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LookOut: Visionary Entrepreneurship in a Digital World

"What I hope is that blind people are now doing stuff that they wouldn't do otherwise, because they know that they can always get a pair of eyes to look out for them."

John Johansson – Founder of LookOut

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INTRODUCTION

John Johansson is sitting in his home office enjoying a quiet moment. He has just finished another Skype interview with a journalist from a tech website, who was interested in his company LookOut (LO). John prefers Skype interviews because his worsening vision makes navigating unknown territory more difficult and travelling from his home is time consuming. He has done hundreds of interviews since he came up with the idea to connect blind people, in need of a pair of eyes, with volunteers, willing to help. The app that he and his team subsequently developed combines social networking, mobile technologies, and the human instinct to help into an online service for the visually impaired.

As John ponders the last few years, he is struck by how far they have come since he had the idea in 2012. He saw the potential for helping blind and visually impaired people using the camera of an iPhone connected to a volunteer who would help them with everyday tasks. The app could be used in countless situations to assist the blind in navigating a world designed for the sighted. After winning a Scandinavian start-up prize, funding organizations eventually became interested. With funding, the intriguing idea became a company, and the company developed the LookOut app.

It is a simple, but revolutionary idea. The app can give a new level of self-sufficiency to the visually impaired because they are no longer at the mercy of friends, neighbors or family to get the help they need when they need it. A global pool of volunteers is available to help around the clock. Hence, a visually impaired person can use the app as much or as little as they need to, which removes the feeling of imposing on others. The sighted people, in turn, log on to the app, when they have time to help, thus alleviating any sense of imposition. Back in his home office, John contemplates the next phase of LookOut. They are no longer a start-up and, eventually, the media will lose interest in their story and social mission, and future investments will cease. The company needs to move ahead and become mature and sustainable. However, there are many issues that need to be addressed, such as, how can the company create revenue without charging for the app? How can the service attract more blind people? How can the app be further developed, so it becomes more useful and stands out against increasing competition? As these and other questions are rushing through John's mind, he realizes that the quiet moment has passed and it is time for his next Skype call, which is scheduled with Dick Eriksson, the CEO of LookOut. Both John and Dick agreed that they need to make important decisions about the future of the company, and they have agreed to make those decisions during this Skype call.

1. FROM IDEA TO COMPANY TO APP

Imagine you are blind. It is late afternoon and you are standing in your kitchen. Your children are due home at any minute. They need to eat and leave again as quickly as possible, so they can make it to volleyball practice on time. You want to give them a warm meal. You know you have the ingredients to make chili con carne, their favorite. In the cabinet, you know you have canned tomatoes and beans, but you also know you have canned peaches and coconut milk in the same sized cans. There is no way for you to distinguish between the cans by touch only. What do you do? Do you wait until someone gets home and ask, thus delaying dinner and making everyone late? Do you go to a neighbor with the cans and ask? Certainly a possibility, but you have already asked the neighbor similar questions three times this week alone. Do you call a family member and ask for help via Facetime or Skype?

Or imagine you are blind and you travel to a new city. You are staying in a hotel. After you have checked in, you make it to your room only to find the air conditioning is blasting and your room feels like the arctic. You manage to find the control panel, but it is digital and you cannot read the screen. You call the front desk, but they will only be able to send somebody in an hour or so, while all you want to do is nap after your long flight. What do you do?

These two small problems are just a brief glimpse into the challenges the blind and visually impaired community face every day. What do you do when you need a pair of seeing eyes for just a moment? John Johansson found an answer and created an app he called LookOut (LO). Using the app, a blind person connects with a sighted volunteer through an iPhone or iPad. Utilizing the built in camera and microphone, the blind person then explains the issue, shows the seeing person what needs to be identified or read, and the seeing person gives the answer. Problem solved. They disconnect and resume their lives.

Personal experience was the driving force behind John coming up with the simple idea. At the age of 27 he was diagnosed with a

genetic eye disorder that would eventually rob him of his sight, which made him volunteer with the local Association for the Blind, helping blind people to cope. He also got an iPhone and in using it, he realized that "there was a way of helping blind people through this technology." Unfortunately, harnessing the iPhone's inherent capability to bring his idea into fruition was beyond his technological expertise. He had a great idea, but had no inkling as to how to make it a reality.

