

NOVEMBER 1, 2019



CISCO X CRISIS HACKATHON

GLASGOW UNIVERSITY TEAM

TABLE OF CONTENTS

1. Executive Summary	2
1.1. Project Definition	2
1.2. Project Problem Statement	2
1.3. Project Vision.....	2
1.4. Team Structure.....	2
1.5. Key Objectives and Targets	2
2. Methodology	3
3. Project Roadmap & Milestones	4
.....	4
4. Team Responsibilities.....	5
University of Glasgow Team 2019	5
5. UML Diagram	5
End-to-end customer journey.....	5
6. Extensive Market Research.....	6
6.1. Demographics and Segmentation	6
6.2. Market Value	6
6.3. Target Market	7
6.4. Market Need/Positioning.....	7
6.5 Competition	7
7. USP	8
References:.....	10

1. Executive Summary

1.1. Project Definition

The Pathway app will help end homelessness through connecting the homeless (also called members) with sponsors that would provide different services in three different dimensions; i.e. for raising funds towards rent, services etc., providing donations (e.g. second-hand clothing, food), and connecting people from establishing a better social support network to mentoring, coaching and training. We particularly focus on the members who are seeking employment and who are newly-employed and transitioning to a working routine.

1.2. Project Problem Statement

In 2019, homelessness was estimated to have an effect on over 250 thousand people in the UK alone (Crisis presentation, 2019). In tackling this problem, we are looking on four different areas causing homelessness. These are employability to increase income, access to secure accommodation, health and wellbeing, and social capital. The aim of this project is to use technology to develop a solution to help tackle the issue of homelessness.

1.3. Project Vision

To help members obtain a job and transition back into the society.

1.4. Team Structure

The team was formed by 5 Glasgow University students: Laura Castro (BA), Xavier Weiss (SE), Josep Perna (SE), Mario Geuenich (SE), Thao Ha (PM).

1.5. Key Objectives and Targets

The main difference between what Pathway offers as compared to other apps is the personalized approach. From the sponsors perspective, they would be able to donate to causes that are close to them. That way, the sponsor would feel more satisfaction and contribution and the member will receive the resources needed from the people who are able to provide them – both material and intangible.

By targeting sponsors rather than members, we are ensuring equal opportunities. Many of the “homelessness-tackling” digital solutions try to focus on the members as their solution target users, however, we must not forget that many members struggle with seemingly simple tasks, such as drafting their CVs, let alone mobile applications. Our solution is still offering these members an opportunity to benefit from our app with guidance from the volunteer staff from Crisis.

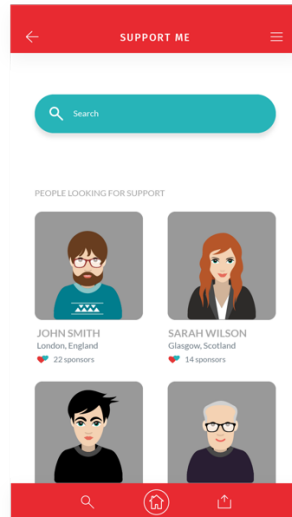
In addition, many people are wary of donating to charities due to high overhead costs. In fact, the British Heart Foundation was reported to donate only 26.2% of its’ income to charitable activities. By directly connecting the sponsors and members, we would be able to minimize these unnecessary costs as well and spend more money on more impactful things.

From a technological angle, the aim of this project is to develop a progressive WebApp using Cisco’s technologies – in particular, WebEx and TelePresence in our implementation of the connecting people dimension.

1.6. Solution and Deliverables of the Project

As mentioned, this app is mainly sponsor-facing app. Given the time constraint, we were only able to build the sponsor-facing side, however, the members and Crisis should be able to have access in order to create profiles.

The prototype wireframe view



1.7. Looking forward

Moving forward, Pathway would look into partnering up with businesses to offer mentorship, training and coaching services. This would be of special interest to social enterprises and other businesses as part of their Corporate Social Responsibility Strategy. This could potentially lead to those companies hiring Pathway members.

