**Session 2 – Team 1**

**E) Use of the method 0:31:11 - 1:25:00**

00:31:09 Speaker 1 - J

Here we go.

00:31:11 Speaker 1 - J

This is the highlights of the case.

00:32:19 Speaker 3 - FL

Step one.

00:32:21 Speaker 2 - ST

Did you already read the whole thing?

00:32:23 Speaker 3 - FL

no no

00:32:29 Speaker 2 - ST

OK, OK.

00:32:38 Speaker 3 - FL

Analyze. Yeah. So just go through it right?

00:32:41 Speaker 3 - FL

OK. Hmm. What is the SoC name? Type of substance?

00:32:47 Speaker 2 - ST

PFAS right?

00:32:48 Speaker 3 - FL

Do we have to be more specific or not?

00:32:54 Speaker 2 - ST

I don't think so because it's like the general information.

00:33:00 Speaker 2 - ST

What's the function of the substance in the products?

00:33:07 Speaker 2 - ST

Prevent dirt, the probably want it formulated really nicely.

00:33:25 Speaker 3 - FL

Maybe we can go even deeper.

00:33:29 Speaker 3 - FL

Because this is general, what is the things in the specific products?

00:33:40 Speaker 3 - FL

Keep your hands clean.

00:33:43 Speaker 2 - ST

And provide barrier between the food and the human.

00:33:54 Speaker 3 - FL

Yeah, maybe that's the same as this one. But indeed, what you say, keep a barrier also of course the rest of the environment, and for storage.

00:34:04 Speaker 2 - ST

Yeah, to encapsulate the food.

00:34:07 Speaker 2 - ST

But also because you can also use.

00:34:13 Speaker 2 - ST

To to keep it clean and for aesthetic.

00:34:17 Speaker 3 - FL

ya aesthetic is also a function indeed. It is also branding.

00:34:25 Speaker 1 - J

Branding, very good.

00:34:27 Speaker 3 - FL

That's more outside of the package so maybe PFAS

00:34:41 Speaker 3 - FL

What kind of hazards does it have on health and the environment?

00:34:45 Speaker 2 - ST

Well, those are these.

00:34:47 Speaker 3 - FL

Ah! can we just get this out and place it?

00:34:51 Speaker 1 - J

yeah. You can.

00:34:57 Speaker 3 - FL

A lot of health and environmental hazards.

00:35:02 Speaker 3 - FL

I do not want to get a burger anymore.

00:35:06 Speaker 2 - ST

Persistence, the substance is persistent

00:35:11 Speaker 3 - FL

It does not break down.

00:35:15 Speaker 2 - ST

That's nice.

00:35:18 Speaker 1 - J

Yeah. So the the difference between a direct hazard from not directly visible is that if you are in contact with the thing, it gives you an immediate reaction that that is....

00:35:32 Speaker 1 - J

just very clearly there and an indirect hazard would be like, Oh yeah, PFAS are accumulating somewhere. We don't know what that means, but we know that there's a big problem coming up.

00:35:45 Speaker 2 - ST

Can you taste PFAS?

00:35:49 Speaker 4 - MK

You can smell it, right? If you heat a pan with the anti stick layer very hot you can smell.

00:36:29 Speaker 2 - ST

Ok, What kind of hazards? OK. Yeah, toxic.

00:36:35 Speaker 2 - ST

Reproductive damage.

00:36:48 Speaker 3 - FL

Is the SoC currently regulated or banned?

00:37:39 Speaker 2 - ST

Maybe EU regulations.

00:38:09 Speaker 2 - ST

How much substance is in the product, do we know?

00:38:14 Speaker 1 - J

No, it doesn't say because we don't have specifics, we're talking about packaging in general

00:38:27 Speaker 1 - J

It really depends on you're dealing with a burger wrapper, or are you dealing with a pack of fries?

00:38:35 Speaker 2 - ST

Can we pick one?

00:38:38 Speaker 3 - FL

I am thinking about a box.

00:38:40 Speaker 2 - ST

The one that we saw in the picture?

00:38:44 Speaker 2 - ST

OK, this one. Yeah. Yeah, sounds good.

00:38:48 Speaker 2 - ST

But it's probably not impregnated but later like no.

00:38:56 Speaker 2 - ST

I think it's been laminated, right?

00:38:58 Speaker 1 - J

Ya, it looks something like. It's laminated.

00:38:59 Speaker 2 - ST

Not in the pulp.

00:39:03 Speaker 3 - FL

So, it's a burger wrapper.

00:39:05 Speaker 3 - FL

I mean, burger box

00:39:20 Speaker 1 - J

We only have 5 min left for this step.