1.1. STARTING UP

Beginning in spring 2012, John attended a variety of startup events to help him develop his business idea and to meet people with the necessary tech skills, who were interested in taking his idea forward. After a year, John had managed to assemble a team of eight to begin building a company. From submitting applications to foundations to launching a crowdfunding campaign, John tried various avenues to procure enough funding but with little success. The breakthrough happened in late summer 2013, when the idea for LookOut was featured on national television. The timing of the story was fortuitous. The day after the broadcast, a major philanthropic foundation, which had already been evaluating his application for over two months, contacted John. "And then we got the equivalent of 300,000 USD," John remembers. "That was pretty much day one in our business, when we could start hiring people."

Having secured sufficient funding, a non-profit company was created and the development of the app began. After an additional fourteen months, the first official version of the app for iPhone and iPad was launched internationally in January 2015. To John's surprise, the international launch drew a tremendous amount of media attention, both in Northern Europe and globally. The highly regarded Silicon Valley tech website Product Hunt, for instance, posted an article about LookOut, which created more internet buzz as other websites picked up the story. Sites featuring articles included Mashable, Daily Dot and the Huffington Post. Eventually, more mainstream broadcast media outlets became interested, such as CNN, CBS news, and NPR (National Public Radio) in the US, followed by national news outlets in the UK, Russia, Turkey, Italy, France and Germany. Without spending any money, the app was introduced to a global audience, and John estimates that he and his CEO, Dick, gave over 100 interviews each in the month after the app was launched.

1.2. LOOKOUT – THE APP

In its current version (Version 1.5.1), the app is available for free for Apple's iOS. A version for Android smart phones is in development. After downloading the app, users are asked to declare whether they are "blind" or "sighted", when they start the app for the first time. Then, as the next step, users have to sign up for the service using either their email address or Facebook account.

Once set up, the app works differently for blind/visually impaired users than for sighted users (see Exhibit 1). Blind/visually impaired users can call for help by simply tapping on the screen (see Exhibit 2). The app then attempts to connect them with a sighted helper, who matches the caller's language preferences and time zone. (The language preferences can be edited in the settings menu of the app.) If a helper does not react to the call, the service simply connects to another helper from the pool of available volunteers until one of them answers. Typically, establishing a connection takes a minute for languages, which are highly represented on the app (such as English), but can take longer for languages spoken by fewer users. When a helper connects, the visually impaired user and the helper communicate verbally, while the camera of the iPhone or iPad is used to show the helper the problem. For obvious reasons, helpers cannot use their cameras to send a video to the callers.

To receive calls helpers only need to be logged in via the app, but they are never contacted during late hours (from 10:00 pm to 07:00 am) or when the "Do Not Disturb" function is activated. When a helper is contacted, a notification appears on their device; tapping on or swiping the notification launches the app, which then establishes the connection with the caller. If the notification is ignored, the service simply calls another helper. LO deems not picking up a call for help as acceptable behavior, so it carries no negative connotation on the part of the LO users – blind or sighted. In a tutorial video for new helpers, it clearly states that if one is not able to pick up a call at that moment, it is okay to just ignore it, because someone else will answer. In the same video, new helpers are also told to be patient; due to the large numbers of volunteers already signed up, it may take weeks until they receive their first call. Finally, helpers are also rewarded with points, which are used to unlock levels of status. For instance, watching a promotional video or answering a test call is rewarded with 50 points one time; helping a blind person is rewarded with 50 points each time (see Exhibit 3). When a helper collected 175 points, they level up from "New Helper" (the lowest level) to "Promising Helper". And for another 300 points, one reaches the next

level. These levels are used only to motivate helpers and are personal. The levels are not shared with anyone else, not even callers. After the interaction has ended and the blind person was helped, either side can report inappropriate behavior that violates the terms of use, such as using abusive language or posting pornographic content. LO reviews a recording of the reported interaction (all audio and video is recorded and kept in perpetuity) and, if the complaint is warranted, the reported user is blocked from the network. Since the beginning, they have only blocked an estimated 30-50 people for inappropriate behavior, all of whom were men. If a user wishes to leave, they only have to delete the app. However, account details remain with LO and are only deleted upon explicit request. This request will be granted immediately unless the person requesting the deletion had been blocked for inappropriate behavior. In this case, LO retains the records because of potential legal or liability issues. The limited data LO collects includes the following. To register to use the app, a user supplies a name, an email address, his/her location in terms of the time zone, and the language(s) spoken. Additionally, they record each session and the IP address of the user(s) during that session. They have access to Facebook data available through the users who log in via Facebook.

