

End-user and market insight

*On the informal e-waste sector in Delhi to facilitate
and assess the E[co]work concept
India | March 2021*

Financing partners, Phase 1



BRIDGE



Project partners

E[co]work



Project title

E[co]work: Co-working spaces for inclusive e-waste management.

Project description

E[co]work is the adaptation of the co-working concept to the informal e-waste dismantling sector in India who manage the bulk of e-waste in India albeit in unsafe working conditions. By employing a participatory design of the workspace by the stakeholders, the concept aims to address the economic and systemic disparities faced by the informal sector in India due to their marginalisation and unsafe working practices despite their value-add to the e-waste management system.

Names of partner

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E[co]work Association (EAI), Implementation Lead | ecowork.international

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Consultancy partner

Curry Stone Design Collaborative (CSDC), Lead Design Consultant

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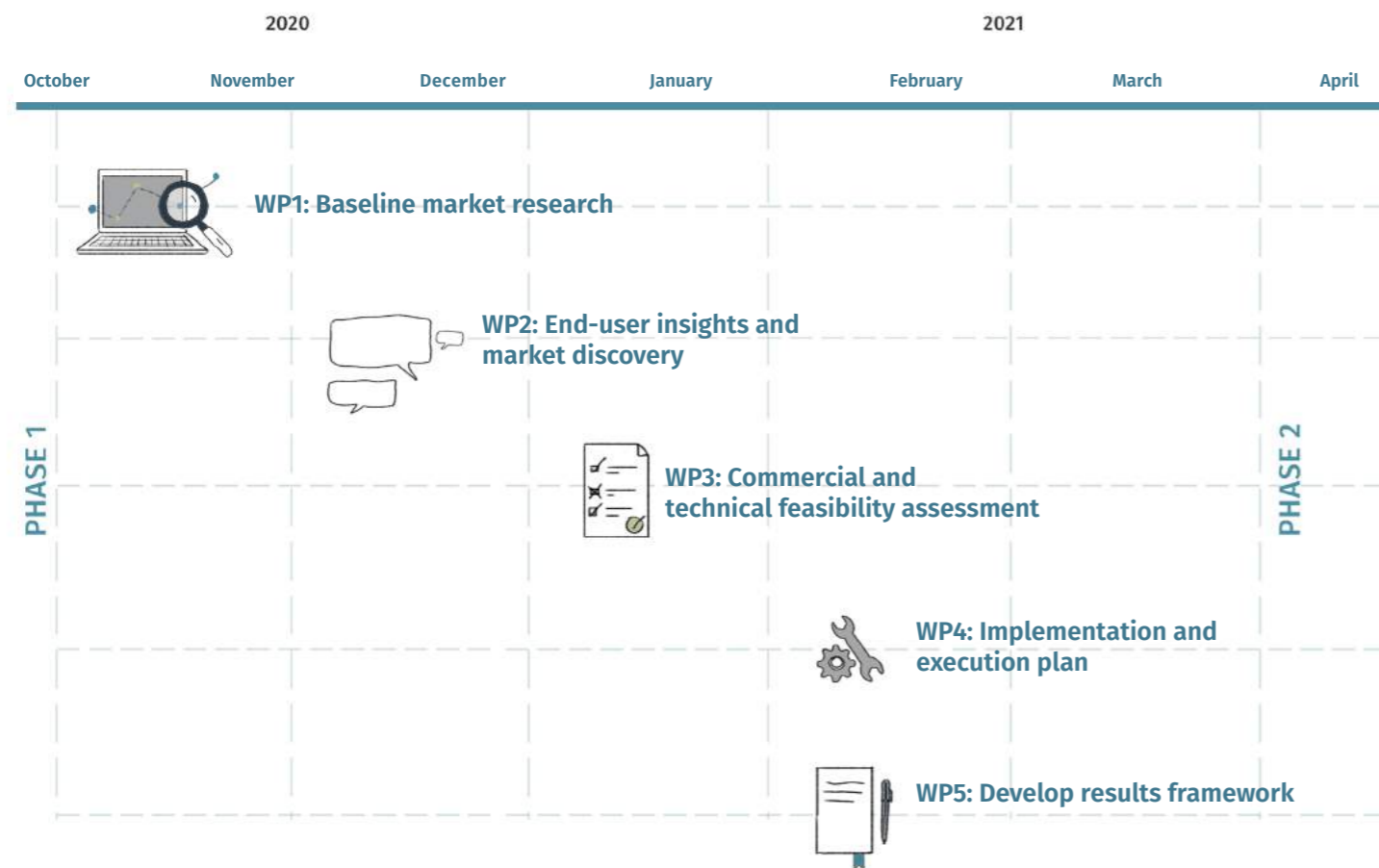
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Introduction

E[co]work is the adaptation of the co-working concept to the informal e-waste dismantling sector in Delhi who manage the bulk of e-waste in India albeit in unsafe working conditions.

This report is part of an ongoing research project, part-funded by UK Research and Innovation (UKRI), to further the E[co]work concept in Delhi, India. The timeline below encompasses the project's anticipated activities and outputs under Phase 1 of UKRI's Global Challenge Research Fund.



An initial baseline market research phase focused on developing an in-depth understanding of the current local market and business networks. At the core of this research, we prioritized building trust with the community, seeking to understand their aspirations and challenges to inform the design and implementation of an E[co]work space.

Throughout this early work package we continually developed tools and mechanisms for the field team to inform their engagement strategy. Sharing the initial E[co]work concept with some dismantlers provided initial feedback; establishing Community Representatives (CRs) in varying neighbourhoods provided a route to start informal conversations with potential customers and build understanding of key stakeholders, networks and material flows.

The objective of this report is to further explore some of the key questions that arose from the Baseline Market Research regarding the acceptance of the solution, and to validate some of the services that the E[co]work Space will provide. This report thus develops and unpacks end-user insights on market needs and demands. Activities that informed the findings report are:

- Physical meetings and engagement with the community.
- Focus group discussions and workshops to determine services to include in E[co]work space.
- Interacting with new groups of dismantlers to build our potential customer base.
- Spreading awareness about the E[co]work model through printed visuals.

Participatory design approach

Co-creating solutions

Access to the community and building trust with individuals takes time and is not guaranteed, especially with communities that are close-knit and wary of 'outsiders', as is the case with e-waste dismantlers in Delhi. For this reason, engagement with the community is an long-term and ongoing exercise.

One key event that reinforced our presence in the community was our first design workshop, held in February 2020. We brought together 15 micro entrepreneurs from different neighbourhoods of the e-waste hub in East Delhi for a 'Design Charcha' [charcha meaning discussion in Hindi]. We discussed different business models that they as a community could consider as the sector begins to shift from being informal to formal, drawing on local and international learnings, and outlined the key role they have in contributing to society and the economy of India.

This workshop encapsulates our human-centred approach to this research. Through the lens of participatory design, we were able to continue engaging with micro-entrepreneurs, and further gain their trust. We see that there is a marked difference in the **increase in the responsiveness and interest overtime, through the approach of engaging micro entrepreneurs as partners rather than 'beneficiaries' or 'people who we were going to help.'**



At the Design Charcha workshop in Delhi with some e-waste dismantlers from Seelampur and Mustafabad.