00:39:23 Speaker 2 - ST

We're almost there. Oh, no, wait, the whole step.

00:39:31 Speaker 1 - J

We can go a little bit longer.

00:39:32 Speaker 3 - FL

That's not realistic! OK, let's go. I know.

00:39:38 Speaker 3 - FL

How much of the SoC is in the product?

00:39:41 Speaker 3 - FL

Question mark because we do not know. Yes, next.

00:39:45 Speaker 2 - ST

OK, let's start here.

00:40:02 Speaker 1 - J

You also have the information in the case summary, in the last paragraph.

00:40:09 Speaker 2 - ST

OK.

00:40:29 Speaker 2 - ST

So there are emissions to water, air and dust.

00:40:41 Speaker 2 - ST

exposure?

00:40:52 Speaker 3 - FL

drinking water maybe?

00:40:59 Speaker 2 - ST

I think that like the the, the people in the plants as well

00:41:02 Speaker 2 - ST

like in the factory.

00:41:22 Speaker 2 - ST

Yeah, emissions transports.

00:41:25 Speaker 3 - FL

Not really...

00:41:31 Speaker 2 - ST

I am thinking if maybe the the stacking of the boxes, or is that too much?

00:41:47 Speaker 3 - FL

Yah no, ok, Use, reuse , repair and maintenance. FOLDING?

00:41:57 Speaker 2 - ST

Yeah, the big emissions was through... Oh wait, maybe it says here, it was contact and duration.

00:42:07 Speaker 1 - J

Yeah. So emissions the emission is into the food. It migrates into the food.

00:42:11 Speaker 3 - FL

So, it goes into food.

00:42:32 Speaker 2 - ST

What I like when I'm really drunk, so I have like the hamburger wrapper.

00:42:37 Speaker 2 - ST

Yeah, and sometimes take a bite of the wrapper as well.

00:42:42 Speaker 2 - ST

When you are really drunk, right? Maybe the it doesn't even need to migrate into the food

00:42:50 Speaker 3 - FL

Exposure scenario (eating the wrapper accidentally)

00:42:53 Speaker 2 - ST

unintentionally

00:43:03 Speaker 2 - ST

OK, collect collect collection, emmissions.

00:43:10 Speaker 3 - FL

In there, we just talked about it.

00:43:15 Speaker 3 - FL

That people think that it can be composted.

00:43:17 Speaker 2 - ST

Yeah, it could accidentally end in the compost bin.

00:43:22 Speaker 2 - ST

Packaging sorted incorrectly could possibly lead to contaminated compost.

00:43:32 Speaker 2 - ST

Can be distributed in the soil?

00:43:36 Speaker 3 - FL

Yeah, yeah.

00:43:52 Speaker 3 - FL

it gets integrated into the cycle. This is meant to be a contaminated carrot.

00:44:13 Speaker 3 - FL

OK, we go further incineration.

00:44:21 Speaker 2 - ST

It goes airborne when you incinerate it.

00:44:32 Speaker 2 - ST

Goes into waters clouds, maybe?

00:44:36 Speaker 3 - FL

PFAS rain, nice, yeah.

00:44:38 Speaker 3 - FL

That's exposure?

00:44:40 Speaker 2 - ST

Yeah, you're right. Yeah.

00:44:47 Speaker 2 - ST

What's the what? What happens?

00:44:48 Speaker 2 - ST

With the ashes normally after incineration, do you know?

00:44:57 Speaker 1 - J

No, I think it's just the residue and probably gets treated as hazardous waste.

00:45:15 Speaker 2 - ST

Consider also landfill emissions.

00:45:21 Speaker 3 - FL

yeah, it leaks into the earth.

00:45:27 Speaker 1 - J

Do you think it accumulates?

00:45:30 Speaker 2 - ST

Yeah. Just because we learned it last time, yeah.

00:45:34 Speaker 1 - J

Sure but in terms of the product because these things are are single use right?

00:45:55 Speaker 1 - J

Do these packagings accumulate in landfills, are they usually recycled?

00:46:01 Speaker 2 - ST

Or my gut feeling says that either the recycling plants.

00:46:11 Speaker 2 - ST

Like paper is pretty well recycled, right? They have like different recycling.

00:46:19 Speaker 2 - ST

And if it ends up there, then it.

00:46:21 Speaker 2 - ST

Will be like shredded and.

00:46:22 Speaker 2 -ST

Probably put into a new pulp

00:46:24 Speaker 3 - FL

I think it is similar to every box we have. If people think it's paper, they will throw it in the bin. So people definitely, yeah.