2. THE PRESENT STATE OF LOOKOUT

Two years after the international launch of the app, the business idea is a proven concept. With over 480,000 registered volunteers and over 33,000 registered blind users, the app has been downloaded in almost 150 countries – USA, Turkey and Thailand being the top three. The company accomplished this expansion with virtually no marketing budget. The combination of offering an innovative app and an authentic mission mixed with a little bit of luck has led to a viral reception by the public. For instance, in December 2016, a Brazilian student posted a story on Facebook about how she helped a blind person via LookOut. The post was shared over 30,000 times and received over 14,000 comments and 80,000 likes. After her post, 35,000 new volunteers downloaded the LookOut app in Brazil within a week.

The story of the company still garners public interest as John and Dick give, on average, one interview every other week. However, interest has waned. The app is not new and exciting anymore and it has become nearly impossible to entice further funding. Indeed, in September 2016 the company ran out of money altogether. John remembers those challenging days: "We tried to raise some more money as a non-profit to scale what we had, and that is not super interesting for the media. So, we flipped the company to a for-profit." As a result, the company was able to attract new seed money to develop the business model and to become a for-profit company. The for-profit status, however, brings its own set of new challenges.

2.1. THE MARKET

LookOut has approached several PR bureaus to help develop a strategy for reaching out to the visually impaired demographic. However, as John discovered, "No one has experience in approaching the blind people as a market for anything. If you gave me a million dollars, I couldn't find anyone to give the million dollars to and say, please approach the blind. They would not know how to do it. So, we have to do it on our own." The blind are an unknown and difficult market. Through his own visual impairment and his work with the blind, John has an insider understanding, but that does not make him a marketing expert.

One of the difficulties is defining the blind and visually impaired demographic. In the absence of accurate and reliable statistics, the rule of thumb is that 1% of any given population is seriously visually impaired. However, the common factor of visual impairment does not unite them as a demographic group. For example, it makes a difference if the person has been blind all or most of his/her life or if the person lost his/her sight later in life. Most people become blind at a later age. As John knows, 70% of the members of the National Blind Association in John's home country are over 70 years old. Hence, a significant portion of the market is not familiar with smartphones, and they are less likely to learn how to use new technologies, which directly impacts LO's business model.

Furthermore, "the blind are heavily affected economically, as 90% of blind individuals cannot work. Culturally, there are often negative stigmas associated with blindness, further alienating the afflicted from their communities. Social disadvantages are also significant."[1] The blind have fewer employment opportunities, which limit their earning power and disposable income that would allow them to buy an iPhone or iPad. This situation is exacerbated in developing countries where the lack of suitable infrastructure and social services serve to further marginalize the blind and visually impaired.

1 Unite for Sight. *Module 12: Poverty and Blindness.* Unite for Site organization quoting the Himalayan Cataract Project. Retrieved Feb. 23, 2017 from http://www.uniteforsight.org/community-eye-health-course/module13#_ftn7.

The World Health Organization estimates that (see Exhibit 4):

- 285 million people worldwide are visually impaired
- 39 million are blind
- 246 million have low vision
- 90% of the world's visually impaired live in low-income settings
- 82% of people living with blindness are aged 50 or above (WHO, 2014).

Navigating within this highly unknown territory of global blindness, John believes that LookOut has reached most of the first movers. Meaning blind and visually impaired people, who are tech savvy and read tech magazines; they know about, have downloaded and use LookOut. However, this group is too small relative to the enormous number of volunteers. As John puts it, "We do not have a clear picture of how many helpers are needed, but our estimate is that if we have two helpers per blind person we should be good." However, the average today is 14 sighted volunteers to every blind person. Given that ratio, it may take weeks before a volunteer receives his/her first call. Volunteers become discouraged and, ultimately, uninstall the app again. Having been downloaded more than 600.000 times, the app has been uninstalled 200.000 times; John suspects the "uninstalls" were due to disappointed volunteers.

