Facilitator: So, I figure we could just start by quickly introducing ourselves and then, I guess, we can go into some of the discussions that I think we can have today.

Then talk about what we'll do in the coming weeks. So, I think both of you have read something about who I am. So, I'm a PhD researcher at Northumbria University. In this project, it is a cooperation between Northumbria and the Mozilla Foundation. In my research, that was originally about smart cities, so this is the topic that I'm supposed to cover on my PhD research.

I decided to focus on waste and particularly on waste prevention through practices of reuse. I'm really interested in community practices or other ways to mobilise local resources so that reuse brings benefits to local societies and not some kind of external outsourced corporation.

This is the basis and there's a lot of documentation about my PhD. I'm trying to do this lab as an experiment also on open methodologies, working in the open and open design with a clear influence from the Mozilla Foundation. The idea, during these coming weeks, is to experiment and create alternatives for technology or conversations about technology that have to do with reuse and reuse through repair or upcycling or recirculation of goods. I'll ask any of you to introduce yourselves briefly.

Male: Do you want me to go first? So, that will give Kamie slightly more time to get awaken in the time zone. So, I'm Mark Phillips. My background is I've worked in industry all over the place for years and years and years. I was just explaining to

Felipe that about 10 years ago, I stopped doing that. I did a PhD looking at innovation ecosystems. So, I take a very systems-based view of approaches that can be taken to innovation. I just see this as a form of innovation in itself.

In addition to that, I also do some work with start-up companies. They tend to be pretty small and [in a lot 0:10:32] of sciences in the main. So, not really directly related to this field, but working with small organisations like that is interesting. You get some insights as to how to do things when you've got a very small, very resource-lean organisation.

Then the other thing, which is really the direct connection here is that I've been working on and off with the Restart project, which is a London-UK based repair and reuse charity and activists who have been very active in the right to repair movement in Europe.

I've been working with them on and off for, probably, now, four years. But mainly in the capacity of being their photographer. So, one of my side-lines is I do long-term documentary photography projects and my current one is all around repair and reuse and the impact if we don't do it.

So, there's a direct correlation here with the work of Felipe's. So, that's me. I'm based just outside London in the UK.

Facilitator: Thank you Mark. Just to note, I had seen the album that you sent me some months ago of Helsinki, but I had not seen the one you sent me today, that this collection of albums, it's really amazing.

Male: The whole stack it's almost like a book with stories. There's Cuba. There's Ghana. There's various places in Europe. Then there's what people are doing in Sweden and Helsinki. Really just looking at all the different approaches that there are to repair and reuse in different parts of the world.

Obviously, that's all stopped at the moment. There's no travel. I'm doing something slightly different at the moment, but I'm still working on that whole idea of repair and reuse. Okay, Kamie, are you there?

Female: Can you hear me now?

Male: Yes, that's better.

Facilitator: Yes.

Female: I am currently a software engineer in California. By day I'm working at JP Morgan Chase and by night I'm doing things like upcycling my own things. I've had a backpack. I didn't want to buy a new one, so I repaired it. I've had furniture, I've flipped into other things. That's the one I sent you Felipe. I wrote a proposal to go back to school to study more of this stuff.

I was actually accepted to a programme Europe to study more… I'm not sure if you're familiar with EIT. I guess, it's partially sponsored by EU. So, still figuring out how that's going to work and doing some volunteer work with a project called Makeflix. They also presented at the Mozilla…

Facilitator: Festival.

Female: Was it conference or something. I'm just really interested in this space and would love to see more reuse- I was also talking my grandma last night about some of the things that she used to do. It used to be a natural inclination or thing that happened in societies, because there was no other way. I'd like to see some of that come back. That's why I'm here.

Facilitator: Yes, Rhea from Makeflix has signed up, also, but, I guess, as she's in India she won't join us today. But maybe next week.

Female: Yes, okay.

Facilitator: I think we'll have both of you at the same time, right? From California to India, I guess, it's too large a stretch.

Female: Yes, I think the one time we found this [off 0:14:48] was 7:00am Pacific, yes, so two hours from now was…

Male: Yes.

Facilitator: Are you moving to Europe for this course you're taking?

Female: Possibly. I have to figure out details. If I proceed with the enrolment I will be moving to Europe, yes.

Male: Where's it based?

Female: It's two different degrees in two years. So, you go to [ABI 0:15:12] in Paris the first year at [Non-English speech] and then the second year I'd be at [Non-English speech] in Netherlands.

Male: It's in the Netherlands, yes. That's cool.

Facilitator: Nice.

Male: Yes. I've just quickly looked it up. It's the European Institute of Innovation and Technology isn't it?

Female: I think that's the one.

