



NAVARANGA

GCIL FINAL REPORT

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Executive Summary

Seasonal and long-term rural-to-urban migration is ever-increasing within India. Unsustainable rural livelihoods push many workers away from their homes, while increased demand for workers within urban centers pulls them to work within India's growing cities.¹ The many differences between local and migrant workers such as language barriers and limited resources can create additional difficulties that local blue collar workers do not face.

Migrant workers' skills do not translate directly to city life. Rural workers who come to work in cities often live and work in conditions well below acceptable standards.¹ At these jobs they face hazardous working conditions, unfair payment, and physical and sexual exploitation. On the other side, the seasonal nature of these workers result in inconsistent and unsatisfactory coverage of workers, leading to decreases in quality of service.

Our proposed solution is Navaranga, an app which job-seekers and employers can use to quickly post and search for jobs. In developing the app we have been conscientious of methods to decrease the exploitation of migrant workers. For example, beyond job-openings, Navaranga will also include a platform for communication, and will provide information about local support groups, healthcare, legal, housing, and food services. We have observed a need for a better method to find qualified seasonal workers, so we know that businesses will be interested in posting jobs and hiring workers through our app.

“Migration is an expression of the human aspirations for dignity, safety and a better future. It is part of the social fabric, part of our very make-up as a human family.”

UN General Secretary, Ban Ki-moon

Context

India is a rapidly urbanizing country of over 1.3 billion people. As cities and states evolve, so do the lives and livelihoods of this large population. There are an estimated 139 million migrants in India, and this number is continuously increasing. This migration stems from multiple factors, but the main factor is the lack of sustainable jobs in rural areas coupled with a consistent demand for workers in growing cities.⁴ These factors cause large amounts of migrants leaving the states of Rajasthan, Uttar Pradesh, Bihar, Odisha, Madhya Pradesh, and also North East India.

Bangalore has become one of the top destinations for these migrant workers in recent years. In 2001, 13.4% of Greater Bengaluru's population originated outside of the district or

¹ Premchandrar, S., Prameela, V., Banu, S., & Meenakshi, K. G. (2014). The socio-economic status of migrant construction workers in Bangalore and intervention plans to improve their livelihoods. *Urban India*, 34(1).

outside the state.² This amount increased dramatically over a ten year span, to where the 2011 Census reported that 46% of the population of Bangalore consisted of migrants.³ This number has only been increasing in the past eight years.

Problem

Currently, migrant workers in Bangalore hear about jobs informally, through word of mouth from friends, relatives, or other village members, and move into the city with the help of these connections in hopes of economic opportunity. These migrants overwhelmingly end up in unskilled manual labor jobs. The largest employer of migrant workers is the construction sector, followed by domestic work, textile work, brick kiln work, transportation, mines and quarries, and agriculture⁴.

Migrant Worker Pain Points

Migrant workers can get sucked into a labour economy that is “characterized by exploitative labour practices, unsafe working environments, inhumane living conditions with little access to basic amenities, and almost complete social exclusion.”⁵ They often find themselves “invisible” when it comes to governmental policy, due to the transient and informal nature of their work. The legislation that focuses on protections for migrant workers generally exist far more on paper than in reality.⁵

Migrant workers lack access to many resources such as housing, legal and health services, making them reliant on their employer. According to interviews with employers, this high dependency of migrant workers reliant on their employers for services such as housing and food causes them to be underpaid compared to the local workers. Along with facing high physical health vulnerability, migrant workers also face high mental health vulnerability. Working long hours, many without talking to people in their mother tongue, or in some cases not being able to talk to anyone at all, missing loved ones deeply, and extreme stress has caused a large incidence in depression amongst migrant workers.⁶ This mental health vulnerability has led to high alcohol use and addiction within migrant worker communities. The exploitation migrant workers face range from unreasonably low pay to being trafficked.⁷ Seasonal migrants are the most at risk as they often must establish a new job and connections every year.

² India, Congress, “Census of India 2001 Migration Data.” *Census of India 2001 Migration Data*, 2001.

³ “Bengaluru's Migrants Cross 50% of the City's Population: Bengaluru News - Times of India.” *The Times of India*, The Time of India, 4 Aug. 2019, timesofindia.indiatimes.com/city/bengaluru/bengalurus-migrants-cross-50-of-the-citys-population/articleshow/70518536.cms.

⁴ “Labour and Migration in India.” *Aajeevika.org*, Aajeevika Bureau, 2014, www.aajeevika.org/labour-and-migration.php.

⁵ Premchandar, S., Prameela, V., Banu, S., & Meenakshi, K. G. (2014). The socio-economic status of migrant construction workers in Bangalore and intervention plans to improve their livelihoods. *Urban India*, 34(1).

⁶ Vannan, G. (2019, January 8). The invisible mental health crises of India's migrant labourers. Retrieved from <https://qz.com/india/1517545/indias-migrant-labourers-suffer-from-depression-and-drug-abuse/>

⁷ Loyola Institute of Social Science Training and Research & Indian Social Institute Bangalore - A Survey on Inter-State Migrants in Tamil Nadu. page 2. (2016).

Employer Pain Points

The informal aspect of this job market also impacts the employers of these migrant workers. With workers constantly cycling in and out, many construction companies who have strict deadlines have issues in maintaining a consistent supply of workers to finish the job. Many employers often rely on current employees' connections to find them new employees. This heavy reliance on informal networks is limiting the accessibility of finding new employees, which is why we have made employers the customer of our solution.