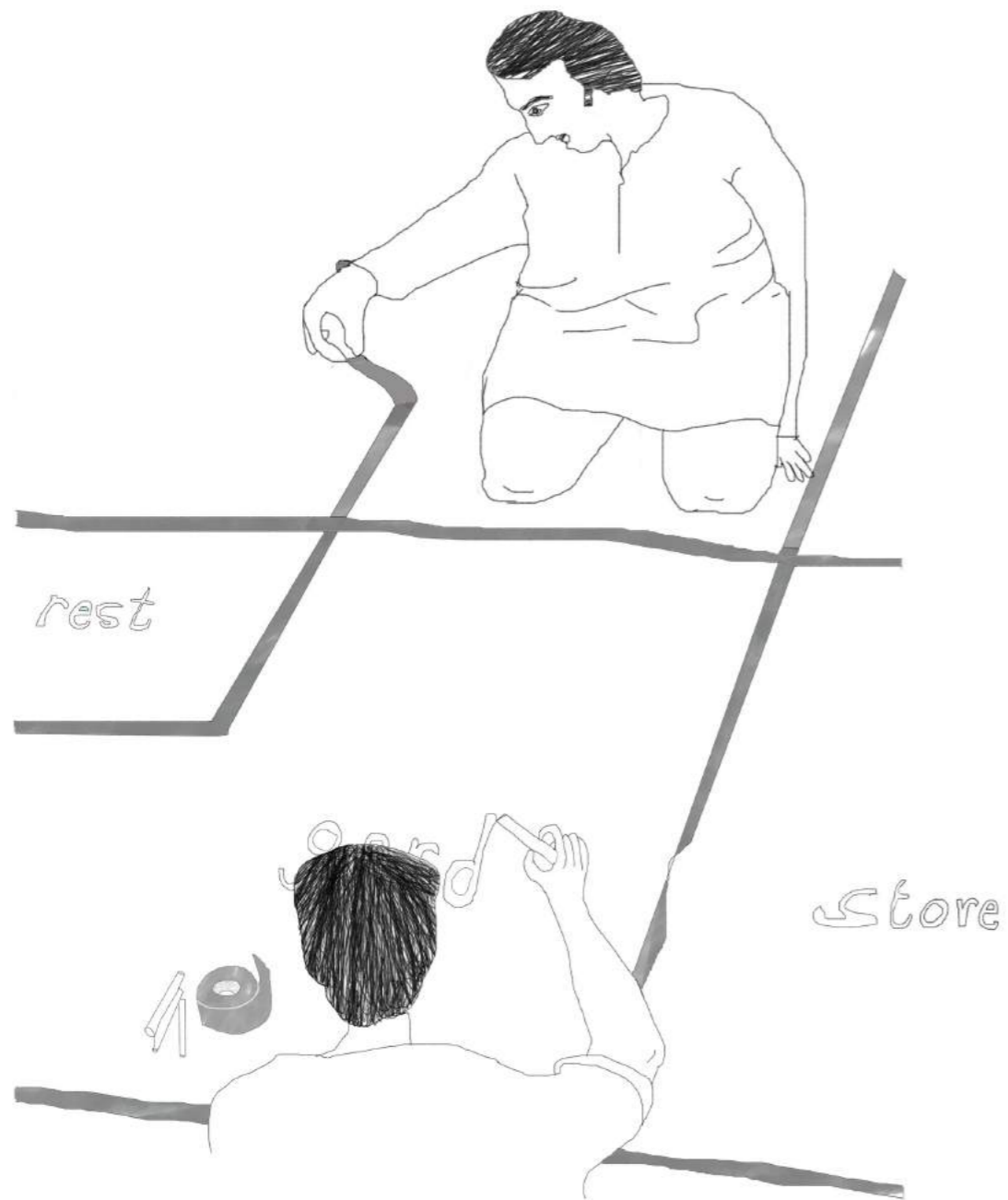


At an e-waste workshop when the projector stopped working, we resorted to a laptop to discuss how e-waste is handled in other parts of the world.



“In other parts of the world, work like this is supported and encouraged by the government, but here there are too many loopholes that get hidden behind bribes. People need to be looked at as people, not as means and source of money” said one of the dismantlers.

The design workshop ended with a participatory activity where individuals were asked to “reimagine their space of work”. Set in one of the potential spaces where the concept of E[co]work could be envisioned, this provided a real life opportunity to help direct space needs and aspirations using tape and chalk. **Working in groups of 3 and 4, the space was transformed into representations of existing space functionality, featuring areas for storage, weigh bridge, dismantling and more.**





In the midst of reimagining their space using chalk and tap exercise.



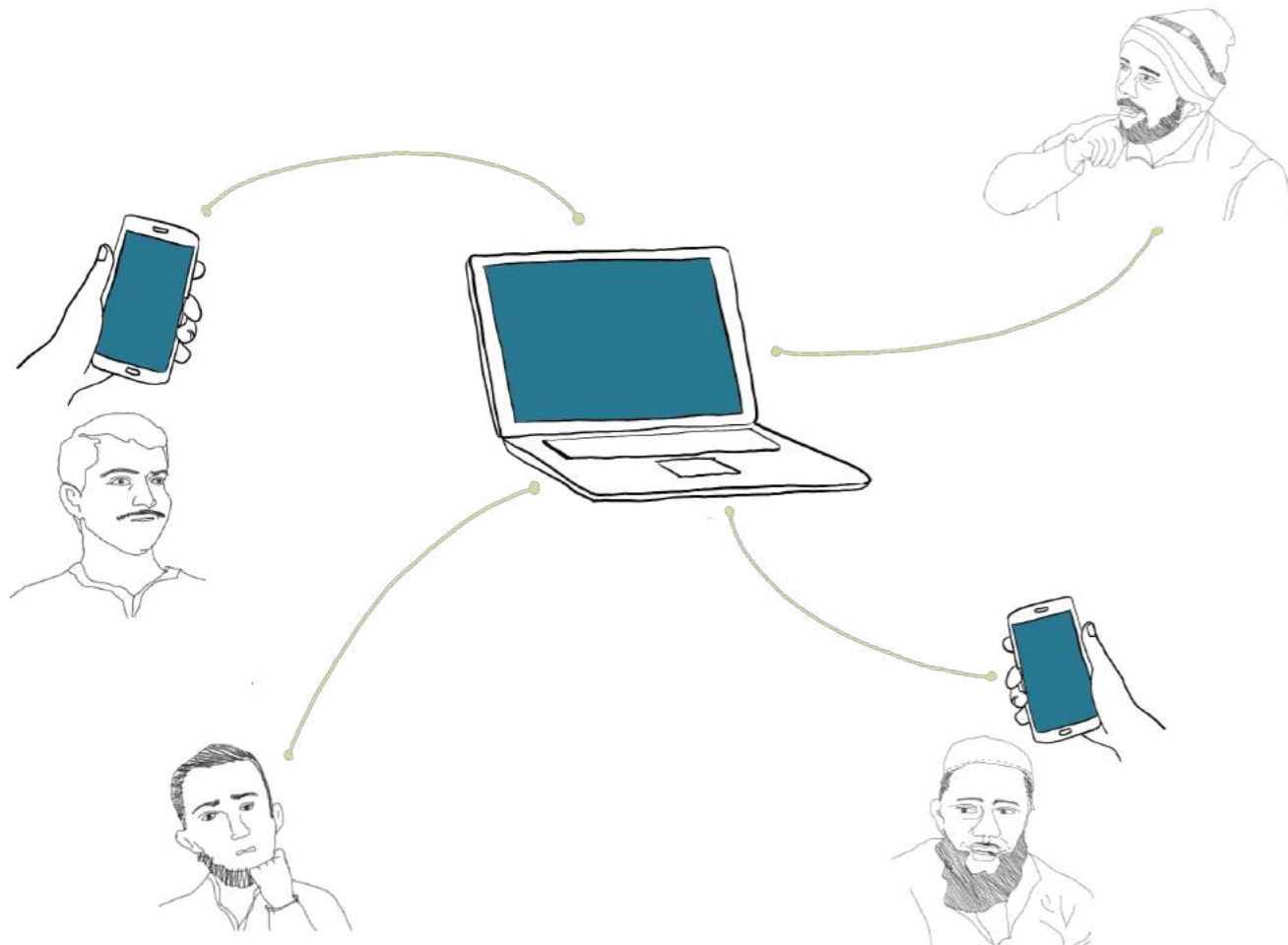
Groups opted to increase their working areas to provide more space than they currently work in, to improve conditions; recommended inclusion of CCTV cameras to increase security and emergency exits to address fire or unforeseen accidents. Additional popular features included rest areas for the dismantlers, personal washrooms and an open garden space with natural lighting.