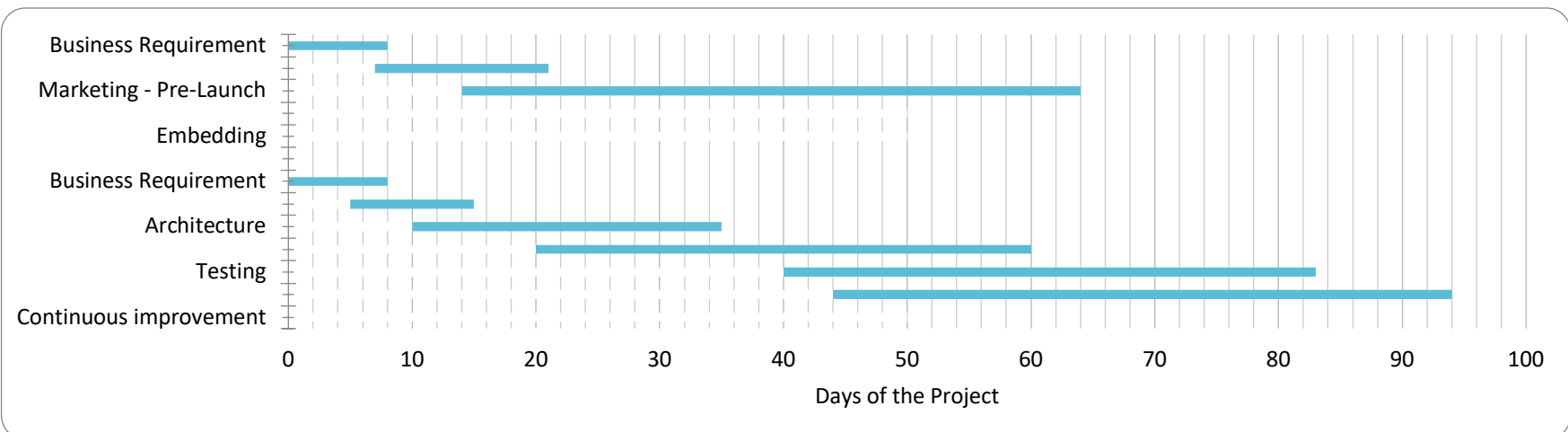
In addition, the future of Pathway would offer a more sophisticated version of the app, with an option to rate and review sponsors and members, which would improve the quality of future matches and recognise users for their involvement. On the one hand, better-rated members could have more chances of being hired and receive mentorship, and better-rated sponsors would obtain recognition and trust when helping others.

2. Methodology

- **DynamoDB:** Main backend storage for the project. Enables us to maintain state in the webapp.
- **AWS Lambda:** Exposes an API to query the database in a fully serverless way.
- **Flask:** Middleware, connects our backend with the frontend and provides us with templates to keep code tidy.
- **Bootstrap:** Frontend, makes our webapp responsive.
- **WebEx Teams API:** Allows us to send messages programmatically to start a conversation between the mentor and the homeless person.

3. Project Roadmap & Milestones

TASK NAME	START ON DAY*	DURATION* (WORK DAYS)
Business Side		
Business Requirement	0	8
Legal & Compliance	7	14
Marketing - Pre-Launch	14	50
Marketing - Post-Launch	50	ongoing
Embedding	50	ongoing
Technical Side		
Business Requirement	0	8
Proof of Concept	5	10
Architecture	10	25
Development	20	40
Testing	40	43
Deployment/Production	44	50
Continuous improvement	50	ongoing