With Bangalore's current practice of relying on word of mouth, both the migrant workers and employers are constricted by who they know. Some use agencies to facilitate employment management - however, the cost that employees need to pay for this service is a barrier, further restricting the people available to fill jobs. This informal system is ingrained into the culture, making it a traditional process that the culture itself sees as a typical function. We did literary reviews and field research to learn why this problem persists.



How can we offer paths for these migrant workers towards more opportunities, better jobs, and ultimately, better lives?

Learning This Space

In order to understand this problem space, we have conducted research both online and through in-person interviews. Online research has informed us of the scale of this problem, and showed us that ultimately, solutions in this space are lacking in India.⁶ A brief literary review informed our understanding of how best to support migrant workers as they face these problems. For example, the Overseas Development Institute found that “practical areas for migrant support include improved access to market information, skills enhancement, certification of identity, remittances, housing and continued access to health, education and social assistance whilst ‘on the move’.”⁸

Our primary research highlighted local problems about what is missing from the migrant worker experience in their view so that we may support them on their mission to financial security. We interviewed thirty one migrant workers, sixteen employers, and six industry professionals (mostly NGOs who work with migrant workers). Most strikingly, 100% of the people that we surveyed recognized the importance of having connections in searching for a job, especially as a migrant worker. Many struggled when they first moved to find a job. Their challenges include finding housing, adjusting to local food, and language barriers. We also learned anecdotally of the long hours that many of them work, and of the poor living conditions that some of them had. All of these interviews helped inform our solution, and our first prototype.

Out of the employers that we interviewed, 43% of them relied on connections to find employees, and another 29% of employers went through contractors to find employees. These

⁸ Deshingkar, P., & Khandelwal, R. (2008). Support for migrant workers: The missing link in India's development. Natural Resource Perspectives.

two methods of findings employees constrict them to who they know, or who the agency knows. However, by allowing them to easily post jobs themselves and connect themselves with job-seekers, they gain more opportunities and gain accessibility in searching for employees.

Our Solution

Our solution is Navaranga, a company which connects migrant workers with employers. Employers can post jobs themselves on a website, and job seekers can easily access and filter through different types of jobs on an app. We aim to target this solution directly to small and middle sized businesses, as well as migrant workers, keeping in mind their needs and constraints. One of the main reasons that migrant workers get trapped in an exploitative labour cycle is the lack of other opportunities - they stay in dangerous, indecent conditions because they rely so heavily on the income.⁹ Navaranga provides migrant workers with information about other employers and other jobs within the unfamiliar city that they find themselves in.

Navaranga makes it possible for workers who do not have a network of connections within Bangalore to get jobs, and who are seeking a more independent way to find work that fits with them. The amount of smartphone users is growing, and will be continuously increasing in the future to the point where access will be near-universal. 85% of the thirty one migrant workers that we interviewed had smartphones. We believe that our solution may succeed precisely because of the timing-- more people are using smartphones. Also, even if there is only one smart phone in a community, Navaranga can still be used to help everyone.

An app will make our services accessible from anywhere, and will facilitate the ability to translate between language barriers. An app will also transcend social barriers, allowing anyone to connect with each other, which is not an ability that word-of-mouth or contractor methods have. Our goal, however, is not to eliminate contractors or agencies, as they are a system that current employers trust. Rather, Navaranga can be used as a tool for these middlemen to increase the people they connect with.

Our solution is also the best choice for employers as we emphasize open lines of communication while transcending language barriers. Employers can gain ease of mind by being able to find information on how long the employee plans to work, their qualifications, and the ratings from other employers that they cannot gain through similar services. These ratings are designed in a way to prevent bias and sabotage, in terms of rating both the companies and the employees. When rating, the person will be answering specific questions on a 1 to 5 scale. The answers to these questions will result in an overall rating score, which is applied to the person or business. With the additional features that improve the quality of connections people make, and competitive pricing, Navaranga is the clear choice for job connections for employers.

While our solution fixes the problems of informal connections for job-seekers and employers, provides knowledge and aids access to services for employees, and deters exploitative employment through the rating system, we are aware there are some problems we cannot solve. We are unable to stop employees from leaving jobs unexpectedly, but by

⁹ Premchandrar, S., Prameela, V., Banu, S., & Meenakshi, K. G. (2014). The socio-economic status of migrant construction workers in Bangalore and intervention plans to improve their livelihoods. *Urban India*, 34(1).

promoting open communication and providing knowledge of services, our solution will reduce the impact of unexpected changes in the workforce.

Minimum Viable Product

Our Minimum Viable Product is an interactive prototype composed of high fidelity interfaces, including the core features of job posting and resources. The most important aspect throughout the application, however, will be the translations that take place in the app, so that people can easily communicate with each other. To make the app more accessible to those who struggle with reading, there is a helpline they may call to receive assistance.

Job Postings

This feature is different between the workers and consultants. On the worker's side, they see all the job postings, which can be filtered to suit their needs or interests. On the employer side, they have the ability to post jobs and see who has applied, in addition to messaging applicants. An aspect of these job postings will be a rating system. The ratings and reviews feature will be a platform for current or past employees to show positive and negative aspects of the employment company, which will help migrant workers avoid being exploited by employers from jobs that they would otherwise know nothing about. This system will promote transparency and proper treatment.

