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Chapter 11
Social Enterprises and Sustainable Development Goals:
How a Global Health Project Transformed Into a Social Venture – The Case of HERA App for Refugees

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ABSTRACT

In line with Sustainable Development Goals (SDGs) put forth by the United Nations (UN), social entrepreneurship models in global health are on the rise. While SDG Goal 3: Good Health and Wellbeing is the direct focus of global health sector, the majority of other SDG goals affect and are affected by 'good health and wellbeing'. While global health interventions create social value by increasing healthcare access in vulnerable populations, the effect is often limited by the timeline and availability of funds. In a social venture model, where value creation is paired with a sustainable financial income, this issue can be alleviated. In addition, innovative intervention models for vulnerable populations can align themselves with the sustainable social value aims in the UN's new Global Goals. This chapter describes a project (HERA) designed to decrease mortality and morbidity due to preventable diseases in refugees. The authors examine how it transformed to a sustainable and collaborative social initiative working to create lasting social value and discuss this process contextualized by the SDGs.

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INTRODUCTION

Global health is a relatively new term in medicine (Beaglehole et al., 2010). Koplan et al. initially defined global health as 'an area for study, research, and practice that places a priority on improving health and achieving health equity for all people worldwide.' However the history goes back centuries to when imperial countries had to figure out 'foreign diseases' among occupying soldiers that were transmitted from local and indigenous people (Farmer, 2013). With this as its history –in which the goal was not necessarily to 'heal the world', Global Health is now understood as 'collaborative transnational research and action for promoting health for all' (Beaglehole et al., 2010). Historically, Global Health is an area of medicine and public health that has been primarily funded by donations and not equity grants, as it was presumed to have no financial returns. Until several decades ago, the notion that investment in people's health was actually a great investment was not mainstream. Prioritizing the value in economic participation and productivity of a society was an important step in not just the health of nations, but also the wealth of nations. This realization, in addition to progress on human rights and the belief that every human deserves healthcare, has made Global Health attractive to a larger community. Meanwhile, the United Nation's ongoing efforts through the Millennium Development Goals, and more recently with the Sustainable Development Goals, has further pushed forward emphasis on the health of people and equitable healthcare access.

However, the resources needed to 'save the world' are still scarce in the non-profit sector. Relying heavily on donations and grants puts many global health efforts on financially volatile grounds, as was recently made clear with COVID-19 pandemic (Finnegan, 2020). Furthermore, organizations are obliged to align their activities and goals in accordance with the available funds. In 2020, the global community has witnessed that even the most established organizations such as the World Health Organization (WHO), are vulnerable to the political agenda of donor countries (Mcneil et al, 2020). In light of this uncertainty, social entrepreneurship – *which at its core is designed to bridge the intention of both worlds: the sustainable revenue streams and business strategy of private corporate work with the desire to create social impact from non-profit work* – was born. Given a larger space of work, and considerable amount of financial freedom, social entrepreneurship slowly started to make its way into more mainstream efforts and intentions of creating a better world. As new initiatives, existing ventures, non-profits and other organizations move towards social entrepreneurship.

Although social entrepreneurship has existed since the 1970's, formal research into the growth and phenomenon are fairly new (Nicholls, 2010). The term underlines the creation of 'social value' while focusing on the 'entrepreneurial' method as a way of creating this social value (Mair et al., 2006). In this two dimension definition is where for profit and non-profit work intersects. While creating social value has been a fundamental goal of non-profit work, primarily through donations and grants, entrepreneurship, which arose from business world, has taken over the modality of sustaining ongoing social value creating activities by up-taking market methods in revenue creation (Schmitt et al., 2017). This shift in financial model stems from the need for sustainable funding that donations or grants lack. The phenomenon presented itself as a new way of looking at non-profit work, keeping the primary goal of social value creation the same, while finding more cost-effective ways to sustain the work.

Here, we present the case of HERA, a digital platform designed to increase access to healthcare for refugee and migrant populations and discuss how the HERA project evolved into a social enterprise from a grant-based non-profit project.

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USING MOBILE TECHNOLOGIES FOR REFUGEES: THE HERA APP EXPERIENCE IN TURKEY AND CHALLENGES IN PRACTICE

HERA App is a mobile health (mhealth) intervention designed for Syrian refugees under temporary protection in Turkey, a population of almost 4 million people (UNHCR, 2020). The application was envisioned as a guide and a bridge for refugees, especially women and children, to access healthcare services in Turkey. Increasing demand for preventive services, such as childhood immunizations and antenatal visits, will eventually lead to saving lives, reducing the hospitalization times, and lowering healthcare costs in this population. HERA is an acronym for 'Health Recording App' and is the name of a powerful Greek Goddess.

HERA was envisioned when one of the founders saw first-hand the possibilities of smartphone applications in improving public health outcomes at Harvard's Center for Global Development in Dubai. Here, he researched the usage of text message reminders in increasing vaccination rates. The results were significant enough that he saw the need to integrate this technology throughout vulnerable refugee populations globally. Initial funding of CAD $100,000 for the development and piloting of the app was provided by Grand Challenges Canada. Grand Challenges Canada is a non-profit that funds innovative healthcare solutions in the developing world.

HERA was designed to decrease maternal and infant mortality and morbidity by increasing the uptake of vaccinations and prenatal care. The crucial distinguishing feature of HERA is that it focuses on the demand-side of the care equation: while the majority of healthcare solutions focus on increasing the supply of healthcare, HERA works by increasing the demand for existing health services. To achieve this goal, HERA sends push notifications to users about upcoming important medical appointments. The app also provides information in English, Turkish, and Arabic about the Turkish health and legal system, which is unfamiliar to many refugees. Additionally, users are able to locate nearby medical clinics and store their personal health records in a secure encrypted location.

Implementing these interventions, however, is always a struggle. 2019 started with many unforeseen issues for HERA. The team had to divert their efforts to operational hurdles, including solving logistical and managerial problems, rather than performing impact evaluation, networking or funding activities. But the bigger struggle was the team had to simultaneously increase their efforts in finding sustainable funding, creating the 'perfect app', and evaluating the app's impact in the field.