Male: It's an EU funded one. I've heard the name, I just couldn't remember it, but I've just quickly looked and, yes, I get it.

Facilitator: Cool.

Male: I can't do any more studying now it's way too late for me. (Laughter)

Facilitator: You can always come back to study.

Male: [Crosstalk 0:15:54] used to do. I can't do anymore.

Facilitator: Yes, I think I wouldn't have patience to be coming back to that.

Male: Matthew's back.

Facilitator: Hi Matthew? Can you hear us? Can you see us?

Male: Yes, there is.

Male: Hi.

Facilitator: Yes, now I can hear you. Welcome.

Male: Thank you. Good to see you guys.

Facilitator: Good to see you. You tried to join some minutes ago, something happened?

Male: Okay. No problem.

Facilitator: Can you hear me?

Male: Yes, sure, I can hear you.

Facilitator: So, we were just, for now, introducing ourselves. So maybe you can tell us who are you? Where you are? Why are you here?

(Laughter)

Male: Yes, sure. I'm Matthew [___ 0:17:15]. I'm living in Uganda. I'm a Sudanese by nationality, but currently as a refugee. I work with CTEN, Community Technology Empowerment Network, a refugee founded organisation. I mean, a refugee founded and led organisation in Rhino Camp in [___ 0:17:46], Bidibidi and ___ refugee settlement. Yes, so we are a tech-led organisation, also an leader implementer for UNHCR. This builds and [promotes 0:18:12] awareness on mobilisation.

I am currently managing innovation centres- four of them. Three in Bidibidi and one in Rhino Camp. There we are offering tech courses.

Facilitator: What kind of tech?

Male: Including a repair and maintenance of electronic devices at the innovation centres. So, basically, this meeting suits the repair aspect. I actually have two meetings today on repair and reuse of electronic devices. So this one and another one with the University of Edinburgh.

Facilitator: Nice.

Male: So, that's [about me 0:19:28].

Facilitator: I think the idea today was to start the discussions and hopefully to talk a bit about technology and digital technologies and reuse. I know that all of us here have different levels of experience with community repair and community reuse. But I'd like to also understand if we try to think about the future, what kinds of technologies could help increase the amount of reuse, of the amount of materials that are reused?

What would we need to develop these kinds of technological devices or solutions? As I mentioned somewhere I'm sure that technology is not the ultimate solution to increase the repair, the amount of materials that are repaired, but there may be some places in which technology can either help start conversations or can provide proper solutions that are, sometimes, absent.

I don't know if we can start by discussing where do you see digital technologies or other kinds of digital devices helping repair? I can start with a very quick example. For instance, on the iiFixit website, there are some parts of the website that provide access to manuals and service manuals or descriptions of spare parts and evaluations about the repairability of different kinds of objects or products.

I was just interested in hearing from you whether you have other examples or ideas about technology that can help? In that sense, it's a very simple technology, it's a website that provides content. It's nothing more elaborate than that. But in a sense it's one of those measures of using very simple digital technologies to help materials and objects get reused. So, I'll just open for comments, if you have any ideas.

Male: Shall I chip in one that I…? If I think back to all of the places I've photographed as part of this documentary project, there's one underlying theme that I think comes across whether I'm looking in Cuba or I'm in Ghana or I'm in London or I'm in Helsinki or wherever. That is that in order to be able to repair, there's this very tactile, hands-on requirement. In fact, I was talking to my local repair shop who are having a little bit of a battle with Apple at the moment, but let's not go there.

The woman who runs that has said to me, fundamentally, the only way to learn to repair is hands-on. You can't just learn it off a… You've physically got to do it. So, for me, the technology is important, but I don't think we should lose sight of the critical importance of what I would call some sort of education.

Because it's only when people try to take these things apart and put them together again, that you really begin to learn and

understand. Clearly, going to iiFixit's repair manuals- and I know Kyle and the guys at iiFixit quite well, that's a brilliant resource, but there is no substitute for this bit. So, that's one bit.

The second bit is also education-related, Felipe, and that is when I, again, have been around, the one other thing that I think- where I've seen a difference in approaches to repair and reuse, particularly it's where there is a- either there is a different attitude within a culture or somebody's made an intervention around education again.

I'm particularly thinking here now in Helsinki where they realised they were never ever going to improve the repair and reuse beyond where they were unless they could educate the wider public about what is and what isn't repairable and what options they've got.

Because otherwise, people just throw this stuff, in Western culture, I'm not saying it's the same elsewhere. You go to Cuba and it will be the last thing they think about doing, because there's a different cultural norm. But in the places that waste the most technology, which is clearly the West, there's a huge educational issue, I think, there for the majority of the population.