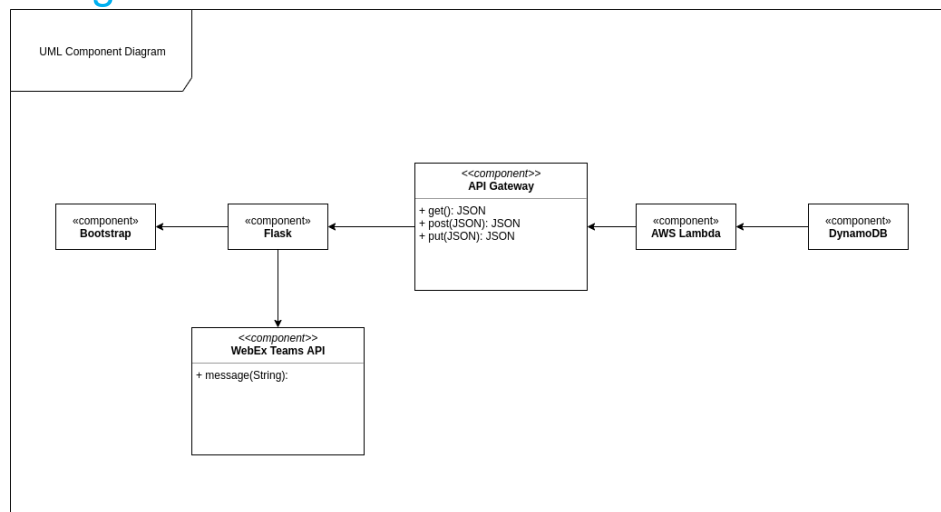


4. Team Responsibilities

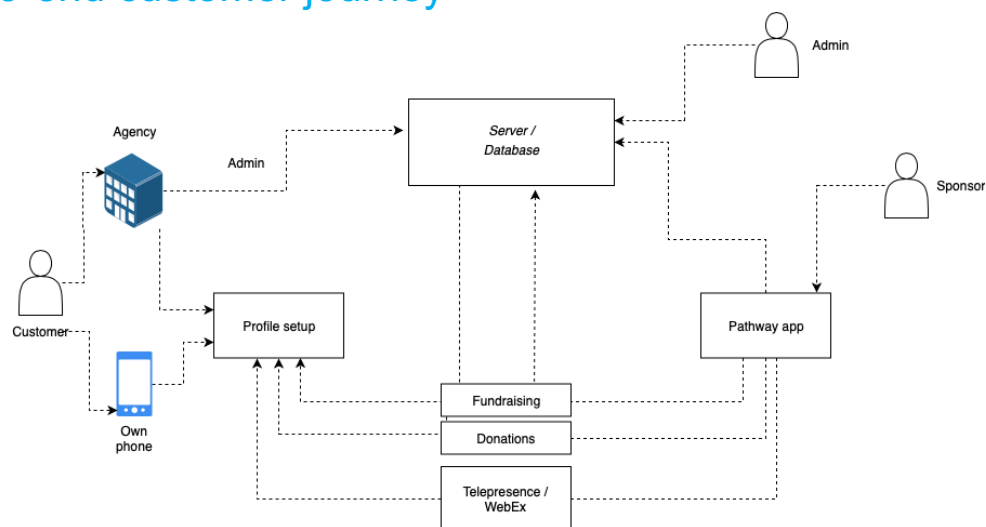
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	Thao Ha	Laura Castro	Mario Geuenich	Xavier Weiss	Josep Perna
Role	Project Manager	Business Analyst	Software Engineer	Software Engineer	Software Engineer
Responsibilities	Task division, time keeping, research, reports, presentation, wireframes	Reports, presentation, wireframes, graphic design, UI/UX	Front-end, Flask, Python, HTML, CSS, Back-end	Front-end, Flask, Python, HTML, CSS, framework setup	Back-end, Dynamo-DB, WebEx

5. UML Diagram



End-to-end customer journey



6. Extensive Market Research

In alleviating poverty and homelessness, we need to consider both the causes and so the prevention in addition to solving the problem of homelessness. The most common causes of homelessness include structural factors such as high prices of urban housing, mortgage regulations and other government policy, fragmentation of families and reduced welfare provisions. (Housing Rights, 2019). There are also factors which have major impacts on homelessness probability such as health (both physical and mental), leaving the care system, prison, or relationship breakdown. In terms of the solutions, the key areas to consider are employment (and hence income), housing, health & wellbeing and human support network.

Interestingly enough, the lowest rough sleepers' rate in the past 15 years was recorded in 2007 – the year of financial crisis and ever since then, the number of homeless people has risen. Between 2016 and 2018, the number of homeless people in the UK has risen by more than 8%. Hence, we can see that regardless of the market structure, there is always room for help and this help in any form might make a significant impact on an individual's life.

6.1. Demographics and Segmentation

In 2018, Shelter (2018) reported that there were almost 320 thousand homeless people in the UK – making up roughly 0.5% of the UK population. According to Shelter (2018), 55% of the homeless are employed. For illustration, if taken into consideration the rest and had these people been able to secure employment for a UK minimum wage (for the purpose of this theory, we will omit the discouraged unemployed homeless people), we would potentially be able to raise the GDP per capita by up to **£0.03**.

GDP per capita (UK)	£28 634.01	Population: 66.44 million
Minimum Wage	£15 269	Members looking for jobs: 144 000

As Pathway is inclusive to all members (both with access to technology and without; both with technical skills and without) as the app itself targets the sponsors instead, we would be able to provide support to all homeless members and would have the capability to reach out to many people and have such an immense impact.

6.2. Market Value

As announced in 2017, **£72.7 million** is being made available by the government “to meet the new burdens costs associated with the additional duties contained within the Act” (Crisis, 2019). The RSI, linked to the Strategy, included the establishment of a new cross-disciplinary expert team, and a **£30 million** investment to reduce rough sleeping in 2018/19, with up to **£46 million** to be made available 2019/2020. In the RSS it was also announced that up to **£17 million** would be made available for “Somewhere Safe to Stay” pilots, which will rapidly assess the needs of people who are sleeping rough or at risk of rough sleeping [...]. An additional **£2 million** in health funding was made available to enable access to health and support services for people who are sleeping rough, and NHS England has now committed to spending **£30 million** on health services for people who sleep rough, over the next five years

([Crisis, 2019](#)). In 2015-16, local authorities spent **£1,148 million** on homelessness services. The single largest component of this spending was on temporary accommodation, which increased by 39% in real terms between 2010-11 and 2015-16, from **£606 million** to **£845 million**. Three-quarters of the spending in 2015-16 – **£638 million** – was funded by housing benefit, of which **£585 million** was recovered from the Department for Work & Pensions. Over the same period spending on other components of homelessness services – mainly prevention, support, and administration – fell by 9% in real terms from **£334 million** to **£303 million** ([National Audit Office, 2017](#)).