Resources

The resources that we will advertise include services that will support the livelihoods of workers, including both physical and mental health, food and housing, and family support. Most of the services are provided by NGOs and other non-profits in Bangalore, but newly arrived migrant workers may not be aware of them. Workers will most commonly turn to their employers for help, but in an attempt to maintain privacy they may not always want to inform their boss. Employers will also be able to see what type of resources are provided throughout the city, so that they can support their employees as well.

Accessibility

There are two aspects of accessibility that we are also designing for in our app. The first is language barriers - India has a very diverse language platform, which is a barrier that migrant workers face. A feature of our application is to translate content between employers and job-seekers, so that language will not constrict people from jobs.

Additionally, a concern is the literacy of migrant workers seeking jobs, the interfaces will be visually based with icons showing types of jobs that they can filter. There will be an automated helpline as well, which workers can use to learn about anything, from how to set up their profile on the app, to what the actual job description they are reading is about. Besides, they can deliver their struggles through voice messages anytime.

Business Model

Our proposed business model explains how we will financially support our application and how we plan to scale it in the future to ensure sustainability through a comprehensive cost structure, and plans for funding.

Cost Structure

Our initial implementation requires hiring an app developer to program the application, so that it can be uploaded to both the Google Play store as well as the Apple App store. We also require hiring a website developer for the website platform that will accompany the application, which some employers may prefer. From online research, an app developer will charge approximately 40,000 Rs and a website development will cost around 7000 Rs with an additional cost of 150 Rs per year for the domain name. Another cost incurred is due to a phone line that is dedicated as the call center helpline, which will cost approximately 15000 Rs per month for a single call center employee. We estimate a cost of 65,000 Rs for the initial startup with a single call center employee. After expansion, additional call center employees will be needed increasing the monthly expenses.

Funding and Revenue Streams

Our main funding will come from employers. Employers will pay to post jobs that will be valid for one month at 1000 Rs per job, and pay 75 Rs to gain access to contact information of one candidate. This is a similar business model that other job search services use. However, other services have confusing limits on the amount of responses from potential hires, limits on access to databases of job-seekers, and limits on the amount of hires per posting. With our simple payment system for each job posting, employers are more likely to pay for a service that they can understand what they are paying for. With this information, the employers will be able to further progress their hiring process and find the right employees.

We would also like to incorporate advertisement revenue after an initial startup period. Advertisements for housing, smartphones, mobile phone games, transportation, and banking services are potential ads to be displayed for migrant workers. We will not limit the options for advertisement companies on the app unless unethical requests are made.

Partners

Having partners is a crucial aspect in our company making an impact on both employers and migrant workers. During our outreach and interviewing, we have been approached with the idea of a partnership in India, by a businessman who is interested in funding our efforts. This business man has also employed migrant workers, and is informally interested in our application. He mentioned providing a workplace and funding for starting the business.

In terms of providing benefits for the beneficiaries of Navaranga, we have viable partners for providing training opportunities, and resources. Lions Club is an organization we have talked to which not only connects vulnerable people with resources, but also with training to teach them job skills. Additionally, Sampark, a local Bangalorean organization who have been successfully supporting migrant workers for years, has agreed to share their resources that target migrant workers. Their resources will allow us to effectively provide migrant workers with services that they might be seeking, accomplishing our goal in increasing independence by providing resources to migrant workers.

Feasibility

We are confident in the feasibility of our MVP to be effective due to expert testimonials we have gathered from our potential partners, and from usability testing we have done on our prototype. Through our interviews, 67% of interviewees had received their current job through connections, and 100% of those people agreed that it was hard to find a job without connections. When learning about whether users would use an online application, 60% of employers and 54% of migrant workers said they would. Furthermore, this form of connecting people for jobs has been successful in other countries. For example, there is an app for migrant farm workers in the US that is successfully connecting workers and employers. The migrant workers are able to find jobs faster and waste less time, and the employers are happy with having a consistent supply of labor. The 'Resources' feature will be informed by Sampark, an NGO that provides crucial support to migrant construction workers. Additionally, we received feedback that Sampark believes this feature will have the social impact that we strive to achieve on our beneficiaries.

Sampark, Saahas, OLA examined our business model and confirmed that it would be financially sustainable. Additionally, our potential funder approves of this business model and finds the prices to be reasonable, claiming that he would pay for our solution himself, as a business owner employing migrant workers.

Next Steps

The next step to test our solution is to create the first "success story". We would like to use our app to walk a worker through the process of searching for and finding a job online. We would connect this worker with a real job posting to see prove that our basic premise-- a migrant worker successfully finding a job through our app-- can work. We plan to do this by partnering with a few local businesses in Bangalore.

