INT: So it should just asked for your consent.

DEU36: I didn't realize it did that, because we record quite a lot of things and I didn't realize it did that.

INT: The consent.

DEU36: yeah is that automatically do you have to set that up.

INT: And I’m not sure I think we probably make sure that it asks for your consent and just from our part I think yeah I think you can change it manually.

DEU36: I’ll have them look into that because it'd be good to use from now on, because we've had a few educational things that we've run where we record and the audience participate and we've had one woman who wanted herself edited out because I normally just tell them to turn their videos off and actually editing around is an absolute nightmare.

INT: So, I thought just to sort of start off with quickly, if you tell me a bit more about yourself, and the organization. If we focus on the [support scientific research organisation].

DEU36: Yes, so these two organizations that I can represent. And I’ll let you decide whether you want me to speak for both groups or just one, so the [support scientific research organisation] say each person are a they're, not even a registered charity they are a small society that came about 10 years ago and they came about as a result of a scientific paper that evidence that we really don't know very much about earthworm populations and distributions in the UK. So out of this the [support scientific research organisation] was born and they registered with the biological record Center as a national recorder at the time. And then the idea was to get earthworms recorded, but in the early days they didn't do a lot of recording they were too busy trying to please everybody that came to them and ask them to do stuff so when I came along, and at first, I was the treasurer I saw that we weren't doing actually any biological recording we weren't getting any records, so I took over as the recording of this event. And I became the registered national recorder for [support scientific research organisation] with the biological records Center so we launched the recording scheme then and as earlier this year we've got over 15,000 records, so we gather records from both recorders who we train up and support and, we also actively seek out research data sets as well because there's a lot of earthworm data locked up in research data sets because obviously, although certain aspects of earthworms are under recorded there's a lot of work done and then for agriculture and woodland as well and woodlands as well, so we try and unlock that data and actually a big proportion of our data is from just a few research institutes and couple years ago we won the award from the national biodiversity network for the open data rewards, so we make all of our data open to the NBN atlas and through the global biodiversity information facility and we have an open data policy on our website. We can be open with everything we do so even our verification policy for how we accept records and things is published on our website as well, so that's a little bit different from most recording schemes, I’ve been trying to influence the sector to do that, people think it's a good idea it's just finding time to do it and so our policy is that all the data that we gather we make open, there are a couple of exceptions to that with organizations that have allowed us their data we can use it, but we can't publicly share. So yeah, I think, in a nutshell that's the [support scientific research organisation] of Britain.

INT: yeah that's brilliant.

DEU36: And also I'm the Chair of the College in entomology committee at [nature society] and that involves chairing a group of county recorders, essentially local recordings for specific groups, of which I am the earthworm one, but we have in the Community that I chose everything except botany from lichens and birds, basically, so we do mammals with reptiles amphibians, and or invertebrate groups and plant goals as well, which is a bit of me. And what I’m trying to do with them so [nature society] has got a great history of recording but the ecology and entomology groups aren't necessarily consistent with how current we are and so I’m trying to work when I took over the chair role ago my main focus is to get the society better at gathering records and the society better at working with the national recording schemes and societies to share them and the local environment or record centers but it's no easy challenge, because there are a lot of very strong opinions. I’m a relatively new kid on the block I’m fairly young compared to some of the people within London.

So yeah so if you'd rather just focus on the first off happy to do that, but I just thought to give you the background.

INT: yeah no I mean it's interesting to hear both sides of sort of way working at, and I think possibly just to make it easier for yourself, maybe, if you just focus on [support scientific research organisation].

DEU36: No problem.

INT: Because I think that's sort of an area that we've failed to sort of tackled in terms of that small-scale Community group, would you say.

DEU36: No well it's a national scheme. We are quite SE focused, but that is gradually changing with time, so I think the perspective that I can give is a relatively recent recording scheme, so 2014 was when we really launched the recording scheme so it’s five years after the [support scientific research organisation] launched and I would say it's the perspective, I can give is about trying to record a really important ecological group that is difficult to identify and drastically under recorded and but, obviously, really, really important and nobody debates that everybody understands that earthworms are ecosystem engineers and vitally important for both and artificial and natural environment so yeah I think that's the perspective, I can give trying to grow a recording scheme where there are quite a few barriers to people recording earthworms. The are not easy to find, you have to kill them to identify them so that puts up a barrier to people recording and you actually have to go out and dig up, so you can't just go for an nice walk to find them and they're not fluffy and cute. But having said that very few people seem to be really fearful of them or dislike them, so even though they are invertebrates everybody likes earthworms except golf course managers. Right so yeah I’m going to shut up and let you ask your questions now.