The outcomes of this participatory design workshop offered valuable insights into what they truly value in their place of work and also brought attention to things they care about. These learnings greatly informed our activities in this phase of the research, where one of our main objectives was to validate the types of services that the E[co]work Space should provide.

Covid-19 impact

Whilst engagement activities were initially conducted in-person, often within dismantling units over tea and snacks, this had to cease with the increasing severity of the Covid-19 pandemic in late 2020. The localised and often stringent lockdown measures brought the sector to a standstill as micro-entrepreneurs were no longer able to work.

However, as previously discussed in the Baseline Market Research report, the Covid-19 pandemic brought an interesting turning point in terms of engagement with the dismantling communities.



A picture sent by our Community Representatives when they met immediately after the lockdown was lifted.

Local lockdown restrictions excluded operations in industrial areas, causing dismantlers operating out of residential zones to understand the direct business continuity benefits and health benefits that moving to an industrial zone could bring. This unexpected benefit and piqued interest kick-started activities in this work package. More aggressive enforcement against polluting activities in the inner city areas has meant that the dismantlers increasingly face business closure (locally known as sealing) by enforcement agencies. The tense political environment due to the farmer protests and resulting transport and movement restrictions has added to the loss of work as the Delhi borders were shut.

Understanding the needs of the e-waste dismantlers

On-ground engagement

We resumed our engagement with the e-waste micro-entrepreneur community in the two neighbourhoods of Seelampur and Mustafabad in November 2020, following the easing of Covid-19 restrictions in India. **The intent of these visits was to learn about their key concerns regarding working in the proposed E[co]work facility and their preferences for services that may be offered in the facility.** These findings helped us identify key attributes needed to develop a viable business proposal for the E[co]work pilot.

We began by reaching out to existing contacts during our initial visits in November and December 2020. We recapped the engagement process undertaken so far, before presenting them with a design proposal. **As new introductions were made through these contacts, the number of participants we engaged with, over a three week period, grew to 21 dismantlers working in varying sizes of operations.** Some of the invitees were hesitant about joining the discussions, either because they were not interested in the concept or due to the fear of frequent law enforcement activity in the area, which resulted in the sealing down of their workplaces. The East Delhi Municipal Corporation (EDMC) have ramped up monitoring and enforcement of permissible pollution levels in residential areas of Mustafabad.



Our on-ground team and with some dismantlers discussing about preferable locations for E[co]work space.

Human-centred Design Approach

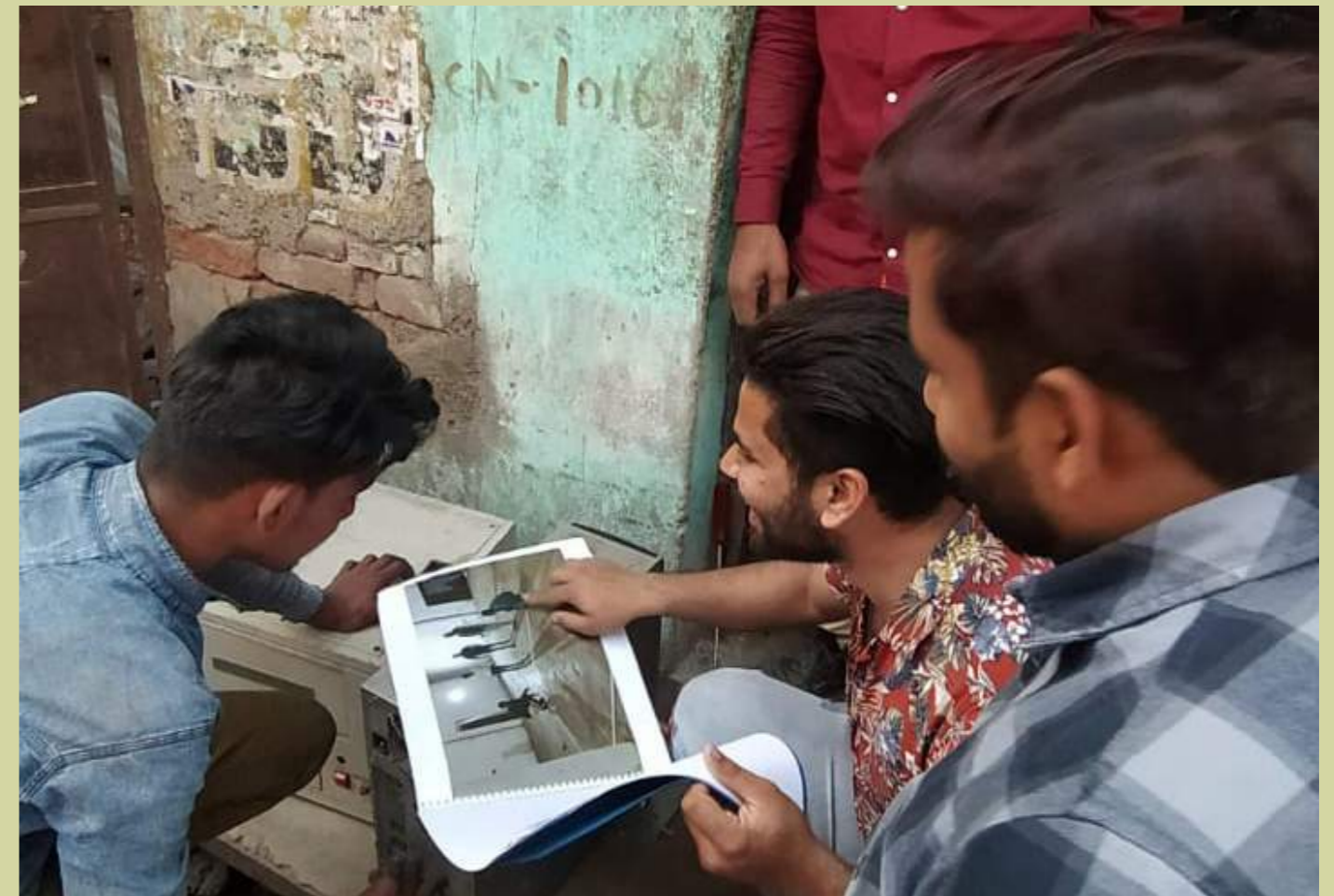
We held informal discussions with individuals or small groups of up to three people in a variety of settings, including their workplace or on the streets nearby. This facilitated candid and open conversations about their perceptions of and concerns around E[co]work, their current working conditions and thoughts on the design proposal. Group sizes were deliberately limited to manage the risks associated with Covid-19.