00:46:53 Speaker 2 - ST

Is there a way to get it out if you pulp it and rinse it?

00:46:56 Speaker 1 - J

Probably with chemical treatments, but I don't know if that's the case for every single recycling plant. We would have to have a look at it

00:47:05 Speaker 1 - J

But what do what do you guys want to do with your burger wrapper? Do you want it preferably to go to the recycling? Preferably go into incineration.

00:47:14 Speaker 1 - J

Or do you think it goes into landfill?

00:47:17 Speaker 2 - ST

Recycled would be better, but I don't know if that's really....

00:47:21 Speaker 3 - FL

Just. Yeah. And I also don't really know why we use PFAS in this products.

00:47:36 Speaker 1 - J

OK, but let's let's think about two scenarios. What happens? What are the?

00:47:51 Speaker 1 - J

I was just thinking like, do you want to think a little bit about what the emissions and the exposure are for recycling if it would be recycled?

00:48:00 Speaker 3 - FL

Oh yeah. OK.

00:48:07 Speaker 2 - ST

I think it will be like.

00:48:10 Speaker 2 - ST

It will go back into the cycle and then it will re expose.

00:48:14 Speaker 2 - ST

through whatever has been made into....

00:48:18 Speaker 3 - FL

Like Toilet paper?

00:48:22 Speaker 2 - ST

It could be, yeah, yeah.

00:48:25 Speaker 3 - FL

Yeah, people lick news papers.

00:48:29 Speaker 3 - FL

That's a big risk.

00:48:43 Speaker 2 - ST

But also like insulation for houses also, is paper pulp right?

00:48:49 Speaker 1 - J

Yeah. So in general, just you, you just generate a bunch of contaminated material streams.

00:48:55 Speaker 2 - ST

Yeah, yeah, yeah. I think, like the House insulation, how bad can it really be? Cause you are shielded from it?

00:49:05 Speaker 4 - MK

It's the workers. It's the workers who are exposed.

00:49:36 Speaker 1 - J

OK, so for part three of step one, what do you think? How can you rate them? Do you think you can rate them?

00:49:44 Speaker 2 - ST

All right step 1 - 3

00:49:46 Speaker 2 - ST

Production....

00:49:48 Speaker 3 - FL

What do we need to? We need to rate the possible risk, right?

00:49:56 Speaker 2 - ST

This is difficult to answer because I think it depends on.

00:50:01 Speaker 2 - ST

From what lens you're looking at it from the lens of like production worker production is like super impactful and you should really do something about it from this perspective as a designer, which I think maybe this is too specific.

00:50:18 Speaker 3 - FL

Yeah, it's like, what can we do about it? not use the material....

00:50:25 Speaker 2 - ST

Yeah, then I think production is very important because we are responsible for the PFAS we decide to incorporate into the product.

00:50:34 Speaker 1 - J

But but this is in this step I understand the the confusion. But in this step it doesn't really matter if it's relevant to design or not. At this step you're just looking into what are today the most concerning scenarios. Yes, like production.

00:50:55 Speaker 2 - ST

Yeah I would say like, production, use, really important one.

00:51:00 Speaker 3 - FL

Is it higher or lower than production?

00:51:02 Speaker 2 - ST

You cannot go higher than production.

00:51:05 Speaker 3 - FL

I mean even high or lower.

00:51:09 Speaker 2 - ST

I think equally high. Gut feeling, I don't know if that's somewhere in here..

00:51:32 Speaker 2 - ST

OK, I think this one's low, yeah.

00:51:38 Speaker 2 - ST

Oh, we can also do inconclusive...

00:51:41 Speaker 1 - J

Yeah, you can also say that you don't have enough information.

00:51:55 Speaker 2 - ST

Collection.... like the collecting part wasn't really bad but when it ends up in compost.

00:52:07 Speaker 2 - ST

Yeah. So the collecting part should be lower, now incineration ...

00:52:12 Speaker 2 - ST

air.... remanufacturing..... no...

00:52:24 Speaker 2 - ST

Recycling is also pretty high because it doesn't degrade. It's also almost equally, maybe even more risky than production, because in production you know that is is in there because you actively choose it and then recycling you may have the ambition to be good for nature but then you put PFAS in the products that you design even though you don't have the intention.

00:52:52 Speaker 1 - J

And also in recycling it just may end up anywhere, you know, without you being able to track it in production though...

00:52:57 Speaker 2 - ST

Yeah, in production it's more controlled.

00:53:18 Speaker 2 - ST

OK. Landfill incineration.