So, I guess, in a bit of a roundabout, I think this education bit either in terms of the public and how the public can be educated and what we can do in technology to do that, but then the other bit is for people to get competent at doing repair and comfortable doing repair, we shouldn't lose sight of the tactile hands-on bit and not just focus on the technology.

Technology enables, but it doesn't solve the problem alone. That's my little start attempt.

Facilitator: Matthew, does that make sense to you? This kind of tactile hands-on education? Are you directly involved with repairing stuff or are you running the community efforts? What's your own involvement? How do you see that the way you learned particularly or the people who are involved learning about that?

Male: Yes, well, I'm not only into- just into the [committee 0:25:52], but I love fixing things. It's one of my passions. I'm directly involved in fixing. You know, in fixing things, you find hands-on is very important, because when you just learn theory, start practising it makes more sense. But repair is, basically, practical.

There are certain things that you make in theory, but reaching to the hands-on it changes into something else. You can learn a lot of things when you're doing the repair part of it, because you can easily get more experience where you do things you try to fix it and sometimes it doesn't work. But when you keep on and try many ways, you find you've already fixed something.

My [visits 0:26:47] here in Uganda I haven't seen any place that's- or any company that does, let me say, collecting digital equipment, like for storage, like a place where all that equipment… Like waste storage for such devices. I haven't seen it.

So, you know, establishing such kind of points is so valuable, because let's think of the environment, because digital equipment also pollutes the environment. So, how do we minimise that by establishing places where [common 0:27:47] people can easily bring their things and then ___ in place?

Male: I feel it's very [Crosstalk 0:27:58]…

Male: You find, sometimes, someone, a small problem, you find a person just throws out their equipment or device. So, also, educating the community on the reuse of digital devices is very important. I'm looking, also, at the platforms to be used for educating. Because nowadays there are more people go into the social media platforms, which is widely used.

So, it will be good to educate people via these social media platforms. Websites are there, but people nowadays (Laughter) they no longer concentrate mostly on the websites. But watching things- a video is very important, because they like watching it.

Male: The point that Matthew has just raised there, sorry, I interrupted a little earlier. The point you raised about collecting stuff is another really, really important part of this. The biggest challenge for people doing repair, particularly, in situations like in repair cafes or those sort of fix-it workshops that volunteers run is often particularly with mobile and electronic devices, there's a piece broken.

There's a spare that's needed and if it's not there, everything stops. Again, if you go and look at places where- if repair is a cultural law, like in Cuba, like in Ghana, they literally hold vast warehouses of bits that have been scavenged from a piece of equipment that can no longer be repaired, but they can, at least, scavenge all the parts that are still usable.

In fact, even my local repair shop does exactly the same thing. They will scavenge things like all the little cameras out of the mobile phones that they know are still functional, but maybe the rest of the mobile phone has got a problem, you know, the motherboard's got a problem. The phone's no good, but they'll scavenge all the parts out of it and they keep them all. I've actually got them in my hands at the moment, because I'm trying to do a photography project with them.

But I've literally got boxes of these things in my hand. But I saw exactly the same thing in [Non-English speech] in Helsinki, which is a city-led initiative. They do exactly the same thing. They scavenge all the parts from things that they cannot repair and they then provide a low-cost way to fix the things that can be repaired.

So, that's another important part of the jigsaw puzzle. So, I think the point Matthew's raised is an important one around, there needs to be places to store and people need to know where to get this stuff in order to be able to do their repairs. Because if the only way to do it is to go and buy it on, god forbidden eBay or on Amazon or whatever, that doesn't work in a community event, because you've got to wait for the thing to arrive.

The other thing is it's often prohibitively expensive, whereas, in essence, the scavenge stuff is free.

Facilitator: Yes. Sometimes even trying to rely on eBay may prove unfeasible, because sometimes you spend more on the shipping than on the value of the part that you need, so it doesn't make sense.

Male: Yes. And what happened here in the UK, there used to be a retailer that sold electronic bits and pieces and if you literally just needed a capacitor, you could go and buy a capacitor. Like, literally, £0.30, because those shops have now all gone, the only way to buy those capacitors now is you have to buy a pack of 20 in bulk on eBay.

Facilitator: Yes or from China.

Male: There is a need, somehow, to recreate some form of local resource that has these parts, otherwise it won't work. So, this is, again, like my systems view that says, "Yes, we can do stuff with the tech, but you need to have something around hands-on and education.

There needs to be a resource that provides parts to make the whole thing work. I'll shut up and let Kamie get in. She's reappeared.

Female: I agree with what you're saying. One of the things I was initially thinking about- I was reading about FabLabs the initiative that came out of MIT. They're really heavy on the fabrication, materials, but something like that, but more focus on reuse, maybe that's what the reuse centres you were mentioning in Cuba are like.