We modified our approach during the follow up visits in January and February 2021, with the intention of engaging more people. **We used visuals of the community engagement activities conducted previously to initiate conversations with the dismantlers.** Familiar faces of peers and colleagues in these visuals and the informality of the discussions being held at the dismantlers' front doors, demonstrated stakeholder interest in the concept to the new attendees. This helped us continue to build trust with the community.

We also conducted interactive group activities designed to understand the dismantlers' preferences for services offered through the E[co]work facility. **The aim of these activities was to help participants visualise their business as part of E[co]work and to nudge them towards thinking about best practices, rather than just market considerations. We presented several service options printed on placards and asked the participants to organise these into three buckets labelled - most important, important and least important.** The service options and attributes are listed below.

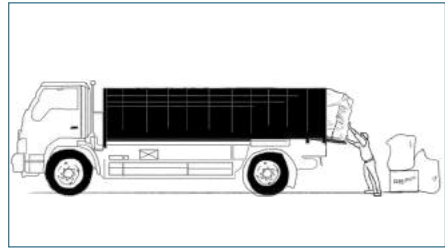


In one of the dismantler's unit where everyone sat on piles of e-waste for a discussion around spatial challenges.

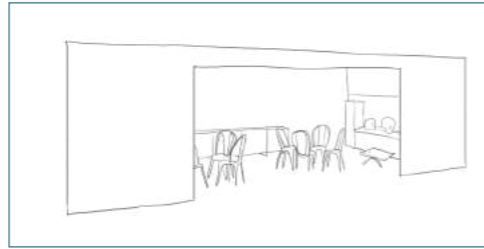


One of the dismantlers is happy to spot himself in our presentation of pre-Covid-19 engagements

Services



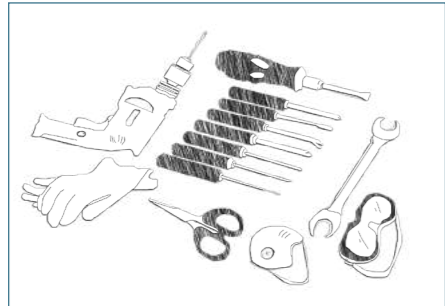
Material transportation



Resting room



Digital apps for trading



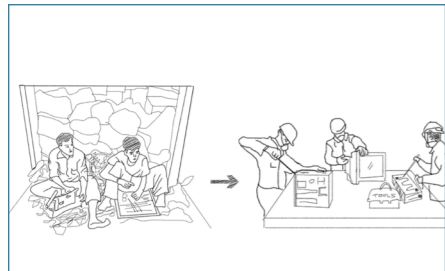
Tools and machines



Toilets



Long term rental contracts



Safety gear



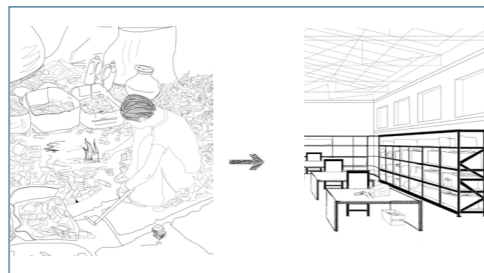
Storage



Company insurance



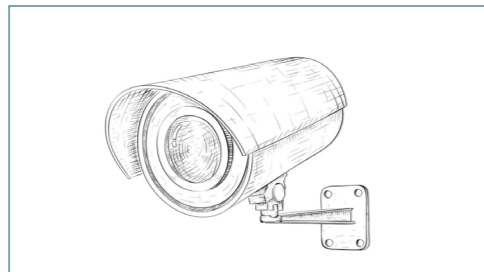
Dismantling licenses



Dismantling tables and stools



Prayer space



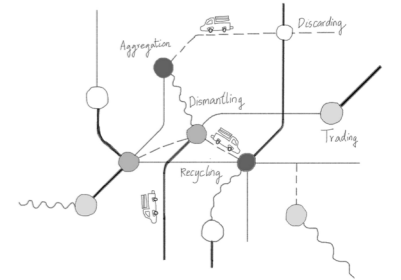
Security

Service attributes

- Legality of business
- Working without the fear of law enforcement activity
- Working in an industrial area



- Local business of selling and buying
- Keeping up to date with market trends
- Market networks
- Local business network
- Business expansion opportunities



- Respect
- Social interactions and community bonds
- Proximity to their residence
- Street life and food



- Clean air and good lighting
- Health and hygiene
- Open green space/gardens
- Care for the environment



