, leading to a suboptimal handover between closing leads and implementing projects. We have since put these teams under the same leadership to increase collaboration, resulting in higher alignment and smoother handovers.

In 2017 Simprints covered 34% of all operational costs with earned revenues, having started the year in single digits and ended by surpassing our 30% target. This was in spite of operational costs growing after successfully raising almost £3M over 3 years in awards, enabling new R&D projects and a national scale-up of our project with BRAC.
Team and partners

We could not do this work without our partners. From the entire Simprints team, we want to share our sincere thanks and our determination to ensure every investment takes us closer to a world where every person counts.

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- Autodesk
- Bill & Melinda Gates Foundation
- Draper Richards Kaplan
- Global Innovation Fund
- Innovate UK
- UKAID
- USAID
- WeWork Creator Awards

Impact partners:
- Brac
- Cohesu
- D3 Systems
- EPRI
- Impact Network
- Possible
- Unicef
- University of California San Diego
- Watsi

Tech Partners:
- CommCare
- Dimagi
- D-Tree International
- Magpi
- Open Data Kit
- OpenMRS
Help us put our users first.

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