INT: That's great and so to start off with I think this might seem like a silly question, but do you just focus on earth would you look broader other species that sort of interact that are important for earthworms.

DEU36: So, within the within the National earthworm recording scheme, we traditionally focused on earthworms in natural environment, so those are the earthworms occurring naturally in the UK, including also earthworms in compost heaps and we will already accept records for them, but will be shortly officially launching. Like a mini side project to look at performance from artificial environments, because you do get earthworms recorded in pot plants and greenhouses like a botanical gardens that are not from the UK there is no evidence of these spreading yet, but we want to try and make sure we're ahead of the curve with that. So that's like a mini side project, one of many that I’m working on at the moment that I want to get I want to get launched. And in addition to that, we strongly support bug life’s pot watch scheme so in case you haven't heard of that it's a scheme it's about recording flatworms that you find in potted plants that you've bought. It allows us to monitor some of the invasive species of flatworm which are actually, some of which are potentially a big threat firm so that includes. The Australian flatworm the news New Zealand platform and a more recent introduction has been the Obama flatworm both the Australian and the New Zealand flatform have spread from these artificial environment’s international environments and both feed on earthworms and both affect different parts of the country as well, so they’re the only two other things. There may be a possibility of expanding into other analysts’ groups related groups in the future if they're not being covered by anybody, but there isn't really the ID resources or anything out there at the moment and I think we need to keep focused on earthworms because we still got such a long way to go me personally, when I’m taking people out recording I do try and make sure that we record anything that we can identify that we find alongside earthworms so if we find woodlice if we find frogs and toads newts when we're turning over logs distinctive things that we know how to ID, then we will add them in an hour recording form and I recall that we use a set up so that you can put any spaces in. So if you are doing a series of soap it's we've got two phones we've got a generalized form and we've got a soil pit surveying form which is for doing a set number of soap it's a group them all, and with that you could theoretically use up for, not just for earthworms, but for other soil invertebrates as well, so yeah we try to make sure that we're recording particularly you have a solid invertebrate groups. Put them through I record those recording schemes get them, but we don't formally take the records as a skin does that make sense.

INT: yeah no that's great and you touch upon I record and, obviously, association and bn and are these key in terms of collecting data and sort of sharing your data or do you rely on other sources at all.

DEU36: Yes, so with collecting data we initially collected data through we ask people to submit it through a spreadsheet the recreated.

Okay, and we would accept yeah and will accept data in basically whatever format from researches organization so for research organizations if they're going Center is a big data set we don't mind spending time sorting it out and quite often, they need a lot of sorting out. From recorders we still have the spreadsheets online we don't really get spreadsheets in anymore, we train everybody to our records I recorded a main method of gathering data I prefer to have the data coming in through one pathway because it's easy for me to process. I like that, with I record it's more than a spreadsheet I can have a communication and dialogue and one of the reasons that I've pushed I record within my organization and other organizations that I work with is I recognize it, it allows the recorder, to also have their own database of records. So rather than it being a method of them, giving their effort to us it's a method of them sharing their record with us still having that accepts it and still allowing the access to local record centers as well, and there are other platforms out there. Capacity is a problem, I cannot possibly engage with all of those platforms, even with our record and to keep on top of it takes fairly regular work. With regards to sharing, the NBN atlas sharing through the NBN atlas is great for us getting our records in the public domain and it automatically gets them through to GBIF my concern with it, is that some record centers I’ve heard of have raised concerns that they can't use a data on for their purposes, because its customers commercial. And, and the [support scientific research organisation] are passionate about sharing, so we have this three-step thing we want to share our records locally, regionally, and nationally. So locally is whenever we sample a site, we will, when we're officially sampling sites if we've got permission to go to Richmond park and some from there, we make sure that we produce the site species this ritual publicly available on our website and we share that site spaces and the records with the London for the role path. Regionally we try to share our records with the record centers just in case they can't get them from the NBN. This is a little bit trickier because I don't have the capacity to have a personal relationship with every record Center so what I traditionally do is once a year or so maybe even maybe it's been a bit longer than that. I send our entire database to Allah the Association of local environment record centers to Tom Holland and asked him to forward it on to all of his record centers now this just mean this. We've only shared with non our record centers once and good because it's just too time consuming to gather all the information, so what I would like to say in an ideal world I’d like to see those record centres be able to use the data that's on GBIF or NBN commercially or even if it's not going to allow commercial use I’d like them to be drawn to the license to use it. Because that's what prevents and makes sharing regionally hard and nationally and internationally, we share through NBN atlas and GBIF and all of our records are made available through a CCBY license, with the exception of some of our government on data which is made available through no GL license. And then there's like I said there's a couple of datasets from partners where they've asked us not to share them one of them is because it's an island and they manage the data for islands, so they don't they don't want to put it on the NBN Atlas or anything which is fine and the other is actually a Scottish government agency that have asked us not to put it in the public domain, because they intend to do it, but it's about 12 year old now so I don’t know when that's going to happen. I mean it's available under a no GL so even though they've explicitly said I can't share it technically, of course, because it's an open government license so I can do what I want with it. To maintain good relations, I haven't but I might follow up on that. I'd rather we share than they do, because then it's collated with all of our records and that's one of the main reasons why we offer to take data from other organizations and manage it for them, because if people are actively looking for data it's a one stop shop for the earthworm data.