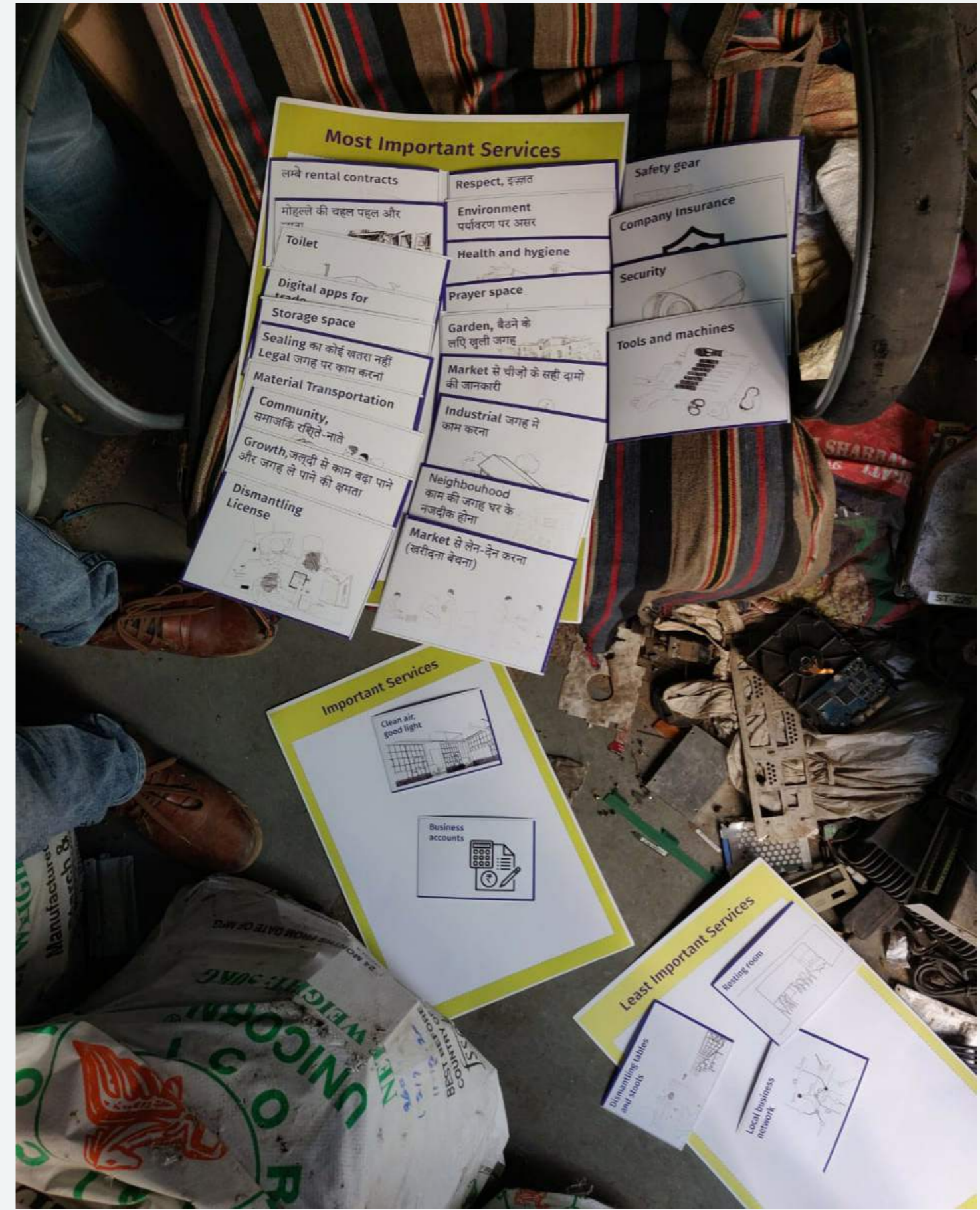
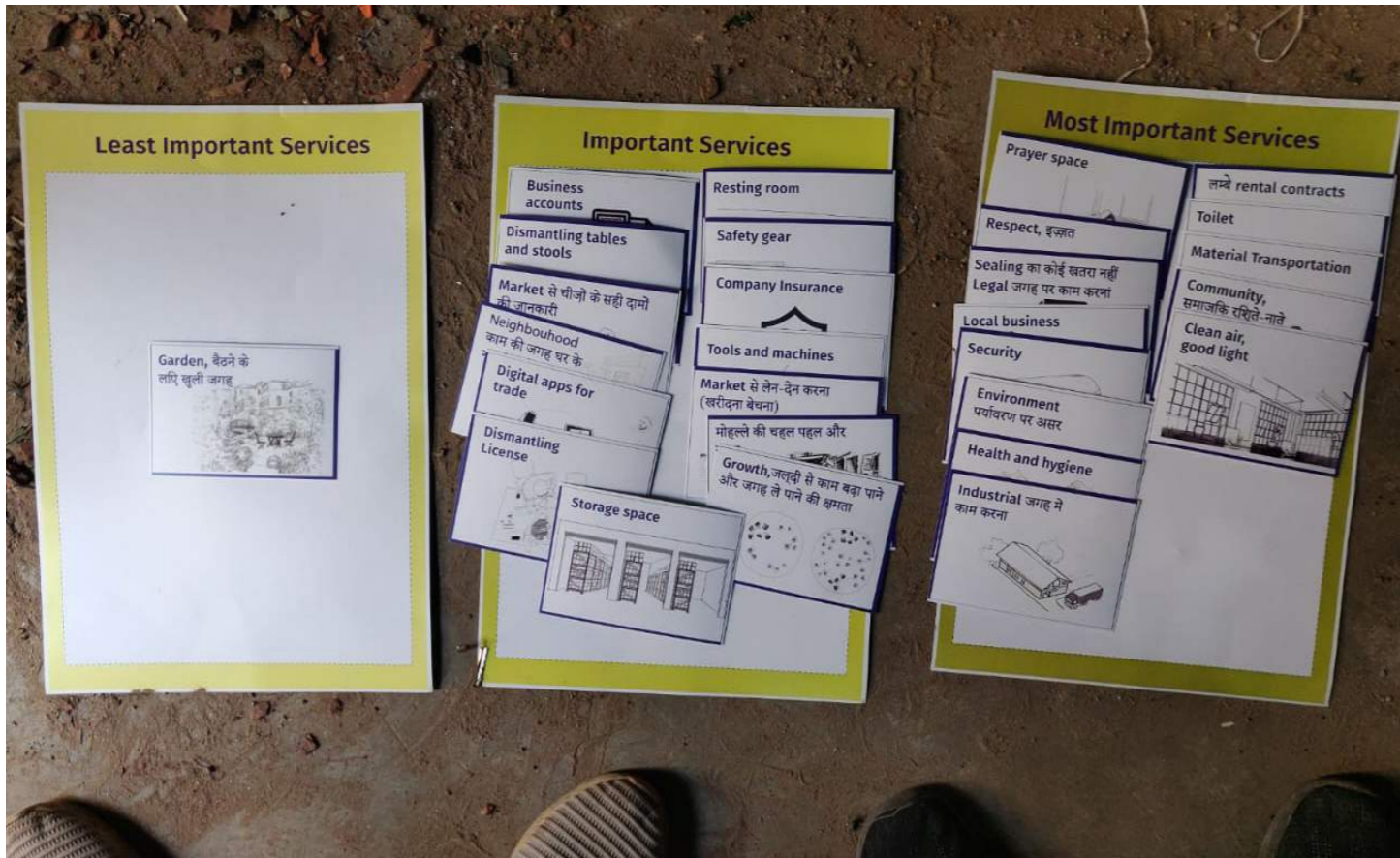
The results of this activity are summarised in the User Preferences section.