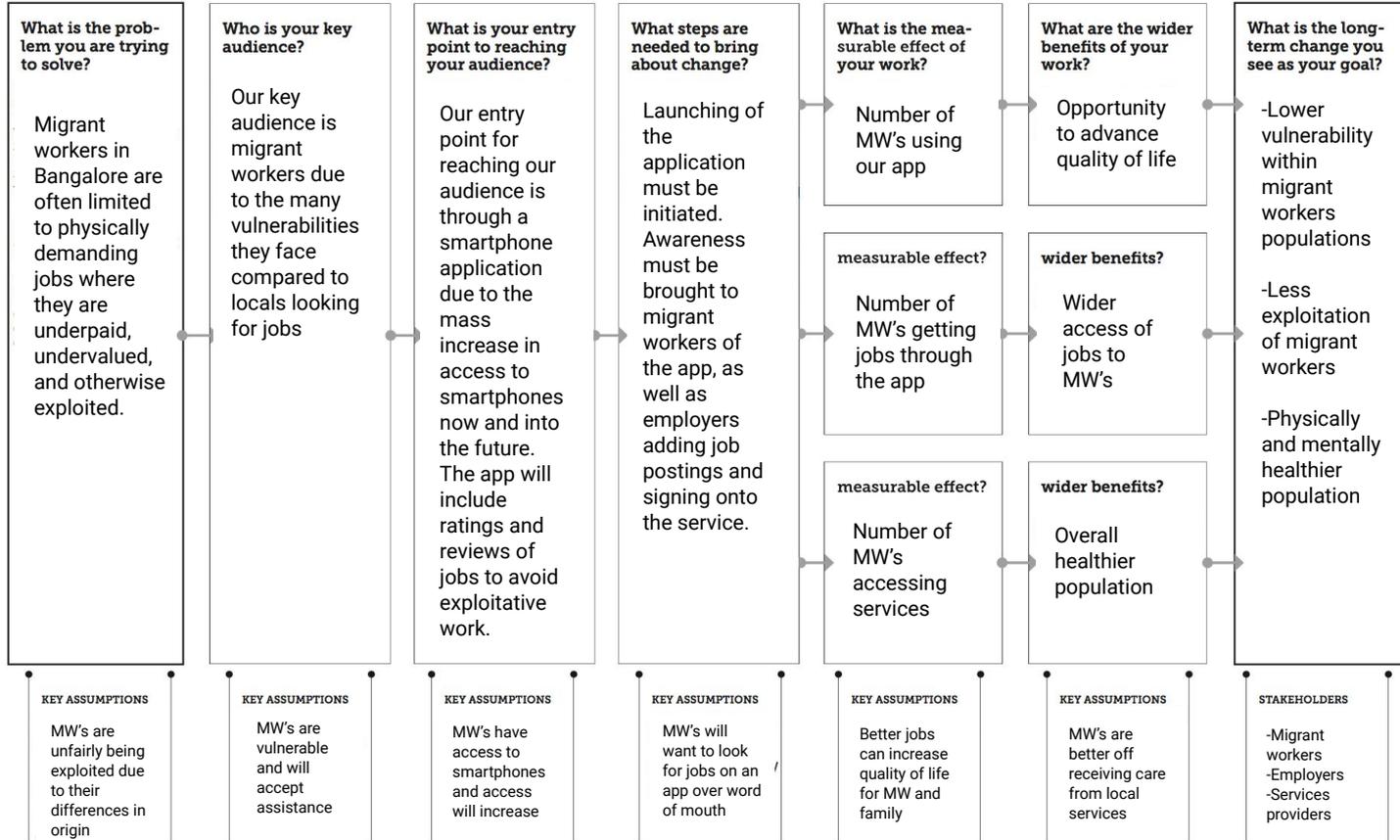
Along creating the first successful connection, finalizing partnerships with organizations that provide migrant workers with the resources that they may need is essential to our development. In terms of progress in Bangalore, we have already met with the local Lions Club, as well as Sampark, discussed in the previous section. We will then begin to develop our application for both desktop and smartphones, for the respective users. From an expansion standpoint, we will be starting out in Bangalore due to it being the hub for migrant workers. However with time, we would like to expand into other large cities such as Hyderabad, Gurgaon, Delhi, and Mumbai so that our product will be available to help as many migrant workers as possible.

Our first implementation will focus on the 'Job Searching' feature, while gradually growing the 'Resource' feature as we consolidate partnerships with additional organizations. We believe that the power of our product lies within the multi-faceted approach that we take to empowering migrant workers to improve their jobs, and ultimately their lives. This is why we will be constantly gathering data and iterating on our features, in order to make the largest impact through increasing the independence and opportunities of migrant workers and their prospective employers in India.

I want to clarify my priorities

By defining my goals and the path to reach them

THEORY OF CHANGE



Appendix 2 - Randomized Control Trial

Our application's main focus is connecting workers with reliable and ethical employers who will not exploit them or treat them badly. To test the effectiveness of our idea, we want to do an RCT which will inform us on the change of overall quality of work life of migrant workers who use our application, measured by 2 variables that we are going to compare over the course of a year.

These 2 variables are:

1. How satisfied the worker is with treatment of their employer
2. How well the rating function represented the experience with the employer

We would like to test our RCT with roughly 100 workers; 50 workers within a Bangalore community that has access to Navaranga, and 50 workers who do not have the app, and *whose immediate community also does not have the app*. We put an emphasis on this because we believe that migrant workers who do not have the app, but in close community with those that do, could also receive the benefits.

We would then test over the course of 1 year how people feel about their jobs and the effect of these jobs on their life through surveys provided after 6 months, 9 months, and 12 months. Those who do unexpectedly leave Bangalore before 6 months will not be included in our survey, but even if they leave between 6 to 12 months we will keep their data to analyze any difference of trends after time.