A crucial decision was on how to create sustainable impact on the lives of the Turkish Syrian refugee population. For most global health projects, sustainability relies on a constant influx of money. Thus, obtaining global health grants is often the first priority of non-profit work. However, most grants offer a limited funding stream over a specified and discrete project period.

In August 2020, still in the midst of COVID-19 pandemic, the HERA team began pushing forward on a sustainable social enterprise model, while simultaneously focusing on scale-up and creating more robust evidence on health gains attributable to their solution.

This case study describes HERA's progress from a global health project to a social enterprise and how the organization altered its business model in order to become a sustainable solution for increasing the healthcare access of refugee populations. As of now, HERA's work is more agile and social business oriented.

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BACKGROUND

War and the Syrian Refugee Crisis

In 2011, as the Arab Spring spread to Syria, demonstrations protesting the government began (Rogers, 2020). Protests spread nationwide, and more and more armed groups in the region started to take part in the conflict. The resultant civil war caused almost half of the population, 12 million people, to forcibly migrate (UNHCR, 2019).

Turkey's open-door policy, which saved many lives, led millions to migrate through its eastern borders. As of 2019, the official number of Syrian refugees is 3.65 million, and accounts for more than 60% of all Syrian refugees (Ferris et al., 2016; WHO, 2020). This rapid influx of millions of people required an adaptive and flexible response in Turkish infrastructure to ensure the population's housing, health, and other living needs.

Syrian Refugees in Turkey

Health outcomes in pre-war Syria were of a middle-income country: immunization rates for the majority of vaccines were at or over 80%, and life expectancy was 74 years, ranking 72nd globally in 2010 – better than Turkey. Social insurance including all medical benefits are free of charge for Syrian nationals in the country (WHO, 2020; ILO, 2020). Syria has a young population in early stages of demographic transition (World Population Review, 2020).

War crippled the public health system and massive migration made health services impossible for the neediest communities. Additionally, moving populations are always prone to preventable diseases and usually suffer more mortality and morbidity. Trauma and war-related injuries are the most common reason for mortality in Syrians for the last eight years (IHME, 2017). The Syrian population that took refuge in Turkey is very young; 50% are under the age of 18 (WHO, 2020). The majority of the population resides in urban areas and is minimally integrated into the local society.

Healthcare in Turkey and Turkey's Refugee Response

Turkey is an upper middle-income country, ranked 64th in Human Development Index, with a population of almost 80 million people. Life expectancy is 75.1 years, and the country is moving towards a more non-communicable disease-characterized mortality pattern, consistent with its demographic and epidemiological transition, as fertility rates decrease and the population ages.

Turkish nationals are all under the national insurance scheme, which entitles them to free healthcare and has led to positive public health outcomes. As the refugee influx started, public health authorities grew concerned about backsliding. Many refugees did not receive necessary vaccinations and lacked antenatal care, leading to increased susceptibility for disease outbreaks in both the refugee and host-country populations.

Free access to healthcare services is the largest determinant of a good health system (Yates et. al, 2013). All registered Syrian refugees qualify for 'Temporary Protective Status' and are part of the Turkish national insurance scheme. Despite entitled access to free healthcare, it is challenging to improve health outcomes due to the many barriers for healthcare access in practice. The Syrian population often live primarily outside of the formal camps, and in slums of big cities in the hopes of earning a liveli-

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hood (Todd, 2019). Because of this, it is hard to track this population, maintain their health records, and ensure their awareness of the available services. The demand side of the problem is further aggravated by increasing xenophobia from the Turkish population, rumors about deportation, and competing priorities for survival as a recent refugee. Ultimately, these barriers result in refugees mostly utilizing healthcare services only in emergency situations, or in very serious conditions that prevent them from working. Service delivery is lacking in preventive care and primary care services, and lack of demand is the biggest challenge.

BRIDGING THE PEOPLE'S NEEDS WITH AVAILABLE HEALTHCARE SERVICES

Issues on the Ground: Experience of the Team

HERA's founding team in Turkey had been working in refugee response efforts for some time. Most of their work was part of the Medical Rescue Association of Turkey (MEDAK)'s response in Istanbul and Syria bordering cities.

Their NGO, MEDAK, successfully developed and led health screening projects and health literacy training for Syrian refugees around Turkey. Even though the small-scale projects were helping the communities they were working with, the team leads recognized that the problem was endemic on a much larger scale. Everywhere they worked, Syrian mothers were saying that they only received some vaccines (which they were unable to name) and had received several vaccine series multiple times. One of the co-founders met with a few families who had received the polio vaccine six times during the same campaign period because neither the providers nor refugee families had access to any immunization records.

Fortunately, access to hospital birth was not an issue. Turkey, in accordance to its transformative health agenda, made sure access to health services, including vaginal and C-section deliveries, was accessible. However, the rates of prenatal check-ups, iron or folic acid supplementation, and prenatal tetanus checks were still extremely low. An OBGYN who worked in one of the largest local public OBGYN and Children's Hospital said, 'They do not come for prenatal care if they do not have big problems. Even the ones who come are further along in the pregnancy, mostly in 3rd trimester.' Why were there these many problems in a country where healthcare is free? How were these basic needs are not being met? These were the questions that led the founders of HERA to think about a more comprehensive solution beyond planning new health campaigns.

The founders recognized the importance of mobilizing resources and had witnessed firsthand the scope of transnational collaboration. They put together a diverse team in Boston, where the primary lead of HERA had done postgraduate studies in Public Health, to offer a complementary skillset of experiences in global health capacity building, social business, publicity, and networking activities. The team understood that sustainable impact could only be achieved by being an international social venture.