I'm not familiar and I'm not sure, but where you could, potentially, have all these little hubs and locations where people could go for things like that or to find tools that they might not have access to, but need for reuse.

Male: Yes.

Female: But, also, you could be connected to other cities through digital means, potentially, share ideas or somehow inform each other to just build that community.

Male: Yes, I mean the amazing thing is, again, in places like Cuba that's all been built without any internet, because very few people actually have regular access to the internet. It's a very difficult place… But all of the learning has been done really through word of mouth. It's an oral culture of learning, because they couldn't even access things like repair manuals.

Again, I go to when I was in Ghana a few years ago, looking at what they were doing there, because I just wanted to see how another culture approached it. Actually, the same things happens. So, it's not so much about having all these repair manuals it's about having somebody who's got experience, almost acting as the classical- that used to be called the master and the apprentice type thing, somebody who can guide the other person to build their confidence and skills, somebody they can go to and say, "Hang on. What do I do here? I'm a bit stuck. I don't understand."

That's, I think, a human bit to it that's going to be really important as well. That could be done via technology. So, if there's… I know in the UK, at the moment, they've been experimenting with running remote Restart project project events and remote repair café events where the repairer has been at the other end of a Zoom or whatever video link.

Then a person's had a go at repairing the thing themselves and then a person's had a go at repairing the thing themselves, but supported by the experienced repairer. So, I can see that's another option where people haven't got access to an expert right on their doorstep.

Facilitator: I was also, I think, one element that I can bring from my experience in Brazil. We had this project that would collect discarded computers, mostly from businesses and we would install free software and then deliver them to social projects. We started in 2002. It was called [Non-English speech].

I think one of the elements that allowed us to learn a lot was that we had plenty of computers. So, we could, eventually, break one of them. There was this abundance of materials. I think where I see a difference of that and, for instance, community repair cafes is that sometimes people will come with one single object that has a story and they are personally attached to it.

The value of the story of their object is very important. But I don't think we have so much space to fail in that sense, because there's…

Male: Absolutely right, Felipe. Again, this is this big issue around the tactile learning bit. So, even though I live in a relatively expensive part of the UK, just outside London. My little repair shop around the corner, that's run by a mother and a daughter, they've got people in there that they bring in and they train.

What they do is they- exactly as you said, they'll actually give them phones that are broken and then they'll set them

challenges like, "Okay, change the camera in this phone." And if they make a mess of it, it doesn't matter, because it's already broken.

But they have to go through the process of learning, how do I open the phone? And it's still got the battery in it and everything else in it. They'll maybe even stick one back in. The people who are apprentices, I guess is the word we would have historically used, they actually can go through the entire process and learn, how do I actually get in and change that camera? I have to remember to disconnect the battery first, because if I don't, I'm going to…

There's all those little… But you only get to learn it, if you do it hands-on. So, you're absolutely right, there needs to be a resource of stuff you're not worried about breaking. Again, I know the Restart project, when they try and do educational events or schools, they do the same thing.

They've got like a bag of old- I don't know whether they're Samsung or Nokia or what, but they've got a bunch of old phones, that they literally let schoolchildren take these things apart and put them back together again. Just to start giving them that opportunity.

So, yes, they're another important part of the process, I think. You've got to be prepared to let some of that stuff get destroyed to build the capability.

Male: Yes, well, also in my experience, because we did hold some repair cafes, remote repair cafes, basically in Rhino Camp. In my experience there was a lot that happened. Sometimes we would connect with other experts from other areas just to get how things can be fixed, in case there is a problem that

defeats us on the ground. We quickly consult the other expert and can easily explain to us.

But then, we're also thinking of establishing like a Makerspace. A space we put up things where, maybe, put big screens and then on those big screens you can play videos of fixing things.

Male: Yes, and have tools, Matthew, as well, that the average person wouldn't have access to those tools, you can make sure that in those places, there's like a library of tools for people to use.

Male: Yes.

Facilitator: Yes. I see that Kamie also mentioned FabLabs. There is this whole history of FabLabs and Makerspaces which I imagine Mark was following since 2008, 2007 when these things started to show up. As I remember, the narrative around Makerspaces and FabLabs, in the beginning, they had a lot of elements that mentioned reusing stuff and being able to repair and make spare parts on your 3D printer, but that side of the narrative about FabLabs, kind of, disappeared in the years.

Male: Yes, it's gone all about making esoteric things that you wanted to make, yes.

Facilitator: Yes, plastic Yoda heads.

Male: Because it's easier. To be blunt, it's easier.

Facilitator: Yes. You can download something from Thingiverse, right? And just print it out. You don't need to model anything.

Male: Yes.