6.3. Target Market

Our customers are people who want to help homeless people (i.e. “sponsors”) but don’t know how and/or are put off by just giving them money on the street without really knowing where it’s going. Many times, people think that by giving cash directly to people, they will perpetuate addictions rather than helping. They are also people wanting to have a real impact, and making this experience more personal.

Benefits to Businesses

- Businesses offering mentorship and training through the app would improve their Corporate Social Responsibility by helping homeless people get back into society.

Benefits to Individuals

- Personal success measure – i.e. if a sponsor donates a laptop or offers mentorship to a member and that member gets a job, that sponsor will obtain satisfaction.

6.4. Market Need/Positioning

Many homeless people complain about the lack of human interaction they receive. Although there are other apps in the market that aim to end/aid homelessness, none of them offer a very humane experience. People with technical skills would have the opportunity to access our services through the computer labs in Crisis or their phones on an individual basis. *Pathway* also targets people without those skills, who could receive help through coaches who would teach them how to use WebEx/TelePresence technology. Hence, our services would reach out not solely the people with digital skills, which is what some of these apps expect. The market for sponsor-facing apps is not large at the moment, and therefore it can be seen as a big opportunity.

6.5 Competition

Currently, there are not many app/tech solutions to homelessness. The existing ones offer different solutions to the one offered by *Pathway*.

- [SE|ME](#): a student enterprise from Glasgow University that provides homeless people with QR code cards, which people passing by can scan and donate money to their fund. SE|ME collaborates with local businesses that offer services such as food, haircuts or laundry washing to these homeless people. Nevertheless, this doesn’t allow further interaction between the donor and the person receiving the donation.

- [Greater Change](#): based in Oxford, it allows users to make donations to people in need of help. Homeless people have their face, name and goal displayed, and donations go to a specific goal (I.e. rent, paying for a course or license...). Nevertheless, Greater Change only allows monetary donations, not material ones or mentorship services.

7. USP

- **Know your customers.** Pathway will be used by two types of users: homeless people and people who want to help and make a difference.
 - **Homeless people:** looking for more meaningful social interactions and help with several issues related to employability, from specific items/services such as clothing and a haircut, to money to cover their rent and mentorship (I.e. interview preparation, specific skills) to get a job.
 - **Sponsors:** people who want to make a difference in their community. Some of these people have time and skills they would like to share with others in need of help. Others want to donate money or items towards a specific goal.

Both sides look for a relationship longer than a one-off donation.

- **Know your competition.** As explored in point 6.4, the current competitors, even though they coincide in some elements of the solution, fail to offer the personal interaction that homeless people look for. Some of them (SE|ME) allow donations to specific people through collaboration with local businesses that provide the services (haircuts, laundry, food, etc). In this case, there's no further interaction between the homeless person and the aid provider. Greater Change adopts a more humane approach by giving homeless people a face, name and story, and allows donors to put money towards a specific goal. Nevertheless, still fails to offer a closer interaction and long-term relationship between helpers and those in need.
- **Know yourself.** *Pathway* offers a personal connection experience that general donations don't offer. Currently, the main ways to aid homeless people are donating items or money to charity or giving money directly to the homeless person. In the first case, the donor is only involved in the cause through the first part of the chain (donor to charity/middleman), and in the second, the donor gives money to the person directly, but doesn't know where that money goes. Volunteering at charity shops or to directly collaborate with people are an option already offered by some charities, but there are some elements missing.
 - **Location:** *Pathway* offers mentors/donors the opportunity to connect from different cities and therefore both ends would have access to a wider range of people with shared interests/skills.
 - **Technology:** the fact that, in addition to face2face meetings, mentors and mentees can interact through videocall means people from different locations can meet. Technological literacy is also an important skill to have, and many homeless people have smartphones or access to a computer lab (through the Crisis comp lab).

- **Connects both ends of the chain** (donor – charity/middleman - person in need for help). The person interested in helping counts with the reassurance that the process is overviewed by a charity and the homeless status of the users is verified. In addition, they can see where their money/donations are going.
- **Builds a personal connection:** by knowing who is receiving their money/objects, people would feel more willing to help. Homeless people would also feel more included in society by building a network outside their current situation.
- **Tangible result:** sponsors can see the result of their donations and mentorship as the receiver's profile would be updated with their progress (I.e. got an interview, a job, a new flat, learned a new skill...)

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