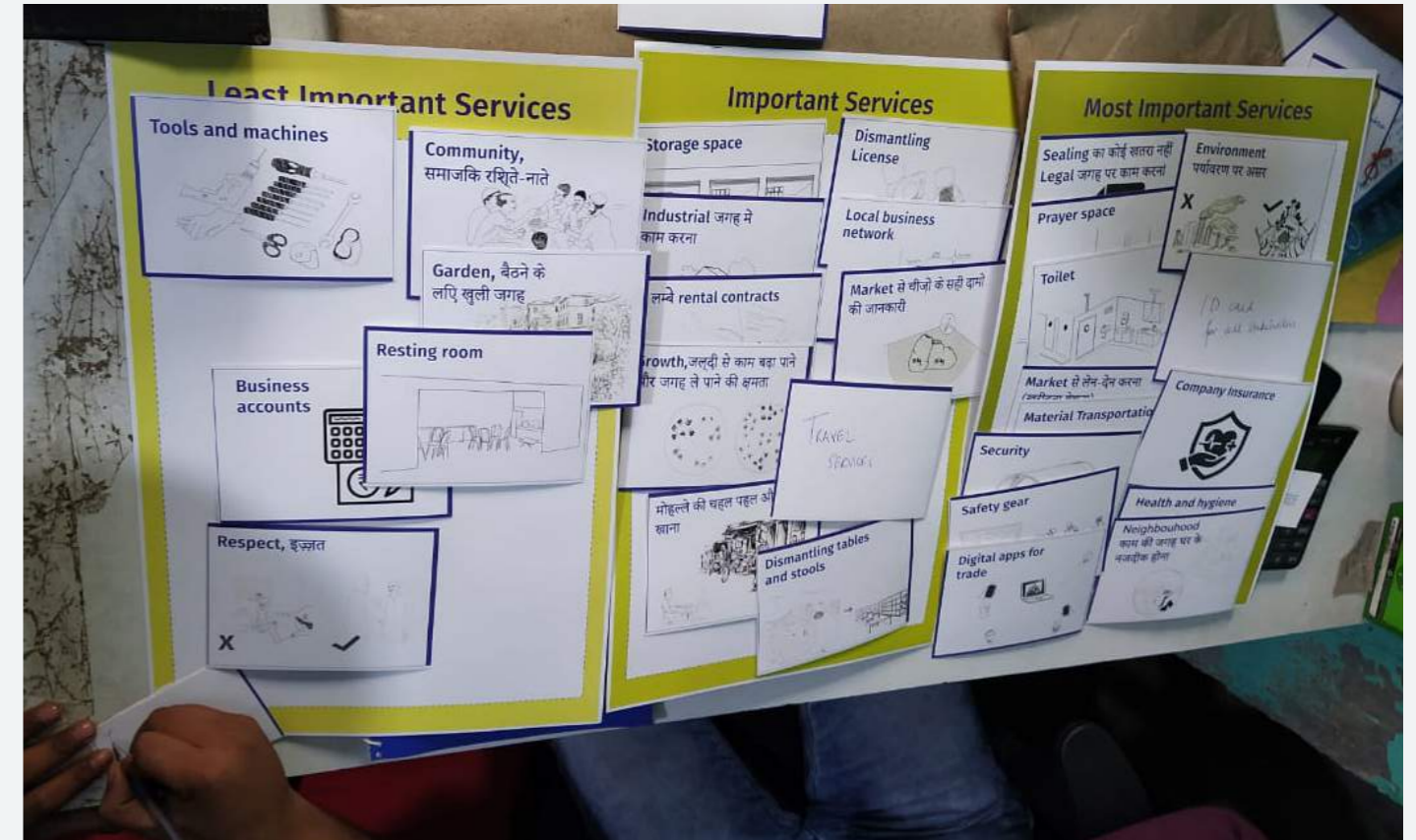
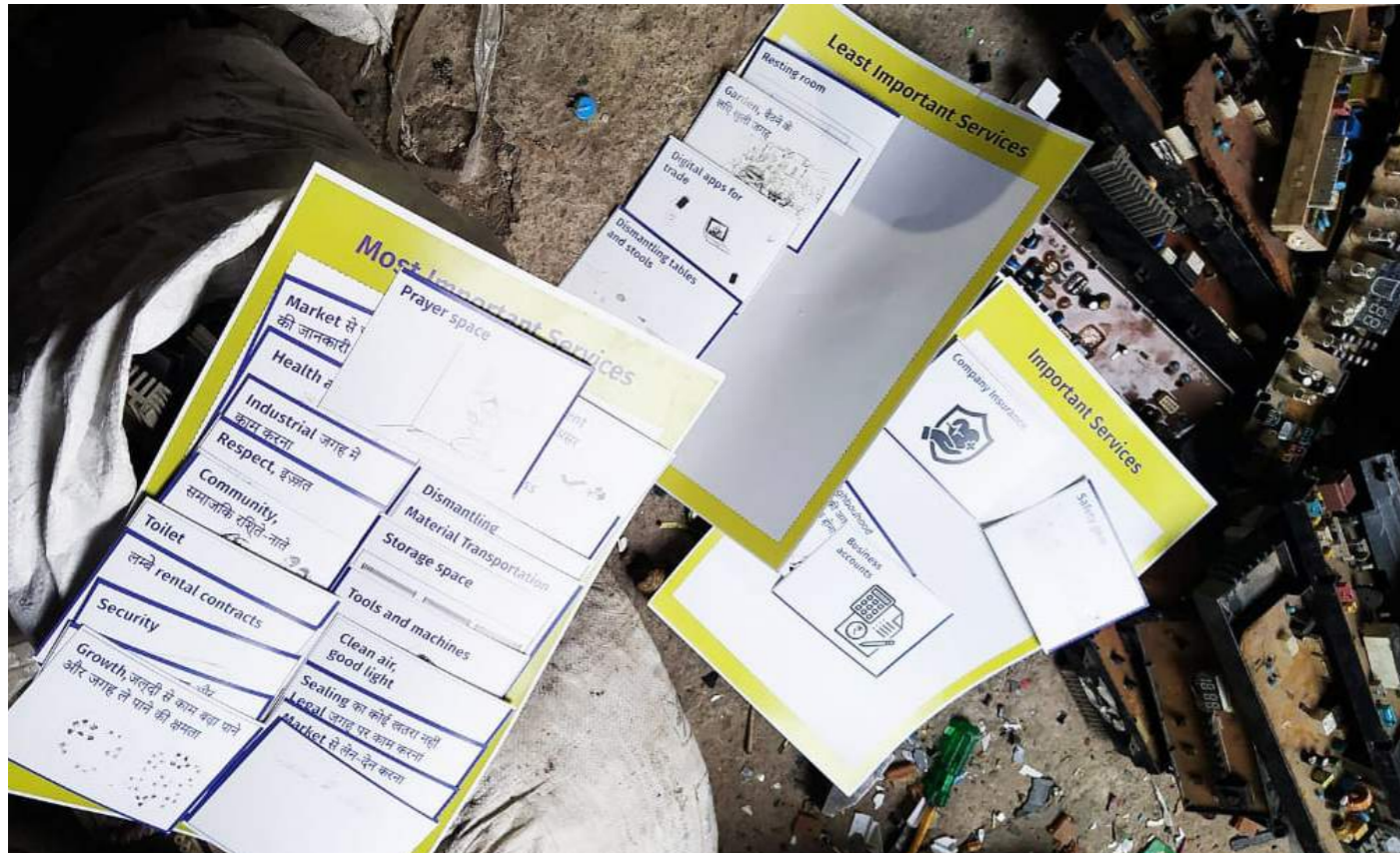
One of the dismantlers who is new to this business found most of the services to be important.



A meeting in one of the homes of a dismantler that started with 4 people and ended up with 12 dismantlers discussing the future of their businesses together.



Snippets from the many responses we received through our service preference activity.



User preferences

It was apparent from the interactive activities that the dismantlers prioritised services that would ensure the continuity of their current work arrangements and reduce existing risks of working in the informal sector. These were typically ranked 'most important'. Services and design features which were desirable but not considered essential were ranked 'important'. All others were ranked 'least important'. The table in the following page summarises these views.

The exercise demonstrated the dismantlers' desire to benefit from the formalisation of some aspects of their work through E[co]work. They regarded operating in an industrial area with the necessary dismantling licenses, legalisation of their business and the ability to work without the fear of law enforcement curbs as some of the 'most important' service attributes. Having access to existing market and business networks, business expansion opportunities and proximity to their residence were also considered essential and ranked similarly. **These considerations guided our search for locations suitable for establishing the pilot facility.** Contrary to the pay as per use concept, the dismantlers preferred to have long term rental contracts in the facility. However, this was on the condition that their rents would stay comparable to what they currently pay and that there will be no adverse impacts on their productivity or access to existing markets and business networks.