Facilitator: But as I mentioned there are these three steps in my PhD research and the last one that we'll be focusing on the third year starting in September is on policy. One of the things that I'm trying to define for this policy phase- actually, I'll just post here my concept ideas based on the exploration I did in first year.

But one of the things I've tried to incite in policies is the idea of transformation labs, that I'm trying to refrain from proposing yet another layer of FabLabs or Makerspaces. But the idea of transformation- and I think there is a, kind of, narrative change. So, instead of talking only about making or fabrication, as in the case of FabLabs, the idea of transforming materials by…

And transforming something can be either repairing or transforming into something else, because that, I guess, would also covert the idea of upcycling. What bothers me about talking only about fabrication and making and, I don't know, fourth digital industrial revolution, is that we have not come to terms with the amount of materials that have already been extracted and the amount of objects that have been manufactured in the past.

So, that's what I'm trying to make this argument that on a local policy level we could have local transformation labs that would have spare parts available and would have storage space to keep materials until they are used again and to have tools, tool libraries.

So, that's what I'm trying to reach towards the third year of my research. For now I see that leading to this discussion about what would be a public infrastructure that could be funded by local government and could be offered by local governments in partnerships with communities. That would be places in which people would bring materials to be transformed into other things.

Male: Just, Felipe, I know you know I've been… When I was in Helsinki a few years ago, I not only went to see these things that they call [Non-English speech], which is their reuse centres, there's about eight of them in Helsinki, where, as I was saying before, the public are encouraged to bring stuff to these reuse centres if they no longer wanted or they believe it's just going to get thrown away.

The idea is these reuse centres will either try and repair it, in which case it's then sold, or if they can't, they'll scavenge it for parts or they may upcycle it. They'll try and do whatever they can with it. The idea is that the absolute least possible goes down the recycling route.

They also run education programmes, but the other thing they had in Helsinki, they'd actually started to put Makerspaces in the public libraries. So, rather than this being a completely separate entity that was like sitting out, they actually put it in… I went to see one of them. It was brand new and it was literally only just starting.

They've actually put a Makerspace inside the public library, which is when you think about it…

Female: When I was working on my last project, I was wishing they had like a drill or something I could check out from the library for a couple of days and take back. Because a simple tool, fairly, it's illogical, but you can't do it with your hands.

Male: No, you can't just buy it as a one off, because it's too expensive.

Female: Then you're just contributing it to the, "Everyone needs [___ 0:44:14] concepts"…

Male: Absolutely.

Female: Yes. I ended finding someone I could borrow it from, because it wasn't available locally…

Facilitator: I read that on average a drill is used for, I don't know, 17 minutes in 10 years or something like that. People buy and they almost never use it. There are some very interesting- two libraries. I think one of the most well-known is the one in Edinburgh, right? That has been for some years created this possibility for people to just borrow things from one another.

I was just curious, also, about how in the city that you all live, if you see practices or spaces for sharing, like this one that you mentioned in Helsinki, Mark, but how is that in California? How is that in Uganda or in the refugee camps? Because I can talk about my recent experience. I spent one year in Dundee in Scotland. You only find second-hand things on websites. It can be on eBay or Gumtree. On eBay people sell and on Gumtree sometimes you find people giving away stuff for free.

But here in the neighbourhood I'm living in Berlin, you just stumble upon things that people put outside, because it's easier to just put things outside, than it is to get them discarded properly. So, you can furnish your whole apartment just by spending two or three weeks in this neighbourhood.

Then there are some Facebook groups in which people will also give things away and ask people to collect. So do you see similar practices where you live?

Female: Do you want to go first Matthew?

Male: Well, my experience here in Uganda, especially in the refugee camp, we don't have so much electronic devices or such devices, because we see them here, they're scarce. But at our centre, at the [Non-English speech] Technology Centre where we have a mini place for tools.

This mini place for tools the community members can come, borrow such tools to use for fixing their devices. They can sign for it, use it and at the end they bring it back to the centre, such that those things are kept from [___ 0:47:10]. Because if

it could be there for- someone can easily throw out somewhere and can get lost.

But at the same time, we keep it safe and the next time another person wants to come and borrow. This aspect of give away, I haven't seen here, like I said, because tech devices they are still scarce here.

Facilitator: But also furniture and clothes and other objects? Do you see any of these things like circulating in the camp?

Male: Yes, some people, of course, when they see something they don't have much use of it, they can give to their friends. But there are those who can just throw it out and they'll also…

Facilitator: I think your connection. Matthew's connection dropped. We'll come back to… Now I only have video.

[Break in conversation 0:48:22 - 0:48:43]

Male: We can see you Matthew, we just can't hear you. Not sure he can hear that either.