INT: That's great so you essentially, you'd like to share it with more people.

DEU36: Yes, my opinion is that the more ways, it can be used the better whenever it's referenced in a GBIF paper we actually share that information on our website so all of the journals that have used our data are referenced on our website, we update that every four to six months and that's to provide a feedback loop to our recorders saying look your data is being used, there are some uses that we will use it for but we're not worried about protecting the data for that use, because at the end of the day if we're going to use it for an [support scientific research organisation] distribution atlas, if we're going to do a paper from the results. I’m not at all ever worried about people beating us to use our data in a way that we want to, and even if they did it's better that information is getting out there, so it's our own fault for being so essentially yeah we're a volunteer run organization capacity is a huge issue things happen slowly because of that, so I don't see the need for locking up our data, which is why we have a published open data policy and partly why we won an award.

INT: And in terms of the data that you do collect or you receive what decisions does this inform.

DEU36: Not as many as it should. We did get an email from one of the world's record centers recently asking for like if we have any new records and share our information than me have a look and see if I can find out. It informs our online earthworm atlas or digital forms, distribution and yeah we're distribution data and it informs scientific papers that have referenced it through GBIF and they tend to be very, very similar about earthworms some of them are even broader than that none of them today it's as far as I’m aware are British as well, so these are looking at stuff globally and there is a study going on at the moment, a research project that will use our data that is looking at soil, so our data will quite often be combined with soil data to assess soils but no earthworm has been IUCN, red list assessed yet, no British firms have a conservation status assigned to them so there's a lot of potential for the data to be where it hasn't, but it is still lacking there's a lot of I mean 15,000 records for 31 species in the UK and Ireland is not a lot but there are intentions to use it more and we're looking at how we can use it more so at the moment, it really is we're still in the early gathering data phase, really.

DEU36: So I should say issues by record census as well. However, but I don't necessarily know what they.

INT: Would you like to know what they're using.

DEU36: yeah because I’d like to feed that back to our recorders because I believe the more that you showcase what data has been used for the more enthusiasm there is for people to gather and the more possibility, there is a getting funding to do what you do because, like I said, the main problem here is capacity I was employed full time as a recording officer, the amount of work that we could do would be hundreds times more than what you do.

INT: That's great and presumably the data that you do get is of raw product so it's raw data. Is that correct.

DEU36: Well, from the research organizations we're getting the data set that was gathered for their specific purposes and quite often, we will have to go back and forward with them to get it to the point where it is a biological record so it's yeah but it, but it is raw data you're. With our recorders they are filling in a standard I record form like I said, we have a form that gathers specific data that wouldn't be gathered by a traditional record phone because we want to know what they're sampling method was because that informs a micro habitat and we have our own habitat classification system which because yeah as well as because the one on I record isn’t great for what we want to know.

INT: Okay, and do you do any processing of the data to format slow production that way.