The Idea

The very first idea was rooted in one of the co-founder's internship in Harvard Medical School's Global Health Delivery Center in Dubai working with Dr. Subhash Chandir and Dr. Salmaan Keshavjee. In 2016, the Center was focused on working with research teams in the area and providing funding for global health projects. Dr. Chandir's work also included SMS reminder projects in Pakistan for immu-

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nizations. It was shown that a behavioral nudge-sending reminders for vaccination dates to the families increase the number of people getting vaccinated. These type of demand interventions were extremely cheap and effective in increasing uptake of health services in low resource settings (Hall et al., 2015). There is a growing evidence base on SMS reminders' use with medication adherence, timely immunization uptake doctor's appointments and smoking cessation (Ghorai et al., 2014; Wakadha et al., 2013; Raifman et al., 2014).

After coming back from the internship, co-founders (just classmates then) met for dinner to catch up, which ended as an all-night brainstorming on how they could utilize demand-side interventions for the populations they were working with. Increasing immunization rates, antenatal care uptake, medication adherence, and a myriad of other health-related applications could be very beneficial for Syrian refugees in Turkey. The initial draft of the innovation they designed included many small interventions compacted into one overarching intervention. Their main goal was to increase the uptake of healthcare services and to provide refugees information about resources available to them. It was also an empowerment tool, giving the women control over their healthcare needs.

HERA was envisioned as a 'guide' for refugee populations in Turkey: Someone who did not know their rights, where to go to receive care, how to get registered, and who spoke a different language would be able to use HERA to navigate through the system. The founders thought of every possible barrier in the pathway to health access and tried to come up with a solution. This plan came from trying to 'solve all the problems' angle. The rationale was that having isolated interventions might miss the perspective of all stakeholders in the journey or the macro-level barriers they might face. In the end, the first draft had 16 different features in one platform, which would then to become a mobile app.

The first iteration of the mobile app (Exhibit 1) tracked the immunization dates using the Turkish vaccination calendar and sent reminders to mothers for the dates of upcoming appointments. The app would also do the same for prenatal care dates for pregnant women. Even though this was the main intervention, HERA would also allow the storage of medical records on a cloud server, direct users to nearby health facilities, call 911 emergency services, and provide health information and various other features.

A Tech Solution for a Demand Gap: Context and Enablers

An important aspect of designing interventions is the mode, or the platform, of delivery. When the targeted gap is on the demand side, considerations on human behavior, financial effectiveness, innovation, and implementation have to be balanced. Traditionally, there have been many successful demand interventions that increase the uptake of desired health services, such as conditional cash transfers or massive ad campaigns (Rawlings et al., 2005; Snyder et al., 2004). However, modern interventions, and in the context of humanitarian crisis, have to be designed more agile, mobile, and adaptable to different contexts.

There were also unique opportunities about this specific humanitarian crisis that allowed for technology to have greater potential: First, the Turkish government provides healthcare services free of charge, in contrast to other humanitarian contexts. Normally local or international NGO's (INGO) provide care. Although good-willed, it is challenging to provide high standard, evidence-based care to an entire population in accordance with recommended guidelines during humanitarian crises and in times of resource scarcity. Turkey's coordinated response, taking the lead off of INGOs, helped with regulated and standard care provision. This would also become an important factor in designing the scalability of HERA in Turkey.

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Another opportunity was that the Turkish Health System was starting to include more electronic health solutions as part of their comprehensive services, in alignment with its health system goals. The country had digitalized all of its health records starting 2015 and was already starting to implement tele-health interventions in remote areas and creating a digital platform for end-users to view their health records. Although mobile health interventions were relatively new and not tested robustly in Turkey, let alone in vulnerable populations, the country's health infrastructure was becoming more suitable for health programs.

Just like in the supply of health services, it is also important to consider whether the target population will have access to the platform of delivery. In this context, a phone – particularly a smartphone – was needed. This is where the experience of the team played an important role. MEDAK, the NGO, had been working with Syrian health networks in İstanbul. One important observation they had was that all of the information transaction (i.e. about new laws, regulations), communication, and organization was done through social media and messaging apps such as WhatsApp. This was not because the refugees were 'rich' – but phones, and smartphones were a way to connect with their dispersed families and receive updates about their country and changing regulations. Smartphones were also described as 'lifeline' for refugees during their flight (Alencar et al., 2019). The team believed that using a smartphone platform was not only good opportunity but also an issue of equity; they always believed in making new technologies available to vulnerable communities.

While deciding on the model of delivery for these set of features (interventions), the team had to weigh the risks of using a high-tech solution (mobile app) rather than a low tech (SMS-based reminder). There was a tradeoff: The tech infrastructure need was more complicated and might seem 'out of touch with reality.' However, the benefits outweighed the costs. Technology meant easier modifications, real time data sharing, and more agility. The HERA team finally choose a mobile app because it was a digital platform that could be further improved. Furthermore, the main idea behind HERA was not just a mobile app: It was a set of interventions, which could be adapted to the context, modified according to the needs of the population. In addition, the HERA founders knew that going from a higher to lower tech as needed would be easier than the reverse.

TRANSLATING AN IDEA TO INNOVATION

Development Process

Even though the idea of HERA was designed with a rigorous evidence base and with people who had field experience with the target population, developing an idea into an innovation is an iterative process. Going back to the drawing board happens a lot more often than desired. This concept is a very important phase of the development process, as the journey is not in fact a straight line, but a cyclical and often chaotic one. Innovating is finding new way of thinking about a relatively old problem. Yet, an innovative idea does not necessarily translate into actionable designs or programs unless the design of implementation is also innovative.

The core team had no experience in mobile health applications before. This meant numerous discussions with people with a mhealth background in order to understand everything from the feasibility of incorporation of various features in a mobile application to pricing strategies and the costs of the app

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itself. This process was a whole new learning process for the team because it involved communicating with people who had a very different perspective on the project, and the concept of a 'business model'.

Early on in the innovation phase the team approached several people to involve them as their advisors. From their medical school, Dr. Figen Demir, an epidemiologist, and Dr. Ata Akın, the dean of medical engineering faculty, agreed to advise them on the project. In addition, the team approached Dr. Nitika Pai of McGill University, who had already implemented large-scale mobile health projects in Africa. Advisors played an important role in helping the team develop actionable next steps from the idea. Many things had to be mapped out for each step of the innovation: stakeholders in the refugee response, the predicted evolution of health issues and in country regulations, the feasible range of services HERA could provide, financial strategy, and monitoring and evaluation (M&E) plans.