In short, LookOut has no problems attracting volunteers but needs significantly more blind people to sign up. How many exactly, John admits, he has no clue. At this point, LO is relying on word-of-mouth and social media as well as on collaborating with blind associations country by country, which is time consuming. Most prominently, the company is closely collaborating with LightHouse, one of the biggest associations of blind organizations in the USA. The San Francisco chapter is especially helpful as it welcomes LO to test new ideas and functionalities on its tech savvy members.

2.2. THE COMPETITION

LookOut is not the only app on the market geared toward the visually impaired and/or blind. The website www.applevis.com, which is a site dedicated to "empowering blind and low visions users of Apple products and related applications,"[2] lists 123 apps to help the blind and visually impaired. A few examples of other apps that can help the blind or visually impaired include TapTapSee, Aipoly vision, ColoredEye, Light Detector and VizWiz. Each addresses different issues of being blind or visually impaired.

TapTapSee[3] is available for both iPhone and Android. The app utilizes the device's camera and VoiceOver functions to photograph objects and identify them aloud for the user. In TapTapSee, the user double-taps the device's screen to photograph any two or three-dimensional object at any angle. The app will accurately analyze and define the picture within seconds. The device's VoiceOver then speaks the identification audibly to the user. Once the image is identified, it can be saved on the phone and shared via Twitter, Facebook, text or email. MIT (Massachusetts Institute of Technology) holds the license for TapTapSee but made it available open source. The app was launched in 2012 as a free app. In November 2013, the developers instituted an app subscription model, where the user received 80 picture identifications free of charge, but when that number was reached, additional pictures became an in app purchase. However, the app became free again in 2016.[4]

Aipoly Vision[5] relies on Artificial Intelligence and Machine Learning and aims to automate much of the interaction between a blind person and objects. One can simply point an iPhone or iPad at an object and the phone will speak the name of the object. In a situation with limited lighting, Aipoly will automatically turn on the flashlight of the iPhone so the camera will function optimally. Users can also manually name objects to teach the app. Currently, the app recognizes approximately 1000 essential words, which are included free of charge. With a monthly subscription of $4.99, the app unlocks improved and varied recognition of objects, including plants, animals, and food[6] as well as the reading of texts and the identification of currency. Aipoly is available in 26 languages: Afrikaans, Arabic, Bulgarian, Chinese (simplified), Chinese (traditional), Czech, Danish, Dutch, English, French, German, Greek, Hungarian, Italian, Japanese, Kazakh, Korean, Macedonian, Malay, Polish, Russian, Sinhalese, Spanish, Swedish, Turkish and Xhosa. The app is available for both iPhone and

2 https://www.applevis.com/apps/ios-apps-for-blind-and-vision-impaired
3 See more at https://www.facebook.com/pg/TapTapSeeApp/about/?ref=page_internal
4 http://www.applevis.com/forum/ios-ios-app-discussion/taptapsee-now-free
5 https://www.youtube.com/watch?v=x7GIZ9PG8EI.
6 Ibid.

Android.
ColoredEye is an app developed for iPhone and iPad and has been available on iTunes since 2010. Developed for the colorblind, color impaired and the blind, ColoredEye identifies the colors from your camera in real-time. There is also an option to identify colors within a saved photo. The user can choose from three databases of color. The first database, the Basic Database, gives 16 fundamental colors. The second database, the Crayola Database, gets its name from the most famous manufacturer of crayons in the US, Crayola. The Crayola Database provides 134 pigments based on Crayola Crayon colors. The final database is the Detailed Database, which provides 134 descriptive colors, such as light gray or dark slate gray. The app is available in thirteen languages.

Light Detector is an app originally created by EveryWare Technologies - a spin-off of the University of Milan.[7] Available for iPhone and Android, the app transforms any natural or artificial light into sound. Run the app and point the iPhone camera in any direction. The intensity of the light will trigger a lower or higher sound. Light Detector can help blind users to be more independent in many daily activities. In a room, move the device along the wall to check if there is a window. The user can also determine whether the shades are drawn by moving the device up and down. Light Detector is a useful utility when used in conjunction with other apps such as TapTapSee and LookOut (they all need sufficient light levels for the iPhone camera to function properly, which blind people cannot determine on their own). Light Detector is available in 8 languages. At launch, the app cost $0.99 to download and, since 2014, costs $1.99.[8]

The final example, VizWiz[9] is an iPhone app launched in 2011 and is available free of charge on Google Play. The app allows blind users to receive quick answers to questions about their surroundings by combining automatic image processing, anonymous web workers, and members of the user's social network. A user takes a picture of any object and audio-records a question. Then the user decides to send the question to one of the following options:

1. To Web workers, who are real people and come either from a pool of VizWIz volunteers or from Amazon's Mechanical Turk marketplace;[10]
2. To IQ Engines, which automatically recognize objects in photographs.
3. To a personal contact via email.
4. To one's Twitter followers.