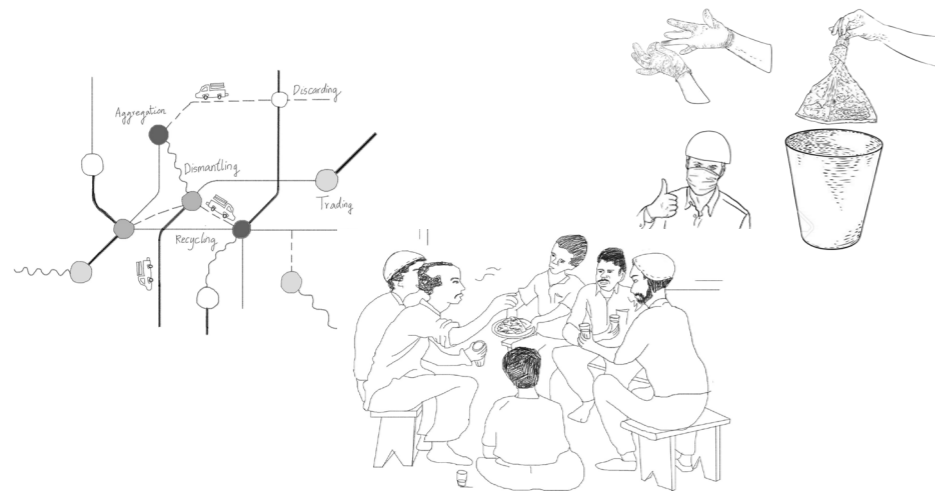


In a conversation with a dismantler on the services he prefers as part of the E[co]work space. In the end he mentioned security of material and livelihood to be the most important of all.

Design features such as a dedicated prayer space, accessible toilets and ample storage space were also ranked ‘most important’. They were preferred over features such as access to clean air, good lighting, open space with gardens and having a resting room on site. These were not considered essential and accordingly ranked ‘important’. Working with dismantling stools, tables, the availability of appropriate tools, health and hygiene considerations and security features were also ranked ‘important’. **This indicated that despite their initial reluctance to changing current work practices and habits, the dismantlers were willing to try out alternate ways.**

Other features such as having business accounts, considerations around their work neighbourhood and having a feeling of community with their colleagues in the facility were ranked ‘least important’.

Additionally, they mentioned more services that they considered most important such as, travel services from home to E[co]work space, 24 hours open warehouse ID cards for all stakeholders (from transport to businessmen to labourer), Electricity, similar rents as the informal spaces. The table on your right summarizes the responses on an average from 25-30 dismantlers we engaged with.



Most important

- Prayer space
- Long terms rental contracts
- Toilets
- Storage space
- Dismantling licenses
- Business expansion opportunities
- Material transportation
- Legality of business
- Working without the fear of sealing of their workplace by law enforcement authorities
- Working in an industrial area
- Market networks
- Local business network
- Respect
- Safety gear
- Proximity to their residence

Important

- Clean air and good lighting
- Business accounts
- Tools and machines
- Security
- Company insurance
- Community
- Open green space/gardens
- Dismantling stools and tables
- Health and hygiene
- Resting room
- Digital apps for trading
- Care for the environment

Least important

- Social interactions
- Community bonds
- Neighbourhood

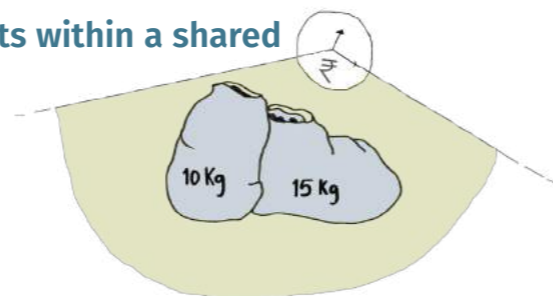
Key concerns

Recording key concerns of the dismantlers was essential for us to be able to address them in the business model, and thereby, secure user buy-in for the pilot phase. Generally, the dismantlers were concerned that the proposed facility would require them to change their current ways of working. The following broad categories of key concerns were raised recorded:

1. Economics of the Space

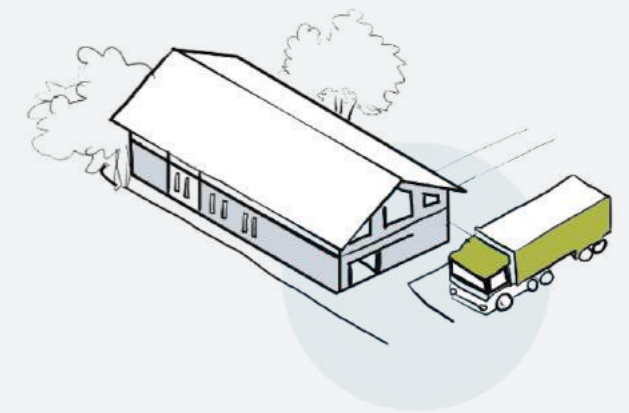
The dismantlers demonstrated a good understanding of the economics of their business. They were keen to understand the costs they may incur, the level of ownership of their work space and the extent of shared use of space.

- Many workers own their current place of work and do not have any rental costs. **For those who rent spaces, the ground floor rental costs range from Rs.8,000 to 15,000, depending on the size and location. It was indicated that an area of at least 450 sq. ft. is required for storage and dismantling activities.** The upper estimate of the area required was 900 sq. ft.
- The dismantlers have a strong sense of ownership of their work space, even if it is rented. Therefore, the **option of renting machines by the hour or paying for their use by weight of material processed was viewed more favourably than renting workstations by the hour.**
- Co-working is an unfamiliar concept for the dismantlers, as they were concerned about sharing storage spaces and work tables. However, they seemed **amenable to privately owning or renting units within a shared facility.**



2. Logistics

- Many dismantlers believed that moving their business to the proposed facility could lead to significant logistical changes. They were **concerned about any impacts on material transport arrangements, proximity to the existing markets in Seelampur** and having access to existing and new buyers.
- They were **concerned about potential paperwork issues and police harassment they might face** in bringing material to the facility across state borders.
- **Preserving access to Seelampur was of great importance** to the dismantlers, given its role as a source of e-waste. They also consider this necessary for staying informed about changes in material prices and growing their business network.
- **Maintaining access to their existing networks of buyers and sellers and developing new networks** were considered essential to their work. Proposed locations (for the facility) that would require existing and new buyers to travel longer distances to source dismantled materials were regarded unfavourably.



3. Health and Safety

Health, safety and environmental considerations were not a priority for the dismantlers. They were satisfied with their current working practices and methods. Some people voiced concerns regarding the potential negative impacts on their productivity from the use of recommended tools and equipment, which they currently do not use.

User profiles

Following are some of the insights received from the participatory design meetings that reflect on their values, challenges and needs as a community.

Based on the discussions and learnings from this phase of the research, we have created 'user profiles' that capture the key concerns and preferences of the dismantlers. We will use these user profiles as reference points in future work when thinking about the design and functionality of an E[co]work space.



Name: Rashid

Profession: Small scale dismantler (TFT Monitors)

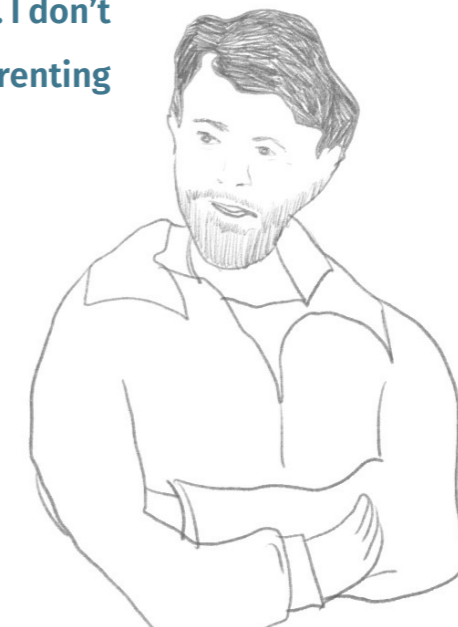
Rent: 0.00 (Operates from his home. The ground floor is occupied with dismantling work)

Market/network: Buys materials from Seelampur market, but doesn't have any fixed customers

About Rashid:

As a small scale dismantler, easy access to the market is a priority. This convenient access will be a challenge in relocating to a new place. He thinks smaller dismantlers are at the risk of being exploited in terms of pricing by bigger traders who may become monopolies of supplying materials in the new neighbourhood, away from the existing market.