As HERA was growing from an idea to an innovation, the team started to focus on its implementation as a field project. How would HERA work if they had the perfect product? Who would use it? How would they know about it? How would it help with the uptake of health services? Unfortunately, these questions took several years to answer — and even be asked — as the development process was ongoing.

ACTION LEARNING

Preliminary Needs Assessment and Organizational Scale up

In 2017, the search for funding started after the innovation became more solid when HERA was invited to apply for Grand Challenges Canada's Stars in Reproductive, Maternal, Newborn and Child Health Seed funding program.

During the months leading up to application deadline, a small acceptability and feedback study was performed. The main idea was to understand the needs of the target refugee population and get their ideas on what sort of features would be useful for their lives in Turkey. At the same time, the team believed that comprehensive inclusion of the target population, especially if it is a vulnerable community, is an important part of all phases of the innovation from design to implementation to evaluation. This was an important aspect of field ethics and equity as part of guiding global health principles.

Since there was limited time, the interviews had to be done strategically. The most important discussions for the design of the intervention were with the target group, refugee women, and their first contact in healthcare services, healthcare providers. Specifically, these practitioners included OBGYNs and pediatricians who received Syrian population in their clinics. Initial interviews, though small in number (n=8), provided significant insights on the needs and value of such a mobile application from the perspective of the target population. When refugee women were asked about what they would expect from a mobile app to help them, the issue of language barriers repeatedly came up. Eventually, this user experience study became a guiding tool for revising HERA more directly to the needs of the population. This process of being in close contact and receiving constant stakeholder feedback became a routine part of field activities and has proven to be very beneficial.

Grand Challenges Canada funding would also mean that that HERA' features had to be distilled. Even though all of the features are believed to be useful for the target community, the more complex the mobile app is, the more difficult it is to use. The argument on including all features, squarely planned for each potential barrier, is comprehensive and focused on the journey of healthcare access, not only directed at a single healthcare barrier, such as language barrier. This rationale suggests that chances of

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improved access to care would increase if all barriers were tackled simultaneously. However, the reality of implementation in the field seldom allows for complete integration. In addition, being focused, on a range of services provided and also a specific target population (women with young children and pregnant women) allowed for more detailed evaluation of the impact.

The capacity of the implementing organization is essential for success of the project. HERA was envisioned by the same team that co-founded MEDAK in 2013 with the goal of providing medical aid in disasters and humanitarian crises. However, MEDAK was a grassroots NGO with a yearly budget of less than 20.000 USD and run by volunteers. To put this into more perspective, HERA's proof of concept funding was bigger than MEDAK's budget over a 5-year period.

Prior to HERA's implementation MEDAK had to scale up its administrative and organizational structure. They always relied on volunteers, as motivation was a desired characteristic in field workers. However, now they needed a multidisciplinary professional team, including lawyers to make sure all documents signed were safe, and accountants who knew how to process international funding for Turkish organizations.

Organizational scale up was a grueling process, during which the team had to learn from their mistakes on the way. Among other issues that became valuable lessons for the NGO, the biggest one involved a lawsuit filed by the project team against the app developer due to poor quality of HERA app version 1. In addition to a 6-month delay to the delivery date, without a complete product, this issue cost MEDAK 'profit lost' due to being unable to procure remaining funding from Grand Challenges Canada during that time. This problem forced MEDAK to minimize its other activities to continue financing HERA amongst other issues.

Accelerating the Development

In 2019, HERA was gaining much momentum both in the field and also in Boston, as the newly formed Harvard (Boston / MA) team from the same Master of Public Health cohort was looking for opportunities to develop the project and also plan for sustainability. Two design thinking shifts were especially important in the transformation of the initial project into a professional innovation venture with the potential for significant impact.

The first shift began as a scale-up plan for HERA that was completed as part of their course's final assignment. Scaling up can be done in different ways: a) providing the intervention to a larger population or a larger geography, b) the scope of services provided can be increased but the number of users can stay the same, and c) both geography and scope can increase in tandem, marginally scale up in both dimensions[1].

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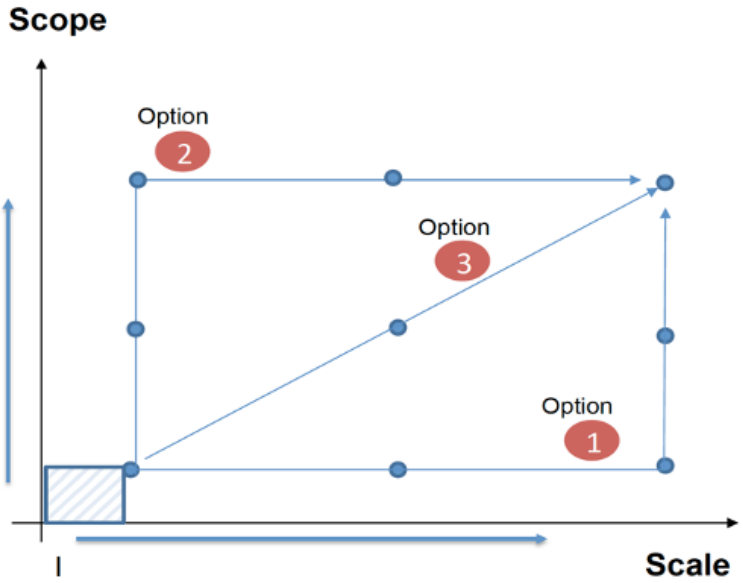
Figure 1.



For HERA, both dimensions of scale up meant more sustainable funding. But scale up plans were also what attracted many humanitarian donors. Increasing the scope to include other interventions could potentially the project's increase impact. HERA could provide medication reminders, or even serve as an information tool for dissemination of non-health issues. Population scale up would mean including more children and pregnant women in the program, because under-5 and maternal mortality are still significantly high in refugee populations.