With Access (Experiment Group)

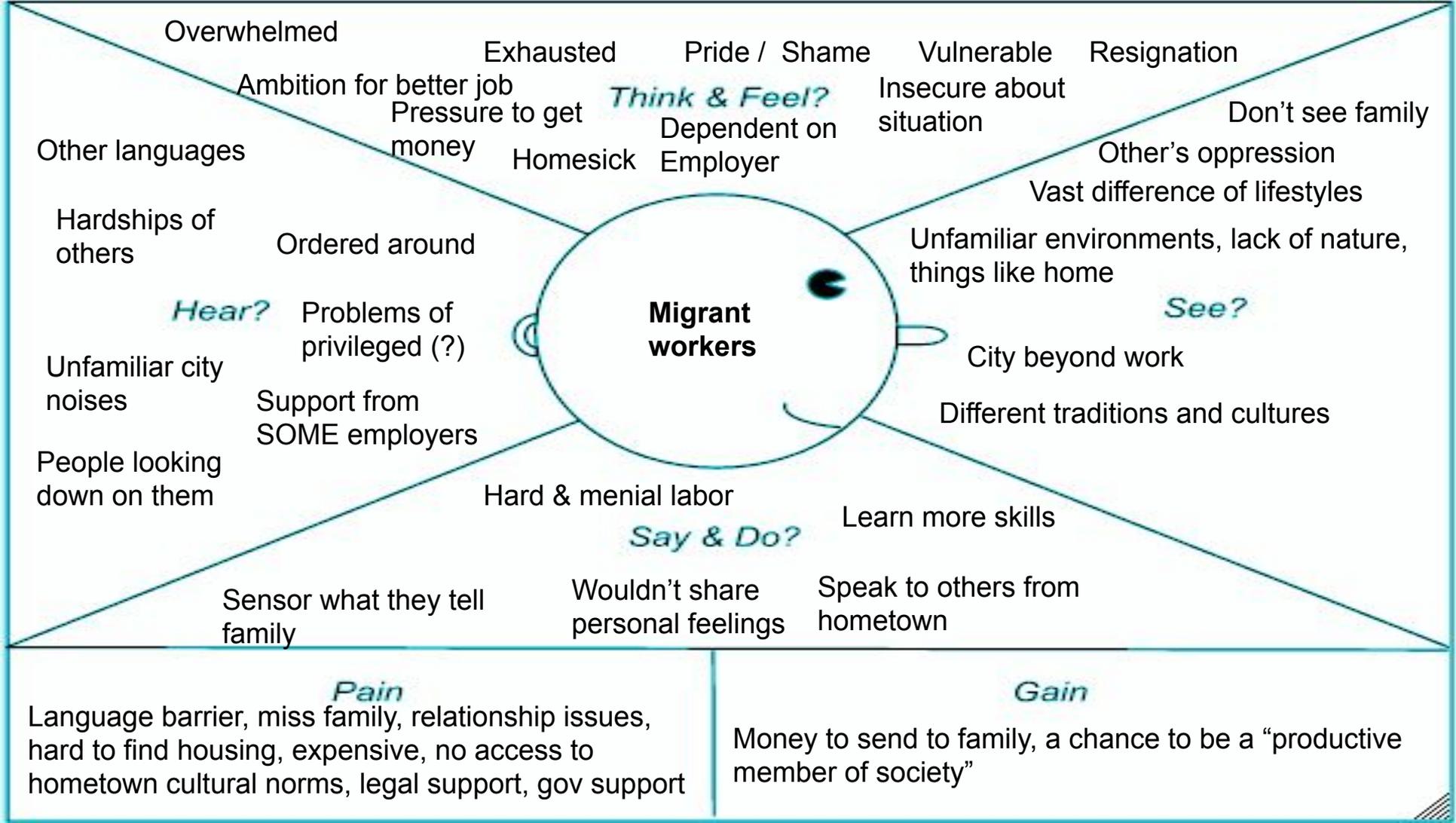
Questions that we will ask those with access to our application include:

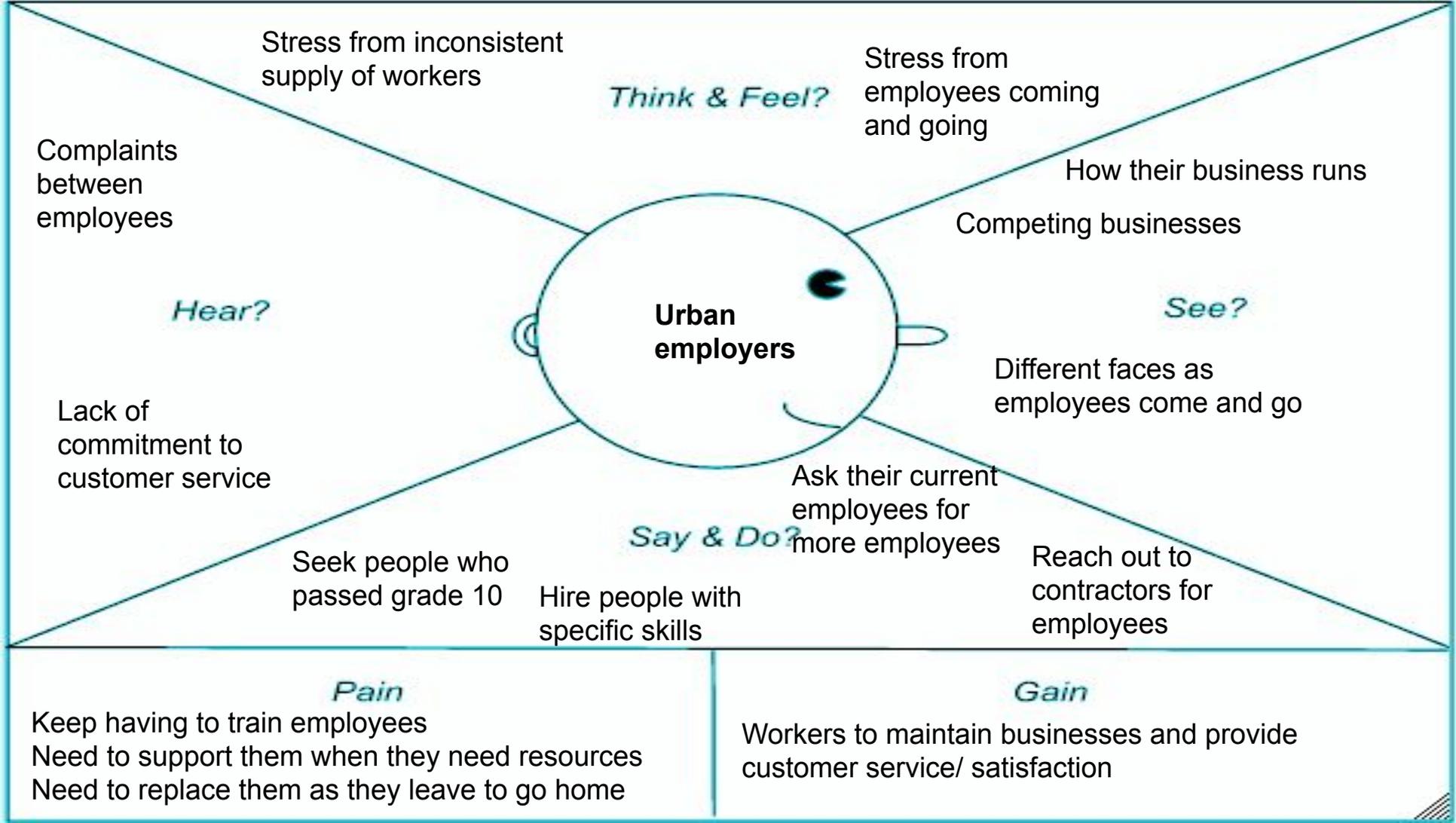
- Do you get paid on time and in the amount you are supposed to
- How many hours a day/week do you work
- What is your relationship with your employer like
- Is your employer what you expected from what you learned from the app