DEU36: Yes, so, first of all because we're getting a relatively small amount of data I’m able to go through it and in bit of detail so if I receive data that isn't in the earth and say format, does not the micro habits, etc, then I will go through the records and I will look in the comments and see what I can pull out so sometimes I’m extracting information from other bits and making some assumptions, so there is there is a certain amount of processing that goes on there. The only product we have way have that uses the data at the moment and this is our earthworm atlas which is publicly available so, we have an online outlet that you can use to look at the data, and this is not designed to compete with the NBN or anything like that it is designed purely as a tool for recorders and anyone who wants to quickly look at what species are where I’m trying to think what other. The only other product is a species list that we make for sites when we sample the site. So, the products are the data sets that we send out to the NBN and wider the site species lists and the atlas, and I suppose, to a certain extent, the papers that come out of it, and we are looking to use the data more ourselves. Oh, and until a few years back, we did an annual report on the data but I stopped that a couple of years ago, because I was going to change the frequency, the idea of a big one in 2020 but I didn't, like I say capacity.

INT: Do you work with other people or is it just yourself.

DEU36: So, within the [support scientific research organisation] there is two of us I'm the recording officer and we also have a research officer so it's his job to deal with the research organizations and they really are paired roles, because the research data is a big part of what we do and we recognize that, which is why we split the role so it's my job to process the data and my job to support the recorders. But it's his job to go out and get the data, outside of the [support scientific research organisation] I know the woodlouse and centipede recording scheme organizers and we do chat and just the other day I was sharing some information with the centipede recording officer and he's writing a book about centipedes and he's using some of the information I gave him about the ecological categories of earthworms. To suggest that it might be similar with regards to pigmentation etc in centipedes so there's a loose network I think is how I’d describe it, so I happen to know some of these people a lot, a lot of a lot of through the earth and say, but also for the job I do as well with the field study Council. So there's nothing official tying it all together, but there's also events like the nfbr Conference and the nbn and Conference, where you will meet some of those people and the biological record centre do occasionally do events that bring those together and within my role at London natural society to say is well, the committee that I chair. There are a couple of national recorders on there, so the national record of soldier be oils for shield bugs and allies and lacewings and allies, are all on that committee so because of that association I have people that I can bounce ideas off.

INT: yeah absolutely. that's great. How do you deal with data gaps? I mean is that a major issue for you and if so, how do you sort of mitigate that issue.

DEU36: So I think if you look at since the earthworm say he started the first five years we're really setting up the organization establishing themselves and I wasn't really involved in that in 2014 when I became the recording of semi launch the recording skim officially. I'd say the first the first five years of very much been about figuring out how we do things so setting up our processes and starting to deliver training and developing our training, as we go. So I’d say our focus really wasn't on data gaps, because the gaps were so wide and we had so little data and now I’d say we're past that phase and we definitely do not have a comprehensive network of recorders so we can't. We struggle to fill geographic data gaps. Gaps relating to specific species or habitats again there's a problem there in that we don't have enough data to really know where to find some of these.

INT: There okay.

DEU36: And, but what I am looking at are potentially launching some mini schemes that might help fill some of the easy wins, so one example would be we traditionally don’t have a lot of data on compost earthworms because most of the research was in woodlands and agriculture, and when biological record is go out to sites and look for earthworms. Unless there's a compost bin at the nature is that they're not going to find that it's difficult to find the composting announcements because you'll only get them naturally like don't really look deadwood. So what I was what I’m looking to do I’ve got somebody posted me some live ones, because posting dead ones you can't do because of ethanol. And if I can figure out a means of people posting me live ones, it will be a case of looking for small grant to fund the postage and materials so that people can send specimens to me from around the country so that we can fill a gap but definitely what I’d like us to tackle first are easy wins so it's not going to be strategic from a conservation perspective it's going to be about it because the gaps are so big it's filling what we can as easily as we can.

INT: yeah no course that's brilliant. You talk about sort of presenting your data and you talk about you used to do a report and you talk just before you came on about the talks on YouTube. Do you do any of these for recorders to actually increase that engagement.

DEU36: Yes, so I think so for engagement with recorders. We have a publicly available guidance document, called the earthworm recorders handbook which gets updated relatively regularly and our website is kept fairly up to date so there's a lot of other societies out there, where they let the website go a bit our website I think it's very informative for our own recorders we have a mailchimp newsletter and it doesn't get sent out regularly it gets it out when we have things to send out and anybody can sign up to that so you don't have to have passed, one of our training courses, etc, so we used to run regular training courses before covid and a lot with the FSC in particular. Obviously, that's on hold and what we do for engagement is we do a number of talks so I’m doing two talks this year. To get to one with a wildlife trust about earthworms in general and another one with London natural society about gardening for earthworms so an APP that will include a little bit about the things that you might find in your garden so. We have those broad engagement things we've also recently currently partway through it with risk we launched with the FSC a discovering earthworms online training course and that's got 129 people on it. We do a fair amount of conference presentation as well within the sector to engage within the sector, we feel that the local natural history society are the key for us reaching new local communities, because we're quite heavily based in the southeast. I should say as well, our website has a blog as well.