Facilitator: Yes. I guess it must be the connection must be frozen from his side as well. Can you hear us?

Male: Odd, because the video is working fine.

Facilitator: Yes. Microsoft.

Male: Yes.

(Laughter)

Facilitator: Never trust these things.

Male: Microsoft isn't the most user friendly for doing this, is it, because it eats up way more bandwidth than a lot of the other conferencing technologies. It seems to, let's put it this way. Maybe I'm wrong.

Facilitator: Yes, I don't know. We can move on.

Male: I'm going to have to go in about five minutes. I've got to get to this other meeting.

Facilitator: Okay, well, thanks for your time anyway. Just let me add one other thing to discuss and maybe we can follow-up on email after you're gone.

Male: Sure.

Facilitator: Because one of the things, sorry, Kamie, we'll get back to- it's just because he needs to leave. One of the things I found interesting was in Nantes, I found lots of different organisations working on reuse and circular economy or zero waste projects.

They have this particular professional role of the [Non-English speech] that is the person who evaluates whether something can be useful for the future. So, if you get something, you should store that thing or you should just put it away or send it to recycling.

So, this kind of assessment of the potential value of stuff is something they do with the [valuer 0:50:39]. One of the questions I wanted to address during the lab is whether we can reproduce the kind of skillsets of that person with support of technologies? Or even to work- to help those persons in their work by creating technologies that will be addressed in the problems that they have.

So, my question to you specifically, Mark, is whether these different places that you visited have you seen that particular professional role, someone whose job is to evaluate if something can be still used? And if you see any possibility of technology to help on that? Either by replicating their skillset or by augmenting the possibility of that person?

Male: That's an interesting one. So, I guess that the places I've seen in Cuba and Ghana and even my local repair shop, I mean they will- they're like small privately run businesses. They'll basically just do their own assessment. Is this going to be

repairable or not and they'll give a quote for the price or whatever. That will determine whether or not it's really going to be worth repairing.

The owner of the business, essentially, is doing that. When I go to the other extreme, which is the [Non-English speech], this Helsinki city-funded organisation, but it runs independent of the city, they just take in everything that they're given by the public and then they form a view as to whether- I mean, usually, it's the more senior repairer, is it repairable?

If it's not, then they'll just scavenge it. They'll literally just strip it of spare parts that are of any value. Even things as big as washing machines, strip the motor out, because they know that the motor is probably one of the most valuable things that are in there. Or if the drum inside the washing machine hasn't been damaged, that's worth getting, because they're usually quite difficult to get hold of.

They'll just scavenge. So, I've never actually seen that role in quite that way that you described, Felipe. I guess it's inherent in the more experienced repairers than the owners of the local businesses. I can't think that in any of the repair café or Restart project events that I've been to in the UK, and I've been to probably hundreds.

I mean they, obviously, have to do things for legal reasons like they'll do what's called a PAT test. So, they'll have to do this electronic… It's a requirement in EU and UK law that you test the- it's a Portable Appliance Test, I think it's called. You have to check basic safety features on it.

If it completely fails the PAT test, then they'll normally have to turn around and say, "We actually can't repair this." Because the issue will be that once the device is given back to somebody, there's an inherent risk. So, it's all about liability

and insurance. That's the only thing that I've seen. Most of those events now they'll do this- they'll triage it.

It will come in and it will get a PAT test. If it fails the PAT test, because there's something fundamentally damaged with it that would be a serious electrical shock-risk type thing, then they'll stop there. But that's about as far as I've seen it go.

Facilitator: Yes. My question was this… Not [was 0:54:24], I guess. Another question I would have is this difference between the individual repair that I take my own stuff to a repair café. There's this possibility of creating what I'm calling in those concepts a free use commons.

So, I just give away stuff to- then people can try to assess, even if it's not working they can disassemble for parts and do other things.

Male: Absolutely, but if you decided you no longer want it, but you want to somehow give other people the opportunity of making use of it, you could just accept it may not be repairable. If somebody repairs it, great, if they don't strip it for parts… That's, in essence, what happens in Helsinki, people are, in essence, donating it. They don't get any money back for the things that they hand in, but they inherently- those citizens don't want it just to go to recycling.

Any opportunity to have a better use than just being recycled. So, they drop them off. They even arrange collections for larger items like white goods. But then it's completely down to the centre to decide whether they try and repair it or whether they just scavenge it for bits.

Facilitator: Nice. Yes, just about that. The [Non-English speech] I plan to interview the person in Nantes who is taking care of the course, the training for the people who will work in that role. So, I expect to share some of that experience that they have there in the next couple of weeks.

Male: Anyway, look, Felipe, I need to go. I've got to get to this next meeting that starts now.