Without Access (Control Group)

- Do you get paid on time and in the amount you are supposed to
- How many hours a day/week do you work
- What is your relationship with your employer like
- Is your employer what you expected when you started working with them

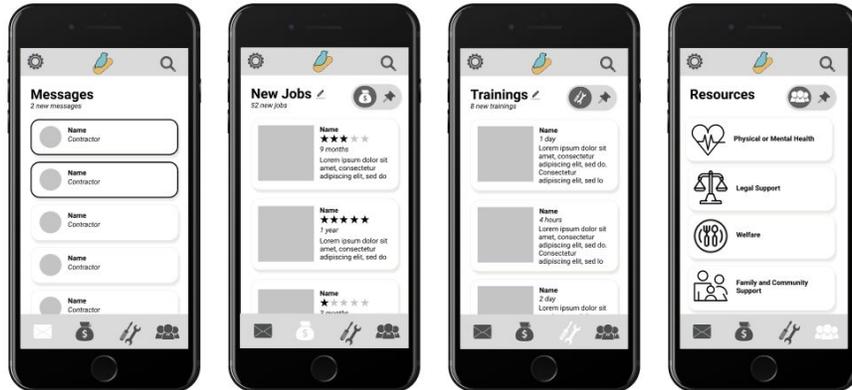
These questions will inform us on the quality of work life that migrant workers have with and without the app, so that we may compare whether our application is effective at providing a better quality experience with being a migrant worker.





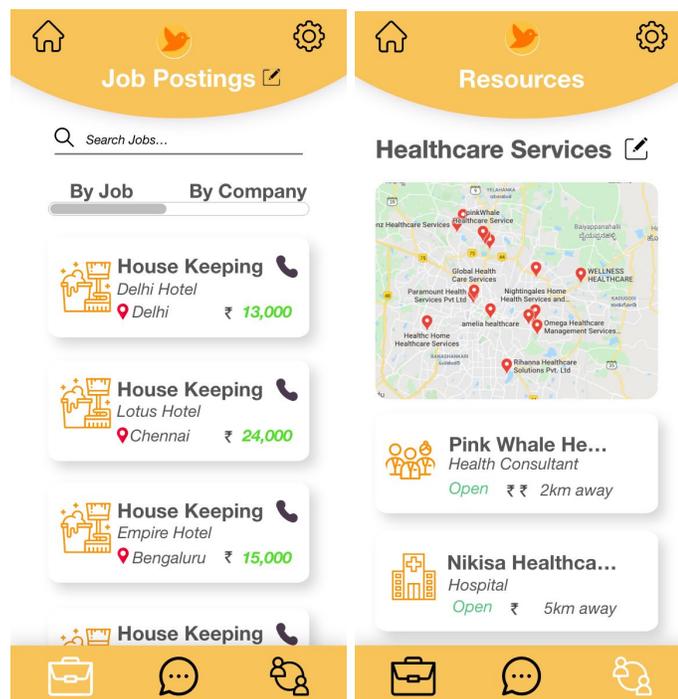
Appendix 4 - Documentation of Prototype

Before creating the prototype, we established the information architecture on how people will navigate through the application using Lucidchart. Afterwards, we created our prototype using Figma for the app interface, and Marvel to make the prototypes interactive. You can see an example of what this prototype looked like below.