INT: Okay yeah. And is that sort of kept up to date with news.

DEU36: We've got a news section, so the last news article was April, the 11th the one before that was November 27th then October, there's a few in October. Oh, the last blog was November, but then there were four in October, because October is World earthworm day oh yeah I should have told you about that. I invented world earthworm day four or five years ago and that has kind of got bigger each year so that has been we now actively get other organizations coming to us asking what we're going to do for it and stuff so and that was purely designed to help engage more people with the society and their friends. Oh, and we gave up with social media because we started, we were very active and we did quite well but due to changes in facebook’s algorithms and stuff guys we just were getting very little return. And that was very evident last world from day when we put out loads of posts and the engagement levels were just, they were a fraction of what they previously been.

INT: Okay that's brilliant I don't think I had any more questions on sort of how you species data. Was there anything else that you wanted to mention.

DEU36: No, I don't think so, I think the main point is that we want it to be used by other scientists, by artists, by school children and whoever can use the data it's out there, even from an earthworm perspective from a safety perspective we're fine, with it being used commercially because we have no commercial use there's no need for us to protect the data. So, I think that's the main point.

INT: yeah no brilliant so just finally for the last 10 minutes if that's all right, I’m just going to focus a bit more on modelled data and so how do you feel about model data and would you use it.

DEU36: I don't think I know enough to comment. If model data was peer reviewed and accepted then that is information that I think could be useful to us so one problem that I mentioned earlier, is that we don't have enough distribution and ecological information to reliably predict where species are so we don't have that capacity so if modelling can help predict where certain species are then we can go out and ground truth that and so we can try and find species, that we have very little records on and gather more data on them, so that it can better inform decision making and policy like I said, there are no species of earthworm that have a conservation status applied, but there are some that we think are quite rare so modelling could help us go out and find them and so long as modelled data is well informed peer reviewed, I don't have a problem with it, where it’s based on far too many assumptions I’d be wary of it my problem establishing where that line is because modelling is definitely not my forte.

INT: No that's great that's very interesting and are perhaps would ask, would it affect any decision, the type of decisions that you may make using model data. I mean you talk about sort of the conservation species potentially.

DEU36: I think it can up, so the way I see modelled data is I don't think it replaces actual data. I think it complements it, so I think. It obviously depends on what decisions are being made as to how much emphasis you can put on the modelled data so that's the approach I think I would take with it, it would really depend on the specific use so if we were looking at conservation status. The truth is that we, we would struggle to make any decisions with the current data, so if modelled data can help us reach a decision then that's fine. What we may do is reassess in a few years’ time when we have more. Proper data, and we can give more credence to that day to them, but yeah I think with earthworms as well, so if you talk about diversity and things like that, then that might be a bit trickier, but we have very, very good soil data for the UK we have layers of soil information that we can map out on GIS, and we also with earthworms because when you're sampling earthworms in the soil, you can sample and repeat volumes of soil so you can make fairly good predictions about how many earthworms might be in an area, so I think earthworms actually lend themselves to modelling quite well because of those two factors, because if we compare micro average and preferences with soil variables are so different aspects of so. He can't speak story is still too early for me. And then I think that there's a lot more there's a lot of potential for modelling.

INT: yeah that's great. the point about modelled data not replacing raw data has sort of come up quite a lot and people say it as complimenting like to say, and so it's a view so seen by a lot of people that I’ve spoken to so far.

DEU36: My opinion is a modelled that needs to be ground truth. Yes, like if you were mapping out a site they might be able to do that from images, etc, but you'd need to go there and look at it, to see it from that real worldview perspective, and I think it's the same thing because that can then inform the models and made the models better.

INT: so just finally I’m going to share my screen and show you an example of some modelled data. So it is actually for a six spot burnet moth, unfortunately. And so I’ll just share my screen and sort of show you these models and just ask if you firstly, if you can interpret them at face value, and then, whether you find them useful so I’ll just share my screen now. So hopefully that should come up.

DEU36: Okay, I can see two maps now.

INT: You can see them yeah. yeah okay we'll go through this quickly, because I feel like it's just going to crash soon so, the first one on the left is a raw probability distribution for the six-spot burnet moth. Are you able to interpret that at all?