Facilitator: Okay, thanks for your time.

Male: See you both. Catch up in one of the next sessions.

Facilitator: Thanks, bye. So, Kamie?

Female: The repair and reuse in California, right now, they have places where you can donate stuff. People will restock in thrift stores and you could potentially purchase again from there. I'm not sure what they do right now with what's not purchased. I could potentially try and get interviews or see if they're curious, to see how some of that pipeline goes.

For me, locally, and my family. My family is really big on making their own things.

[Break in conversation 0:57:03 - 0:57:17]

Male: Sorry, I had an internet connectivity problem. Well, you know, reusing or donating things, like based on my experience there was one time, I was just [___ 0:57:32] computer, I didn't have a computer. But I asked one of the [pastors], who happened to be my friend and living in the UK. So I said, "Could you help me with any computer in case you have?"

She was like, "You know, I have this broken computer, which is with me and it's not in use." You know what I told her? "Don't worry, I [don't 0:58:01] have no problem if you can just give me it and then I can easily fix it. So, in that process she sent the computer I think via a [Steven Covers]. Sent it my Steven Covers and then the computer reached me. I was able to work on the computer and fix it, repair this.

After that, the computer is working well. So, I was telling one of my friends, I said, "How do I get the opportunity of getting devices from elsewhere off people who are willing to donate those used computers, even if broken." But still to me, here, it has a lot of use. Because, of course, to someone who has many of those things, he may look at them as if they're not so valuable to him.

So, they just think of throwing it outside where if another person gets it on the road, that is up to him. But there are those who can advertise in case someone needs something and uses the things, I can easily give out. There are those people. Yes. So, by then I was looking, even up today, I'm still looking at how I can get- use the things… Work on them, it means fixing, I can fix them and bring them back to life, so that I can use. Yes.

Because I believe that in the outside world, there are those rich countries and there are these ones still developing. So, the developing countries still have their- what can I say? They have the love to have other things, even if spoilt, they can be fixed. Even if they keep up to a life of six months or 10 months, it helps any- once you donate it out, it has already improved someone's life, because this person might not have been having or yearning to have a laptop or a washing machine or, let's say, a smartphone.

So, when you donate to someone or give away to someone, this person would be like, "Wow. I have [___ 1:00:35] also touched something." What they've been yearning for. Yes.

Facilitator: These stories are always a good part of it. Revealing the stories of objects sometimes can make them more valuable, just knowing that something that you donated ends up in the hand of somebody or something that you got from somebody else had this or that story. So, that can, also, be a part of it. Kamie, I just wanted to ask you whether you would like to explore, as you are a software developer.

Because one of the things that I'm curious and I don't have the skills to really understand was this idea that I called the Universal Register of Things, I don’t know if you've read that already. This idea of having a database with information about different kinds of objects that could be accessed from different devices.

Female: Yes, I'm actually talking with Rhea right now about an app proposal and that's one of the features on it. So, we're putting together an application for a grant that's coming up. I'm happy

to share some of those items and involve you in some of the discussions, if you're interested. If it could meet the needs of what she's looking for as well as, maybe, what you are. There's overlap there, definitely.

Facilitator: Nice. What I'm planning to experiment with in this phase of my research is this- as well as thinking in the future of developing this policy take, the idea is to, right now, focus on a device that would access this kind of database. It would be a, kind of, workbench device, something that sits on top of a repair workbench and would help identify, you know, something like a lamp, that I can have a camera that I can point to an object and then have access to information and stories and access to where I can find, where I can source spare parts or find more information about that object.

So, this is the kind of- my attempt at, in a sense, replicating the skillset of the valorist [sic] is to create this knowledge base that would give information, not only about physical aspects of repairing or reusing stuff, but also these kinds of more structured information.

Because I figured you can find some information, for instance, in manufacturer's websites sometimes. Now with the legislations on the right to repair, there will be more information. But it will all be fragmented in a sense. What I would love to have is this- some way to not only bring information about service manuals, but also stories. I guess, if you go into upcycling, very often, stories are a very important part as well. So, what did I do with that stuff that was laying…?

Female: Right. The trick is- part of that is getting all of the data in one place and having it, like, accurately put together. If you're doing the image recognition and then extrapolating features from that, trying to determine what it's made of and what parts you could potentially reuse. There's a lot of data, potentially, and machine learning, as such, that would have to be put into that.

That's not necessarily not possible, but near term, becomes tricky, because you have to figure out how you're going to get information in there or if it's going to derive it itself. Anyway, I'll think more about that as well.