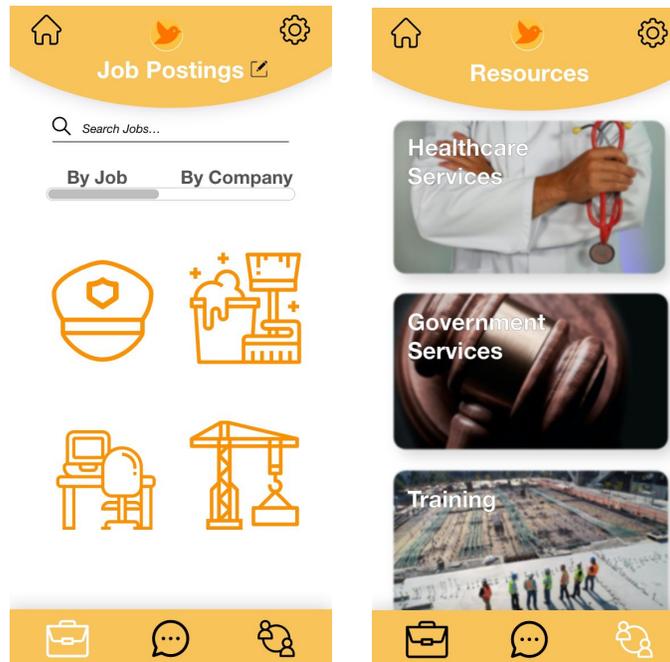


However, after doing both usability testing on this prototype, and conducting more interviews, we learned some things that made us change our design, such as:

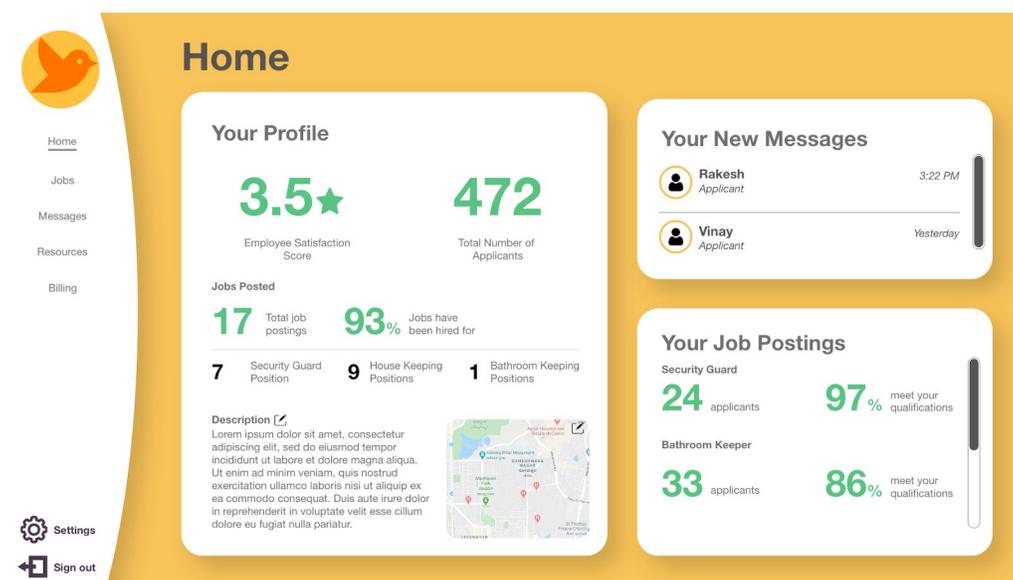
Feasibility in Features. Our MVP is supposed to be feasible, and we found it most reasonable to focus on having two main features: the job posting and the resources. The messaging and training features are embedded into these two core features.



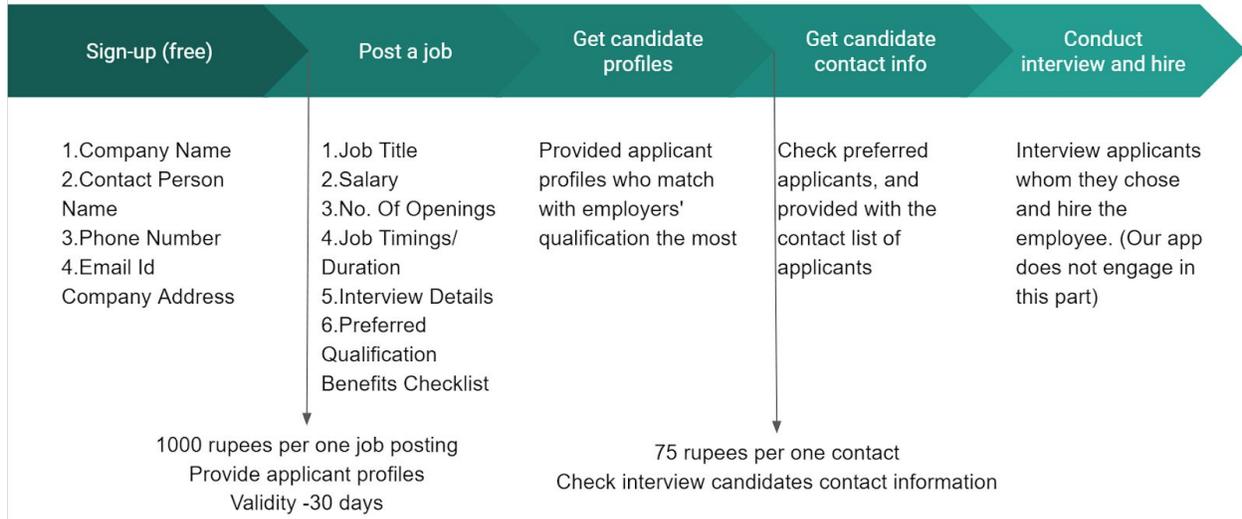
Accessibility for Language and Literacy. Due to how many languages are spoken in India, and also the varying levels of literacy seen throughout migrant workers, we have: (1) made the interfaces more visual, so that people may rely on the icons to tell them what things are, and (2) included a helpline so that users on the application may call.