DEU36: So my understanding, just quickly looking at that and making some assumptions about the colours would be that it's more likely to occur in the southwest and distribution gets less likely, as you go up on that and northeast gradient.

INT: yeah that's brilliant. that's great and I'll just scroll down to the left bottom left now so this again is raw probability distribution, but a localized scale and so it's around point in Wallingford in Oxfordshire at five kilometres again, are you able to interpret this model.

DEU36: Well, so I would make the same assumption as above the darker green areas are where it's more likely to exist, I’m not because it's a local distribution my assumption would be that this is linked to habitat.

INT: that's great and so sort of the pale areas would be.

DEU36: There were the habitat is the model is decided that the habitat is less suitable, so the moth is therefore less likely to be present.

INT: yeah that's great but.

INT: Then just move to this one on the right here.

INT: So, this is a variation model again for the six spot burnet moth and it works, alongside the raw probability and are you able to interpret this one as well.

DEU36: So, I can see, there are some green areas and I don't know without a bit more context about what it’s telling me. When I see the word variation I don't know whether that's to do with variation in the species, to do with their being several moths or something like that or whether it's to do with variation in the data so whether it's telling me the data is more or less reliable, but if the scale on the left-hand side is the same as on the y axis it is the same on both X and y I’d assume is still telling me something to do with an occurrence, but I'm not quite sure why because, obviously, that the dark green areas, maybe it’s the areas you are not sure about I’m not sure.

INT: absolutely so the dark areas you've got a greater variation in the species being there so you're less confident in that and so, if you look at Wales, for example, even though, on the raw probability it's showing that there is a high likeliness in this on the variation model that's telling us that you perhaps are not so confident and that. Does that make sense?

DEU36: It's like a map of the confidence of the data presented on the left.

INT: yeah that's right and again, this is the one on the localized scale able to interpret that one is given think.

DEU36: Well, so what this tells me is that the confidence is higher with certain habitats likely to have the moth say that all of the areas that where you said there's a low likelihood is also really low confidence, so what that map tell says to me is that we know much more about when it's likely to be present, and when it's unlikely to be presence.

INT: yeah that's great. Is there any other comments that you want to make on these at all, or anything that you would add to them to them, make them more user friendly or more useful?

DEU36: yeah I think the variation one I think it's the title, I think the way it's displayed is fine and obviously the axes are not labelled so they don't mean anything really and that includes the legend with the colour bar as well and the titles I don't think are particularly intuitive so they may be the correct term statistically, but if I was presenting data I’d be assuming I’m presenting data to somebody that isn't familiar with that specific statistical analysis of specific type of modelling, so I think a user or reader friendly explanation of what it's showing so I think the titles need extra words and I’m not sure exactly what those words are, but they need extra words in them.

INT: yeah no that's great and well if there wasn't anything else I’ll just stop sharing my screen on my laptop crashes.

DEU36: No, I think that's fine.

INT: But again. That's great serve all sorts of questions that intended to ask was there anything else that you wanted to ask me at all, or anything that you thought I should have asked you.

DEU36: No nothing that I think that you should have asked what I’d like to ask you is what is going to be the outputs of this and are they going to be publicly available.

INT: In terms of the output, so is essentially it's quite it's quite a few partners involved, and so, if you've got sort of the University of [Town] [environment research organisation] side, looking at the data needs what people are looking for in their data and how they're using it, and then we're going to feed that into the application of an APP sorry and a tool kit that can be used. And in terms of whether these will be publicly available, I am pretty certain they will be unfortunately I’m on a short-term contract, so I actually finish next week, unfortunately. All wrong, so I don't really know the next sort of steps, but I mean the other part of the team sort of know a bit more than me, unfortunately.

DEU36: The consultations that you're doing will that be written up and a report produced from that, so the data is captured.

INT: So at the moment we are currently writing a report and a scientific paper as well, so all the findings that we get from speaking to people like yourself will be written out and hopefully that will definitely be publicly available. But yeah in terms of the APP I’d like to think it would be publicly available and it would be nice. But unfortunately, I don't really know, given my situation.

DEU36: No, that's fine and I mean, I personally I think it's really important for consultations like this, and that they are written up and made publicly available. I think it's really useful, so we don't have to keep reinventing the wheel. yeah all right brilliant thanks [INT].

INT: that's great Thank you very much for your time.

DEU36: All right, take care, and good luck with a week every project.

Thanks.

INT: Thank you.