The third option, scaling up in both dimensions at the same time, seemed overambitious at the beginning. In the end, the team decided to include conditional credit transfers as a way of increasing the uptake of preventive services together with scaling to include a larger population of women and children refugees in Turkey.

The other shift in thinking was that before, the co-founders did not really consider HERA as a 'venture' or themselves as 'entrepreneurs.' For them, they were doctors who worked in the field, where they found a gap in services that they then tried to solve. They believed that scientific evidence was the sole proof of possible success. However, HERA's successful implementation as an innovation did not only depend on scientific evidence from the proof of concept study, but rather, a contextualized, but bold, implementation strategy.

Successful implementation and impact on a large scale is possible with the right partners in the right places for the right people. In order for HERA to reach this goal, the team had to progress in all dimensions of the innovation: product, health system integration, financial sustainability, scientific validity, and technology infrastructure.

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Formal Scale Up: HERA Inc. (Boston /MA)

Towards the end of 2019, the team decided to further expand in the United States, specifically in Boston where the founders were located at that moment. The main rationale behind it was the realization that the United States offered vast resources-- financial, networking, and technology. In addition, Boston was the hub of innovation, healthcare and academia. Establishing a non-profit was a regulatory process that required bureaucracy as well as setting up an international co-founder team that could engage and connect with the resources in the U.S., all while the field work was ongoing in Turkey.

HERA Inc. was officially established in October 2019 to serve as a business and resource strategy hub for all of HERA's activities. The new board of directors, co-founders of HERA Inc., were people with background in operations, networking, and business administration. This expansion allowed for pushing forward strategic planning on a dimension other than field work or scientific research. This collaboration set up the groundwork and infrastructure to evolve from a grant-based model into a sustainable social business.

LESSONS LEARNED

Evaluating the Innovation

As with any other global health intervention, HERA was designed with a feasibility and effectiveness study. The first study protocol was approved by the Acıbadem University School of Medicine, İstanbul Institutional Review Board. The study had two intervention and two control arms. One intervention group was pregnant women, who would be given the app, receive reminders about their prenatal checkup dates, and be followed for an increase in timely appointment dates. The second intervention arm was refugee women who had children under the age of two. They were also to be given the app and receive reminder notifications for vaccination dates of their child (if they had multiple children, they could track all, but only one was to be used for analysis) and followed for timely uptake of vaccines and completeness of immunization calendar. In addition to this quantitative analysis, selected persons from the target group were to be invited for in depth and focus group interviews to better understand acceptability and technical issues that might occur. Howeverb technical planning is rarely implemented perfectly in the field. They would soon realize this.

When the proof of concept study was planned, the assumption was the app would work with minimal issues, or at least have similar issues as other attempted health interventions in the field. The team did not fully appreciate that it was an innovative way of looking, in contrast to using existing strategies. The team never anticipated that the places they were meeting with groups of people had no internet with which to download the app . They also had no idea what to do when the app crashed after participant put in all their information. There were also unforeseen important cultural aspects to consider with the target population; for instance, during Ramadan Month, people were a lot less interested in meetings or talking about importance of immunizations. Furthermore, the addition of new team members or new activities caused diversion of focus from the innovation's evaluation in the field.

Finally, the team decided to discontinue all other activities until the minimum viable product was ready and field tests for feasibility were started. Although this feels intuitive in hindsight, for a long time the team did not realize they needed to spend much of their time on a minimum viable product. In paral-

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lel to this shift, evaluation plans were also altered. In addition to understanding the impact of HERA, creating the 'perfect app', through a rigorous scientific process – with both qualitative and quantitative analysis – was included in the revised future study protocols.

Designing Agile Interventions in Humanitarian Contexts

Humanitarian crises present unique opportunities for agile interventions. By nature, they are very distinct from each other, but the affected are usually poorer populations with low quality of healthcare services. The 'limited resources' rhetoric tends to be far more severe in humanitarian contexts. These attributes can be addressed more effectively with agile interventions rather than with rigid standard operation procedures.

Solution design agility is very suitable for conditions that are rapidly changing. As the problem evolves, an intervention that is flexible and responsive can more readily be transformed. In addition, humanitarian contexts often lack reliable quantitative data, which is an essential tool for choosing between alternatives. Agile designs are more focused on lean development rather than on planned processes (Eisenmann et al., 2012). This allows real-time accommodation of feedback in every step, because the development is more impact focused, rather than plan, or output, focused.

HERA, which was designed in response to Syrian refugee crisis, the biggest humanitarian crisis since World War 2, has evolved into an agile innovation. The way that the HERA team went about it is through strategic M&E. Rather than treating evaluation as a tool to understand the outcomes, it was used as means of discussing improvement as the project proceeded. Instead of project milestones, the team chose to react with a smaller feedback loop with quick reactivity time. Feedbacks were evaluated and communicated to higher levels - team leads, advisory board – with possible reactions to the issues. This allowed the team to work coherently and faster in plan- do- study- act cycles.

Having an Agile Organization

MEDAK was founded by a young group of volunteers, with mean age of 26 at that time, who mostly came from disaster response experience. Working in disaster contexts, members were used to adapting to rapid changes in the field. In 2017, when the HERA team applied to Grand Challenges Canada for funding, MEDAK had only one externally funded project. SOSyria Project, funded by International Medical Corps, was a health literacy and first aid training program designed for Syrian families.

There was some traction on increasing accountability and professionalism in the NGO with SOSyria Project. However, with HERA's proposal, MEDAK had to step up to a new level. Implementing a long-term intervention would only be possible with a capable group of people and a flexible organizational structure that could allow for quick decision making. Fortunately, MEDAK's tradition of rapid analysis and agile response to changing conditions was preserved. The team was able to use the same methods, sometimes involuntarily, in HERA's decision-making process.

Establishing an Agile Team

Growth from two people to a big team across two different continents was not planned in the beginning. The way HERA chose to go about it was via marginal growth strategy: After the core team was founded, the inclusion of new people happened incrementally. Even though there were predictions of human re-

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source needs, there was not a defined list of personnel. After each stage of progress – being accepted to a venture program, preparing a new strategic plan, updating from the field — the team would consider their capacity and discuss the needs.