Most Effective Platform for Users. We also learned that it would make more sense for the employers to have a website for posting jobs, as they would be using a computer for their businesses, so we added a website to our plan.



Simple flow chart process to hire employees:

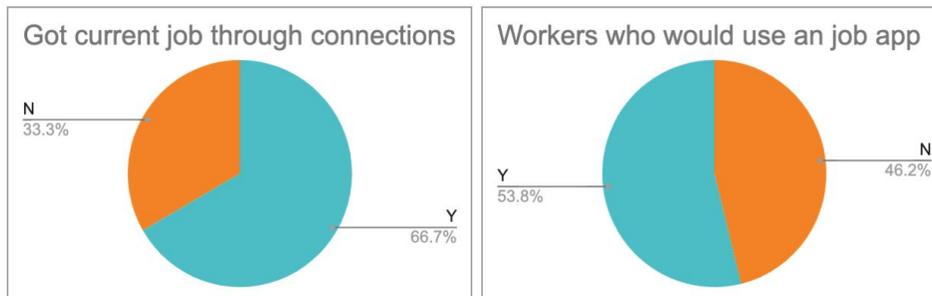


Appendix 5 - Prototype Feedback

We received feedback on our prototype through user testing on both workers and employers. We talked with 16 employers of migrant workers (hotels, restaurants), and 31 migrant workers (security guards, housekeepers). For both categories of user, we had steps for them to walk through so that we were able to see if the navigation and design of the app made sense. Following the usability test, we asked some questions about interest in the app, whether the features on the app were applicable, and how they currently navigate the job market.

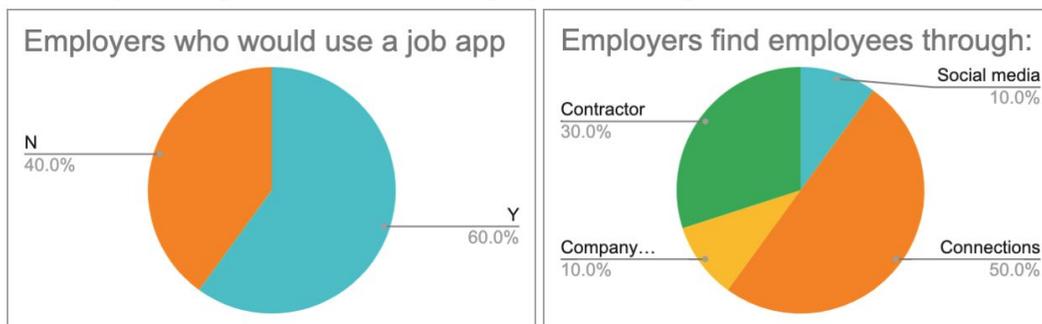
Main findings from workers:

- + Vast majority (85%) of migrant workers had and used smartphones (to varying degrees)
- + About 54% of workers seemed interesting in using the Navaranga app
- Some icons were not intuitive, so adding pictures helped for user interface
- 67% of workers got their current job through connections



Main findings from employers:

- + Employers were interested in knowing the education, skills, experience, and language knowledge of their potential employees
- + 60% of employers expressed interest in the Navaranga app
- + About 50% of employers said they often had difficulties finding new employees
- Several employers liked the contracting system because they could rely on the contractor when any shortages or issues with employees came up



Appendix 6 - Competitive Analysis

Vahan

Vahan is a job search company that uses a Whatsapp number and artificial intelligence to link job-seekers to jobs by prompting questions such as what role do you want to apply for, how many years of experience do you have, and finds one job that would meet your qualifications.

Just.jobs

Just.jobs is a website that is paid for by employers that lists jobs that include salary, education required, language requirements, and a basic description of the job. It is designed for entry level jobs and is paid for by employers.

Work India

Work India is the largest job portal in India. Job postings are paid for by employers. Looks very similar to Just.jobs. At the bottom of the listing there is a Call HR tab to incur about gaining the job. Very little to zero description of the jobs beyond salary, education, languages, and location. Very basic job listings as well.

Linkedin

Linkedin is a multinational social media platform that operates in over 200 countries and has over 660 million users. Linkedin does not cater to unskilled jobs or low level jobs, it is mainly geared for highly educated people. People fresh out of college use Linkedin to look for jobs as well as people who have been in business for multiple decades.

BookMyBai

BookMyBai is a service in India used to hire a maid for cooking, cleaning, child care, or elderly care. Maids looking for a job will post a profile, including a video, on their experience, age, qualifications, marital status, expected salary, education, and preferred city. BookMyBai offers to replace a maid if the one you hired through the service leaves within 6 months.

How are we different?

Navaranga is different from competitors because we allow employees to rate jobs and leave reviews. This is an essential feature for job-seekers especially migrant workers due to the high amount of exploitation of unskilled labourers. Our resources feature helps empower the workers to lead a healthier, more productive life. Awareness of services available and how to reach out to them can reduce stress in the workers lives as they don't have to worry about what they will do in case of an accident, struggle, or legal dispute. Our training modules will increase the workers hireability, in turn improving their income potential.