00:53:22 Speaker 2 - ST

hmm... I don't know.

00:53:27 Speaker 2 - ST

Landfill is also pretty bad because it doesn't degrade and incineration is also pretty bad because of the same.

00:53:33 Speaker 3 - FL

Yeah, this ones I feel like it's all crazy stuff and it's all high risk.

00:53:40 Speaker 3 - FL

At this moment, I think we're all gonna die.

00:53:45 Speaker 1 - J

Yeah, cool. OK.

00:53:52 Speaker 1 - J

Now you you step into the last phase of step one and it's just really thinking, OK, which one of these?

00:53:59 Speaker 1 - J

Concerning emission exposure scenarios, should we tackle OK? What are your action points?

00:54:05 Speaker 2 - ST

Oh, that's good. We can think about solutions.

00:54:08 Speaker 1 - J

Almost. You're almost at solutions.

00:54:09 Speaker 2 - ST

At least what we're gonna tackle towards a solution.

00:54:13 Speaker 1 - J

Yeah. So this is this is like the steps like when you come up with a list of requirements from your analysis phase, this would be your requirements for substances of concern.

00:54:27 Speaker 3 - FL

So I can write up..... could we questions?

00:54:37 Speaker 2 - ST

Could we take it out of the production stream?

00:54:42 Speaker 3 - FL

Yeah, like.

00:54:43 Speaker 2 - ST

In first place.

00:54:45 Speaker 3 - FL

Yeah. So how can we also change the design to make it resistant?

00:55:02 Speaker 2 - ST

Substitute it?

00:55:11 Speaker 3 - FL

How can we make a package without PFAS?

00:55:17 Speaker 2 - ST

Maybe we can take a little bit more general?

00:55:25 Speaker 3 - FL

How can we protect the food and.....

00:55:29 Speaker 2 - ST

We have to look at the core functionalities of the product and then we can see like, OK, yeah. Can we tackle these or do we need to have additional information or things?

00:55:41 Speaker 2 - ST

How can we make a packaging without PFAS that is still ... ?

00:55:46 Speaker 3 - FL

Still fictional.

00:55:50 Speaker 2 - ST

Yeah, that's right. Then we have freedom to ideate.

00:55:50 Speaker 3 - FL

Yeah. OK.

00:56:00 Speaker 1 - J

OK, let's pause ...

00:56:06 Speaker 1 - J

I know it's a fast and demanding job for you to fill all of these..

00:56:11 Speaker 1 - J

But what did you think?

00:56:14 Speaker 3 - FL

I actually really like that you can just fill it in. It gives a line of thought.

00:56:23 Speaker 3 - FL

Yeah, of course I did not read these things, so maybe there is extra inspiration.

00:56:29 Speaker 2 - ST

Yeah, the pressure was with the time...

00:56:42 Speaker 3 - FL

For me ... this part is actually the most important (action points).

00:56:49 Speaker 1 - J

Coming up with the action points?

00:56:50 Speaker 3 - FL

Yeah. Yeah. So what you could do is maybe facilitate that part more. For maybe less trained designers so....

00:57:00 Speaker 3 - FL

so How do you rethink?

00:57:03 Speaker 3 - FL

And maybe make a list or something from ok, what are the actual functions that PFAS fulfill, and think how can you rewrite that into HOW CAN WE questions and then you can design with that

00:57:17 Speaker 1 - J

Actually, how can we idea is reaaally nice. Yeah, it's it's a little bit more action based.

00:57:25 Speaker 3 - FL

Yeah, I can imagine that people end here and then going. Now. What? It's terrible. Yeah. So maybe this could be a next step.

00:57:36 Speaker 2 - ST

What I also want to add is..

00:57:39 Speaker 2 - ST

The different steps to different steps appear to have the same weight, kind os. So for example the collection part is is is relatively small in relation to the use part. I think in most cases, but because it has like equal weighting also in this, then maybe it can get like diluted. Giving the wrong view of what you are trying to tackle.

00:58:00 Speaker 3 - FL

So maybe you want to have multiple thing to fill in?

00:58:06 Speaker 2 - ST

Yeah. Or maybe do like an extra step of what you think is the most important for your specific use case.

00:58:19 Speaker 1 - J

Yeah that was the intention with this step.

00:58:20 Speaker 2 - ST

That's OK.

00:58:21 Speaker 1 - J

Yeah, yeah, that was the intention. But it's it's good to know that it's not clear

00:58:25 Speaker 2 - ST

Well, because I think what what we did here was like we took....

00:58:29 Speaker 2 - ST

These parts is equal and then see OK what is the impact of PFAS in the in the use case.