"The space is my own. So I continue to work as per my convenience here. I don't want the hassles that come with renting a space."



Name: Haroon

Profession: Trader of batteries, dismantler of plastics

Rent: 8,000-10,000 Rupees (approx. £78-£100) a month in Mustafabad

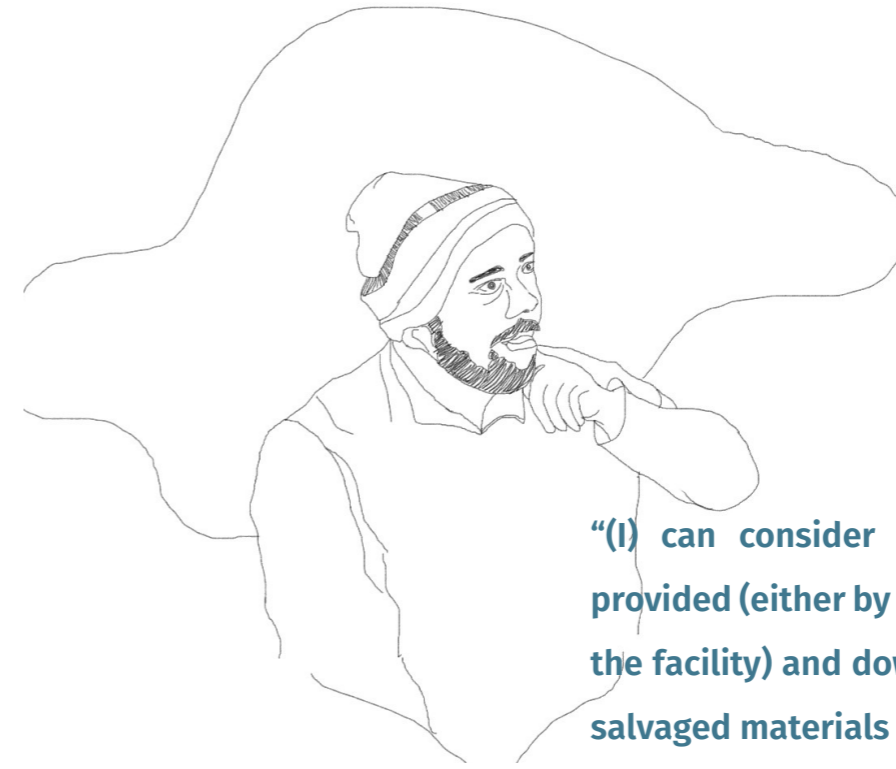
Market/network: Buys and sells from Seelampur market.

About Haroon:

Currently very conveniently placed within the market. If he moves, he is concerned that moving material across state lines will mean higher freight charges, tolls, paperwork as well as potential harassment by police. This is not a concern now as the main market for buying and selling is in Seelampur (Delhi).



“I will go where the market will go, we can’t afford to move away from here.”



“(I) can consider moving if (the) material is provided (either by facility of upstream vendor in the facility) and downstream vendors to buy the salvaged materials are also in the same place.”

Name: Sadakat Bhai

Profession: Large aggregator/trader in Seelampur

Rent: Owns his own space

Market/network: Buys and sells from Seelampur market.

About Sadakat Bhai:

Sadakat Bhai’s networks and business dealings are private, so being able to work out of his own independent unit helps to protect these networks. Working in a shared space like E[co]work will mean that others will easily be able to see who their suppliers and downstream vendors are. It then becomes easier for others to come in and approach these vendors and potentially take away their business at a slightly better price. He suggested only one of each type of trader/dismantler be engaged in E[co]work.

Name: Shahrukh

Profession: Small scale dismantler of CD-ROM drives

Rent: Rs. 6000 per month.

Market/network: Uses local commercial trucks to transport, sources his material locally. He also has fixed downstream vendors who come and buy dismantled material from him.

About Shahrukh:

Shahrukh has recently moved to a new location after his previous place was sealed. He does not feel too attached to his space, and is curious about the E[co]work space and location, and availability of material and cost.

“It needs to be a minimum of 20,000 sq.ft area to begin with so a large group can make this shift at once.”



Name: Bobby Bhai

Profession: Mid-scale dismantler

Rent: Own space

Transportation: Local commercial transportation

About Bobby:

Bobby likes the idea of Ecowork and safe ways of dismantling. However, he is very integrated in the community, and will only really change his business when the sealings make dismantling impossible. He doesn't feel too threatened by the current wave of sealings by law enforcement. He believes that work will continue to happen as long as officials can be bribed. He does not consider poor health to be a deal breaker.

Name: Salmaan

Profession: Keyboard dismantler

Rent: Salmaan hares a space with an associate for Rs.6,000 per month

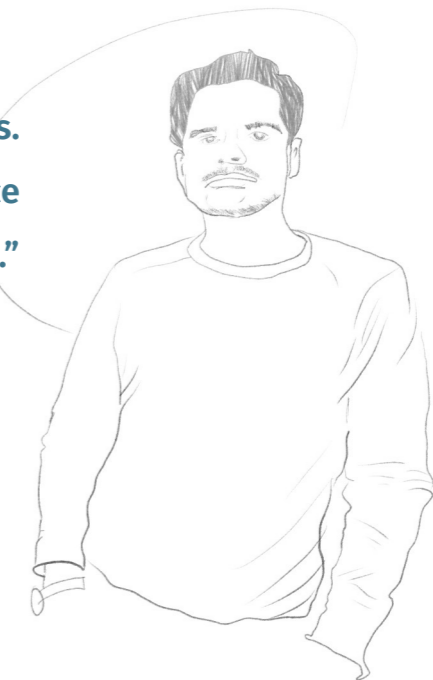
Transportation: Use local commercial vehicles to transport material.

Market/network: Buy locally from scrap collectors and in bulk from Seelampur. Salmaan has fixed vendors who come and buy segregated materials from him.

About Salmaan:

The dismantling business is heavily dependent on cash. Carrying cash around in Seelampur and Mustafabad is safe. He had concerns about how they would be able to carry their cash back and forth everyday between their homes and the new space.

“I like the idea and it will be useful to us. However, we would like to see the space first before we make any commitment.”



Way forward

Now that we have a good understanding of the e-waste dismantling networks and context, accomplished through the baseline research phase, and good insights into the dismantlers' preferences and priorities for a future E[co]work space, the next phase of the research will be to focus on the technical and commercial viability of the space. We have already identified some potential spaces through initial site visits. We will build upon these and conduct an in-depth feasibility assessment, marrying the physical attributes of each space with the preferences provided by the community.

Next milestones

For future work, we aim to deepen understanding of some of the key questions remaining regarding the technical and commercial viability of the physical E[co]work Space. Activities planned include:

- Clarifying legal and regulatory requirements.
- Undertaking further participatory processes for design specification of the facility.
- Assessing and modelling costing and pricing of business services
- Further scoping of potential facilities.
- Continuing research on best practices in dismantling facilities.
- Defining stakeholder engagement plan.
- Refining location and infrastructure suppliers.