HERA team members were mostly around the same age, late twenties/early thirties and at the beginning of their careers. The resultant drive, passion, and flexibility has been an important determinant of HERA's agility and resilience to issues with team members.

Adapting to Rapidly Changing Conditions

The ability to adjust to the dynamic needs of the target population proved important. A good example of immediate responsiveness is the creation of a website and short message service (SMS) versions of HERA App. Being able to utilize the high penetration of smartphones in the refugee community was the original reason for opting for a mobile app. However, HERA was first envisioned as a responsive platform, rather than a mobile app, the final product. This flexibility allowed the team to quickly design other versions of HERA for deployment. Having a variety of delivery modes would also help them in deploying HERA in different contexts in the future.

Applying agile design process to health innovations in humanitarian contexts is difficult. Most of the available funding for humanitarian response is usually either saved for new emergencies or devoted to capacity building with already existing response strategies. For those who are more reliant on a robust evidence base of success, it is always a point of hesitation to invest in new strategies and innovations, particularly a humanitarian context. Despite this, innovative interventions created and processed through agile process design present many opportunities. Rapidly changing situations, low quality data for decision-making, and high stress scenarios can benefit hugely from flexible intervention designs that focus on practicality rather than documentation and which can respond quickly to feedback from different directions.

Moving from Innovation to Practice: Agility and Resilience to Shocks

The realities of the field, socio-political instability, different life paths of team members, and other variables are hard to plan for in the beginning. Being agile means HERA's team had to respond to changes but also consider unanticipated issues.

As a grassroots NGO, MEDAK never had to file a lawsuit or go to court for any legal reason. Therefore, there was no protocol for when a contractor did not fulfill their part of the agreement and caused the project significant harm. That is what happened when the first app developer company did not deliver the mobile app on deadline. Since the continuation of funding from Grand Challenges Canada relied on deliverables, this became a major problem for the team. After six months, it was obvious that the company would not be able to reliably deliver the product and was unwilling to refund: the only option was to file a lawsuit.

The team knew that a lawsuit might take several years and also that the verdict, which they believed would be in their favor, would not help with the project progress, and could possibly hurt their external relationship. Instead of waiting for results, a new agreement with an international company was made. This time, three people from HERA's team would be in constant contact during the development process and visit the company at least once a week to work together on the app design. To make up for lost time and traction due to the delay in application launch, the rest of the team would focus on scale up plans,

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financial sustainability, and networking. This rapid and simultaneous movement instead of sequential or milestone approach helped them to minimize the damages in unfamiliar, uncharted, and unpredicted territory.

COVID-19 and HERA

In March 2020, in response to the rapid spread of the 2019 novel coronavirus disease (COVID-19), and ongoing contextualized risks for the Syrian refugee population in Turkey, the decision was made to incorporate a COVID-19 response into the HERA platform. The aim of this decision was to access the current and growing user base of women and children to provide health education outreach and reduce exposure risks within the health system. Educational content was adapted to include general information about COVID-19 (including basic protective measures), a virus tracking map, government restrictions, and testing site referrals. Users were notified of these updates on their mobile devices; the user base was then contacted for symptomatic assessment at two-week intervals. A description of this intervention was published in October of 2020 as an example of the ability of mhealth platforms to be rapidly distributed at a low cost to improve the health of vulnerable populations. HERA served as proof of concept that similar mhealth applications can be rapidly adapted to emerging challenges, including both humanitarian crises and evolving infectious outbreaks, such as the COVID-19 pandemic.

TOWARDS SCALE AND SUSTAINABILITY: A SOCIAL BUSINESS MODEL (EXHIBIT 2)

Suitable Conditions for Scale Up

HERA was envisioned in an environment that is suitable for technological innovations and for a well-defined, and appreciated, need. The Syrian refugee crisis is known worldwide because the migration route for displaced persons included the Western world and made it 'their problem' too. It was also obvious to many stakeholders in the humanitarian sector that traditional approaches to disaster response were not enough because the specific needs of each refugee group in different countries were different. Turkey had excellent conditions and institutional settings for growth of such an innovation.

Transformation in the Health Program of Turkey's Ministry of Health (MoH) had led to significant health outcome improvements, but this process was far from over. Starting from 2015, the MoH increased its focus on building technological infrastructure, creating telehealth capacity, and opening a new branch that would regulate electronic health interventions. HERA was aligned with these efforts, which made it more acceptable for scaling up and eventual integration to MoH services.

Another important opportunity in Turkey was that Turkish Government was the major provider of health services which are all free of charge. A demand side innovation such as HERA would rely on the presence of a fairly guaranteed supply stream. Being the major provider also meant that the adoption system would be relatively easy as there would be one integration process. Adoption of the innovation itself by end users was also favorable due to high usage of smartphones in the target community.

While the field team in İstanbul working on the proof-of-concept project got back on track with many useful, practical solutions, the Boston team grew to four people who decided to work on HERA. The team was now advised by professionals in the global health systems and innovation arena such as

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Dr. Rıfat Atun. Although this rapid growth and transnational collaborator coordination was intimidating, the team believed that a variety of expertise and knowledge would be the key to HERA's success.

After the proof-of concept study data collection and analysis concluded, the team was confident about the wide-reaching potential of HERA. With favorable conditions, the team now had to decide on how to continue with scaling up plans. Deciding on scale up strategy early on is important for sustainable growth and prioritizing the organizational activities.

Scale up discussions always included integration of HERA into the Ministry of Health's refugee health services. The core team believed that sustainability would be best ensured with this plan, as MoH was the major health provider for refugees in Turkey. Also, successful medical care uptake would help the MoH make data collection easier and digital as users of HERA could put their health records in the app, should they choose to do so. A major risk was the funding of refugee responses. Since the early 2010s, the government of Turkey has been receiving large grants for European Union and United Nations for its response to the Syrian refugee crisis but is unclear for how long this funding will continue. Integration with the MOH also meant handing the operation to MoH, or at least parts of it. In practice, it introduced many issues as the priorities of HERA team and Ministry of Health might not always be the same.