Facilitator: Yes, maybe that's something we could think of a session just to explore ideas around that and bring also more people involved with software and also this kind of modelling. I had discussed that with a colleague and a friend who has a shop in the UK, in which he reuses second-hand stuff. And he said, "You know, it could be recognising an image of an object, but, often you have access, for instance, to a level that has a serial number and the model. Or the QR code from the package."

So, there are different kinds of… And he even told me, sometimes, it's useful to have a weighing scale so that you can just weigh the material or object and you can identify it, depending on the way… So, there are different data inputs that could be useful for that too.

Female: Also, I was thinking- I was with my grandparents and they'd just made this new lighting fixture. They'd pulled pieces off of old tractors and such, that were rusted. Those kinds of things, there's still some potential value, but it's not necessarily

intuitive, like scan kind. So, it would depend, I guess, on how comprehensive you're looking at and how you're going to attach stories to it.

I think there's going to be less attachment to a story with maybe something, with a QR code or PLU or something along those lines, a barcode of some kind, than something else, potentially. But there's more to explore there.

Facilitator: Yes. I think this potential conflict between the fragmentation of having very diverse data sources and the idea of having a central way to retrieve information from them, I would say that it can, somehow, be related to the way libraries have created standards, you know, doubling [call 1:07:17] standards for different kinds of library systems to talk to each other.

Possibly that could be, I don't know, at least in some places enforced by right to repair legislation. So, whenever there is…

Female: That makes more sense, yes.

Facilitator: …this mandate.

Female: You could have your own inventory that's then indexed and shared or linked to others.

Facilitator: Yes. So, this kind of discussion is, also, perhaps useful to have what would be a potential way to create a standard for different material libraries to talk to each other. And you're looking for a

grant to develop an app, like a phone app or something like that?

Female: Yes. We're looking at something that would be somewhere could showcase the things that they're making, but also, potentially, have like a- yes, a clone and dif functionality, where you could say, 'This is the way someone else did it and I want to do that, but step 4 is not working for me. I either can't find the parts or I don't have the right thing.' We could, potentially, clone what they started with and show what you did on those steps, but change those steps and explain why.

So, there could be different paths to create something. It could be a good inspiration as well as a, 'This is what I did.' That's what we've discussed and talked about. It would be organised, instead of just one long sea of stuff that you did, you could organise it by projects and have posts of different steps in the process. Anyway, we're still talking.

Facilitator: Matthew disappeared from here. I've made him a participant. No. Well, I like this idea of identifying the history and this relation to forks and GitHub. I think there is also a use for that in learning. So, you can trace back to what were the steps that people took and then you can possibly create a learning path from these kinds of skills and even put comments to each step. So, it's nice, yes. Interesting.

Female: Yes, kind of like the iFixit but a little bit more catered- or if you get stuck you can potentially look for a mentor at that place or,

'This is what I've done up to this point and I'm not sure where to go from here' kind of a thing.

Facilitator: Cool. I'm not sure if Instructables have this kind of genealogy, if you can see projects that were inspired by others. I remember seeing that in audio sharing websites, but not in things like Instructables. Cool, nice. I think we have a lot to start with.

What I'll be trying to do before, I guess, Tuesday next week is to summarise and bring some of the discussions. I'll try to set up different times for sessions next week, so that we can include people in different time zones and hopefully be more comfortable for you, also, Kamie.

I was not aware that you were- I thought for some reason that you were in Europe. Maybe because you mentioned that institute, I don't know.

Female: Yes, potentially, could have been why.

Facilitator: Cool. So, for now, I thank you. Just to confirm whether you have filled that questionnaire about how we should communicate, I haven't checked the results yet. Have you seen that Matthew? I sent some questions about where, how we should- which communication tool we will use for the coming phases, whether groups or whatever. Did you get the…?

Male: Yes, I did fill it.

Facilitator: Okay, nice. So I'll check that and try to decide and act upon the decision early next week and hopefully we can…

Male: No problem. I believe that, also, this one is okay? These instructions are okay and then maybe for texts we can use Telegram, which is, also, good. Better from my side, I may experience some challenges, especially around the live [sessions 1:12:56]. In most cases, challenges of internet, bandwidth, because I used the mobile data. So, sometimes I run out of data and fail to purchase. Yes, that's the thing that usually happens.

Facilitator: Yes, that's too bad. But we'll have many ways to interact and I just want to make sure that everybody is heard on that. There is the possibility also to resort to...

Male: [Crosstalk 1:13:27] how we are managing things.

Facilitator: Sorry you just froze.

Male: Yes, managing things in the [hub] and how we are repairing things or fixing things in the settlement.

Facilitator: Cool. So, I guess we can find ways to communicate that will work for everybody. So, for now, just thank you for your time

and let's try to keep this going. I'll let you know about the times for next sessions and, hopefully, we can jump to specific discussions on different matters.