The answers sent back to the user are given verbally. Developed at Rochester University, VizWiz was released as a research project, with no intention of making money from it.[11] By releasing the app they were both collecting data to better understand the kinds of things people ask about and demonstrating the feasibility of the model. VizWiz has more than 10.000 users to date.[12]

2.3. EXPANSION AND A NEW BUSINESS MODEL

The staffing of LO has fluctuated over the years. An attempt to move part of the business to Silicon Valley in the US, in order to have better access to tech investors and to hire highly skilled developers, failed. So, LO returned to Scandinavia and was using outside contractors for their development needs. They hired a Norwegian company based in Oslo, which was improving and maintaining the app, developing the android version of the app and developing a new platform aimed at helping blind people to navigate websites. However, LO was not satisfied with the work, and with a grant from an innovation fund, they were once again able to hire their own technical people and thus return to in-house development. Today, in addition to John, the founder, Dick, the CEO, and Michael Sorenson, head of Partnership and Business Development, they now have four employees for technical development. The main focus is on developing a web navigation tool, a rating system so that the blind people can rate the volunteers that assist them, and an android version of the app.

For translating the app into different languages, LO used crowd sourcing via Crowdin. As a result, the app is currently available in 80 languages. In a three-year period, 890 people worked on and verified translations of the app. Another avenue for translation that is being considered is through the volunteers. Since LO has data on the volunteers and they know which language(s) the volunteer speaks,

7 http://www.everywaretechnologies.com/about
8 http://www.everywaretechnologies.com/apps/lightdetector
9 See more at http://up.csail.mit.edu/other-pubs/vizwiz.pdf
10 More on Mechanical Turk: https://www.mturk.com/mturk/welcome
11 Private correspondence, Jeffrey Bigham, developer, VizWiz, March 11, 2017.
12 Ibid.

they are considering creating their own translation team from their existing pool of volunteers already using the app. At this point, however, this is only an idea.

The ultimate challenge is, of course, to generate a steady stream of revenue. Given the financial restraints most blind people have, John is adamant that LookOut remains free to download, "Ninety percent of blind people in this world, they live in places like Africa and India and so on. And they might get an iPhone or smartphone, but you cannot charge them $10 a month." Other revenue comes from an online shop that sells various goods of interest to the blind, such as assistive devices, canes, guide dog accessories, etc. The link on LO's website funnels their users to the Amazon website. LO then gets a percentage of any sales that occurs through the link. Finally, the company also accepts donations.

Presently and as a for-profit company, LO is trying new ways to generate revenue. In particular, the company aims to better utilize the more than 450,000 volunteers by offering them a new option to help blind people. LO is currently developing a screen sharing application that allows blind people to share their screen with sighted people who can then act as guides. This functionality is supposed to help the blind navigate websites that are not coded according to standards of web accessibility.[13] Coders are supposed to clearly label the various parts of a webpage in order for a screen reader to ascertain which is which. A simple example is the labelling of buttons. If the coder does not identify it properly, the screen reader can only identify it as a button, which does not provide enough information for the blind or visually impaired person to navigate the web page.

Imagine a large e-commerce site. The drop down menu includes 20 categories. Each of those comprises dozens of subcategories. Suppose you want to browse the selection of peelers in the kitchen department. You find the department button; you find the home and garden department. You even manage to find the kitchen and dining department and the peeler you want. However, the button where you choose the quantity and the button to add it to your shopping cart are not labelled as such, so the screen reader only tells you that these are two buttons. You do not know what you are clicking on, so you cannot confidently and accurately navigate the site. To offer the highest degree of accessibility to the internet for the blind and visually impaired, the level of help a blind person can get with this new screen sharing app is divided into two categories. The first is navigating no risk information, for example, looking up a train schedule or finding out information about a national park. In these types of situations, LO would rely on the already existing crowd of volunteers. The second category is for online activities of a more sensitive nature that involve a credit card or other personal information. In this case, LO is working with the customer service company Zendesk and their Zendesk Loves Startups program.[14] The customer service personnel at Zendesk are legally authorized to handle personal information and credit card details. Based on this business model, revenue will be generated by charging website owners an as yet undetermined monthly fee.