Another option for scale up was to stay completely independent as an entity. This ideally would be through external funding from humanitarian and global health donors with sustainable grants. A major advantage is that HERA team would be in complete control of the program and could keep the priorities it was designed for. Also, having international donors would pave the way for international scale up or different versions of HERA App for other refugee communities around the world. However, as the team knew, having a grant generally meant a rigid timeline, stable milestones and finite funding duration. They would still have to spend a lot of energy on actively seeking new sources of funding.

Alternatively, working with a large company, particularly a telecom company in Turkey could be beneficial. As a corporate social responsibility agreement, the company could reach the end users easily. In addition, integration of conditional credit transfers – that is currently not done and is planned as a part of agile scale up design – would be seamless: Instead of sending cash transfer, the telecom company could give discount on the bill or provide free internet or data to the user as a reward for getting the vaccine or going to the prenatal checkup appointment. The major risk identified in this plan was the buy-in of the telecom company with possible unwillingness to cooperate due to fear of pushback or negative advertisement from xenophobic parts of the host community.

The last scale up strategy that the team thought of is working directly with United Nation charters. In humanitarian crises, United Nation charters and a few international organizations are coordinated by United Nations Office for Coordination of Humanitarian Affairs (UNOCHA) through a cluster approach. Each cluster is responsible for an aspect of the crisis or the needs of the population (health cluster, water and sanitation cluster, shelter cluster etc.). Approaching the UN with the HERA project could be beneficial in integrating HERA to UN humanitarian response programs and scale up in different contexts with a fairly stable funding stream. However big and rigid organizations are usually hard to mobilize due to long and arduous bureaucratic processes. In addition, the team was afraid that HERA might be swallowed by a bigger organization with a misaligned vision for equity and end up out of control of the original HERA team.

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Sustainable Development Goals and HERA

As health sector reform becomes an increasing priority amongst the international community, access, quality, efficiency, and equity are key intermediate objectives in the approach to successful reform (Roberts et al., 2003). Key aspects of reform that require ongoing and rigorous assessment include problem definition, causal diagnosis and policy development. Yet, a 'deep sensitivity to local circumstances' is an important part of understanding and affecting global change (Roberts et al., 2003). Our global health efforts have to be adjusted and contextualized for highly mobile populations, including displaced persons.

The sustainable development goals (SDGs) adopted by 193 countries in 2015, materialized from some of the most comprehensive and cross-sector collaborative negotiations in the United Nations history. Developed as a replacement for the continued vision put forth by the Millennium Development Goals (MDGs), the SDGs are the world's shared plan to end extreme poverty, reduce inequality, and protect the planet by 2030 (United Nations, 2020). Incorporating health efforts for refugee care is an important part of the SDGs, including good health and well-being (Goal 3) and inequality reduction (Goal 10) within and among communities, through creating inclusive and resilient human settlements (Griggs et al. 2013).

The SDGs are in fact interconnected, often related to the cyclical relationships created by social determinants of health. Social determinants of health are conditions in the environment in which people are born, live, work, and play, that affect a wide range of health risks and outcomes (WHO, 2020). They are often linked to the complex, interrelated social structures and economic systems that shape these conditions (Centers for Disease Control, 2019). For example, poverty, poor living conditions, and downstream effects of climate change and humanitarian crises, have a major impact on the health of individuals and communities. However, economic productivity can similarly be cyclically linked to health. Disability caused by chronic disease affects days of work lost, and health costs (including catastrophic health expenditures) associated with various disease states, may push people towards unemployment, or employment in unsafe and usually underpaid jobs; thus, powering the poverty cycle.

HERA works to leverage information and communication technologies in an era of rapid communication, to improve the wellbeing of difficult to reach patients. When considering access for highly mobile or other vulnerable populations, creative approaches to ensure equitable achievement of the SDGs is important. In the intersection of health and human flourishment, the use of innovative interventions is an important tool for providing target populations more control over their own health and well-being (Vernon et al., 2016). Unfortunately, it is estimated that at least 200 million people, up from current estimates of 80 million, will be forcibly displaced from their homes by 2050, driven by humanitarian crises often fueled by conflict and climate change (Myers, 2005). Contextualized approaches to healthcare access for this population are, such as HERA's platform, required for equitable achievement of the SDGs by 2030.

Financial Sustainability and Becoming a Social Enterprise

From an idea to full blown enterprise, initiatives take a lot of unexpected turns, sometimes in a good direction and sometimes bad. The majority of these turns cannot be forecasted perfectly, though resilience can be built. Ever-changing political, economic and social environment affects social impact work swiftly because it is seen as an elastic expenditure, meaning that it is sensitive to small changes in economic power or willingness to pay.

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Becoming a social enterprise is about the sustainable funding of all activities of the organization before anything else. As discussed before, grant based funding strategies can be vulnerable to changing priorities and economic and political contexts.

HERA's metamorphosis into a social venture started with defining the players in the economic cycle of such interventions. First, the 'beneficiaries', who HERA was designed for, and then the payer, or cost bearer in refugee healthcare. These are usually either large international organizations such as UNHCR, WHO, or host country governments themselves. Often, these organizations are also the providers of the health services, or the beneficiaries that HERA was designed to connect the refugees with.

While there are other major players in refugee healthcare, these two are the largest ones. For the team, it was clear that the financial sustainability had to include them. Not only that but working with the payer – keeping in mind that they are usually the service provider too – made the most sense.

At the end of this multi-year process, a clear business model with multiple actors were created. HERA, as an organization, was to provide the service of integration of the HERA App to the providers' services, allowing them to keep real time data while connecting with the beneficiaries directly. This service provision also meant that the team would work in the field, with the payer to modify HERA to the specific needs of the population. One other reason to focus on the payer was also the decision to always keep HERA free of charge to the end-users, refugees. Additional funding could then be used to implement HERA in other countries.