This concept is new and there is no existing wisdom from which they can draw to build such a successful business. Websites will not pay unless LO can show a critical mass of blind users beyond the 32,000 registered today. Once the additional development for the web interface is complete, John hopes that more blind and visually impaired will download the app because they can use it to make the internet "usable and super accessible".

3. TIME FOR DECISIONS

As Dick picks up the Skype call, John leans forward to get a better look at his CEO. Reminding himself about his vision to make this world a little bit better, John begins to outline his plan for the future of LookOut.

13 See the standards of the W3C at https://www.w3.org/standards/webdesign/accessibility.

14 https://www.zendesk.com.

EXHIBITS

Exhibit 1

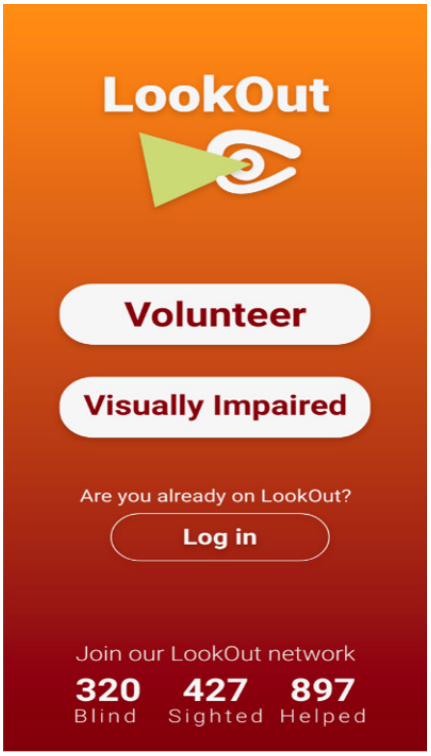

Exhibit 2

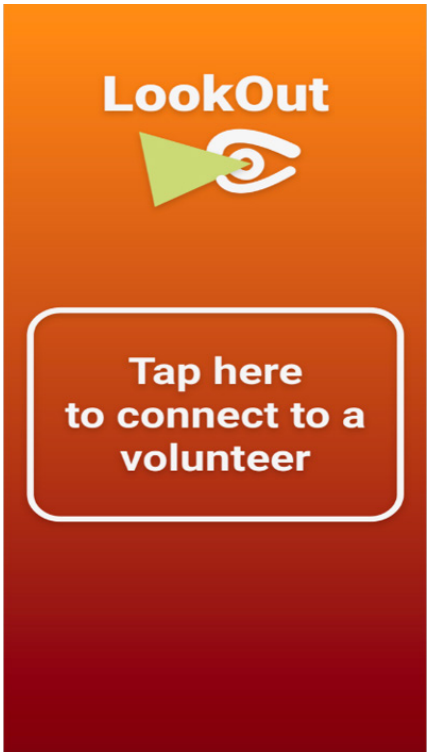

Exhibit 3

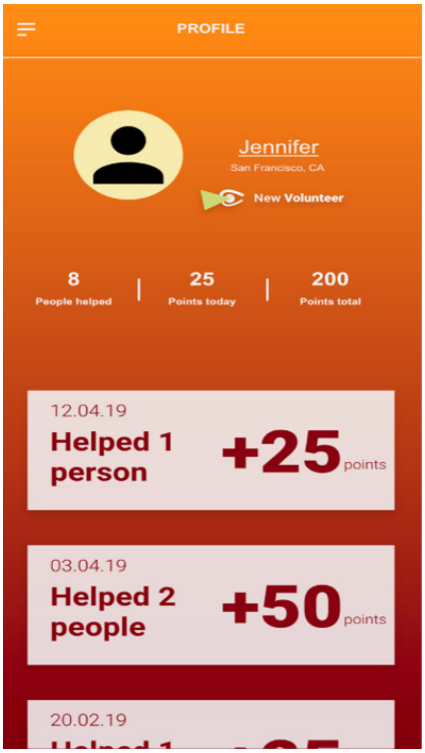

EXHIBIT 4:

Source: WHO, 2014