While it is a simple model of financial sustainability, the team also had to consider using this monopsomy model. Ministries of health or large international organizations are usually the sole provider of healthcare in refugee hosting countries.

CONCLUSION

However great an idea or potential it has for creating social value, it will stay as an idea if it is not operationalized. An operational intervention, product, or a service needs continuity beyond proving its impact. This is the core idea behind a social enterprise model.

There are other business models that can be used for scaling up and sustainability of a project. However, the strategies considered by the HERA team are viable and realistic for the context of refugee crisis and the region. While the political and economic context of social issues may change, the case of HERA could provide insight into long and cumbersome way of in front of social enterprises.

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Figure 2. Screenshots from HERA App

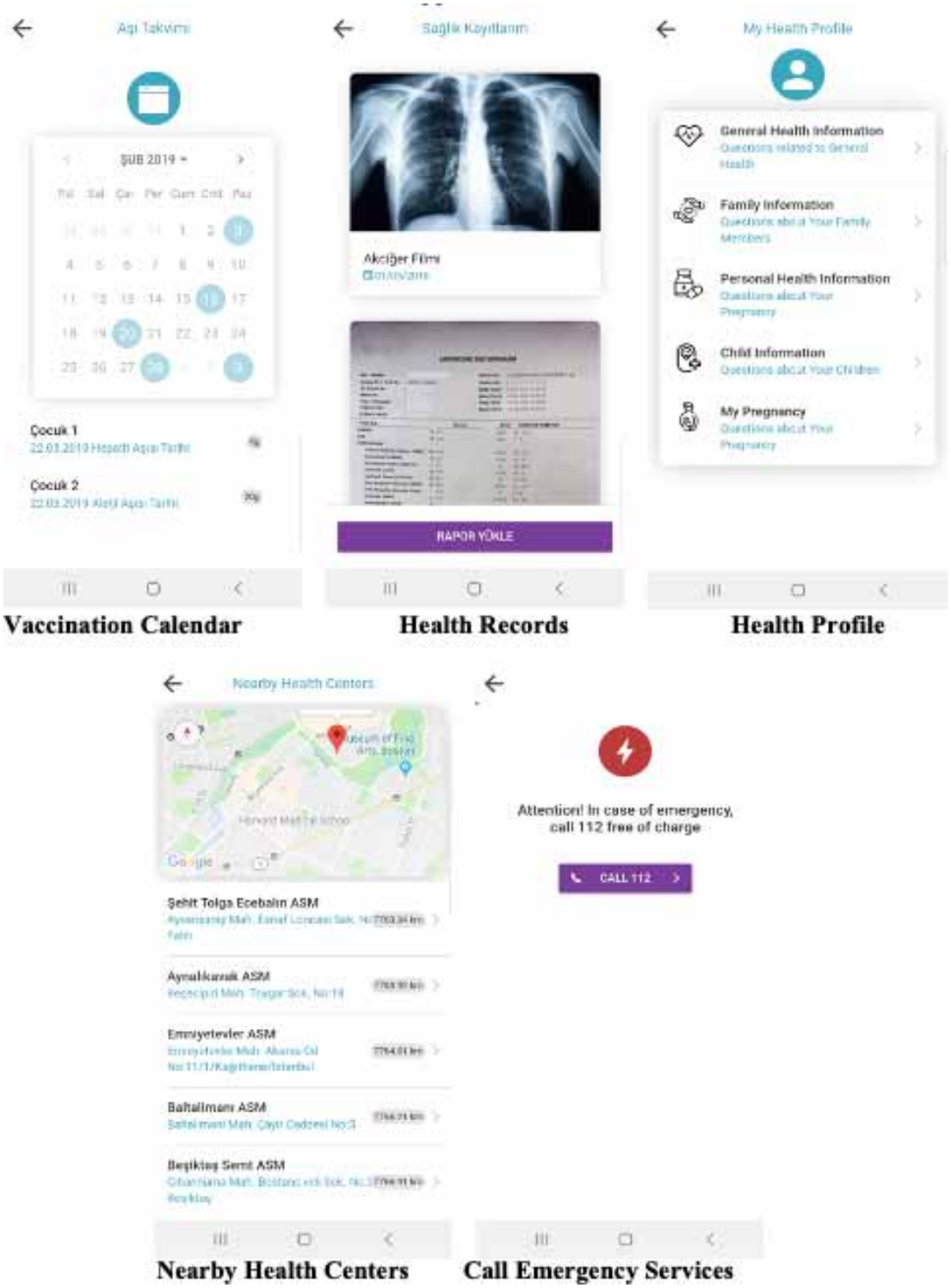

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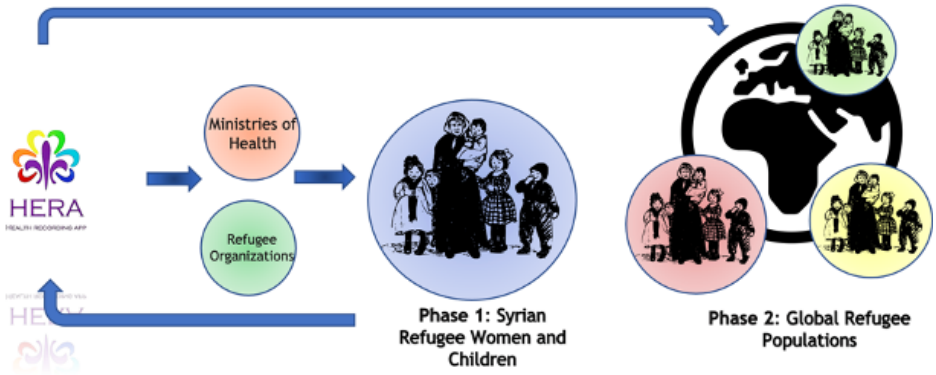
Figure 3. Business Model



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ENDNOTE

[1] This graph is adapted from Dr. Rıfat Atun's ID552 Innovation and Global Health Systems Course Lecture: Translating ideas to a scalable plan: agile design, November 2018. The scaling up strategy explained here is from the same course.