00:58:36 Speaker 1 - J

OK. Yeah. OK. Yeah, yeah, no. Here, here. The idea was like, OK, you have all of this information about this, and then it was just to prioritize. So that step, the intention was like, OK, sure.

00:58:51 Speaker 1 - J

We have some emissions during the during the production.

00:58:54 Speaker 1 - J

But actually it turns out that we.

00:58:56 Speaker 3 - FL

Are very good at collecting our sludge, so.

00:58:59 Speaker 1 - J

we are not really contaminating anything...

00:59:03 Speaker 1 - J

And we also know our workers are protected. So it's also kind of controlled, but the use phase, it turns out that we have not done anything to to look into that. So then you would mark that as a concerning scenario.

00:59:19 Speaker 1 - J

But it's it's good to know that that's not very clear right now.

00:59:22 Speaker 2 - ST

I think it can be interpreted in different ways.

00:59:28 Speaker 2 - ST

Maybe it says in the text as well that we didn't read.

00:59:34 Speaker 2 - ST

But I think it would be nice if I can added step like see OK, rank them from most impact to less least impact. Yeah. And then also do for each step what you think the PFAS impact is in the question part.

00:59:50 Speaker 2 - ST

Because like collection, the PFAS impact would be very large. But.

00:59:57 Speaker 2 - ST

Because, but it's like a very short section in the lifecycle product maybe in a larger scale it has less impact.

01:00:07 Speaker 1 - J

Cool. Yeah, I will. I.

01:00:09 Speaker 1 - J

Will try to to also make the better connection with the action points like you were saying before.

01:00:21 Speaker 3 - FL

Or maybe add inspirational questions. Thank you also ask.

01:00:28 Speaker 1 - J

OK, cool. So we can jump into Step 2 if you want to.

01:00:59 Speaker 1 - J

OK, so now we're going to go in through Step 2 and Step 2 is if you remember your overview.

01:01:07 Speaker 1 - J

You did your analysis and now you know what you want to tackle, so you know what are the important things that you want to address in relation to your burger wrapper.

01:01:19 Speaker 1 - J

And now in Step 2, I give you a few strategies that you could choose to develop.

01:01:27 Speaker 1 - J

So perhaps it would be useful to read those, discuss them a little bit.

01:01:33 Speaker 1 - J

And then section B of of of Step 2 is more of an ideation. So if you need more paper for that, you can. The idea of the goal for Step 2 would be to have a concept so.

01:01:49 Speaker 5

Just very very easy concept. Don't don't go crazy, OK?

01:01:57 Speaker 1 - J

I'm gonna give you 10 minutes for this.

01:02:11 Speaker 3 - FL

No, now it's fun.

01:02:15 Speaker 2 - ST

OK, (reads) select strategies and target identified concerns scenarios and action points.

01:02:42 Speaker 3 - FL

So you have something with....

01:02:44 Speaker 2 - ST

end use.

01:02:47 Speaker 3 - FL

production, landfill and incineration. so, if we do not need the PFAS in general that could be best.

01:02:56 Speaker 2 - ST

yeah, can we avoid it?

01:02:58 Speaker 3 - FL

I think we can.

01:03:07 Speaker 3 - FL

Can we maybe define some formal concept directions like one is avoid, the other is to change something, and then ideate on that?

01:03:22 Speaker 3 - FL

Yeah. OK. So we have some scenarios. One is not use it at all.

01:03:29 Speaker 2 - ST

Yeah. Go for it.

01:03:38 Speaker 3 - FL

And need something to protect hands

01:03:41 Speaker 2 - ST

Yeah, create a barrier.

01:03:53 Speaker 3 - FL

absorb grease and protect food from environment.

01:03:56 Speaker 2 - ST

While it's been eaten.

01:04:09 Speaker 3 - FL

No leaking.

01:04:12 Speaker 2 - ST

Yeah, thats part of protection right?

01:04:21 Speaker 2 - ST

Quantum levitation.

01:04:27 Speaker 3 - FL

Maybe we can do like a double layer, if it leaks through the first layer then we have another layer.

01:04:44 Speaker 3 - FL

Like a hanging basket, they have two layers of paper.

01:04:47 Speaker 2 - ST

Oh, like that, like the bodum deep loss.

01:04:50 Speaker 3 - FL

Yeah, yeah.

01:05:11 Speaker 3 - FL

Double layer paper...

01:05:15 Speaker 1 - J

that would be to avoid using PFAS?

01:05:24 Speaker 3 - FL

Yeah, maybe it's better even to not use paper PFAS but to use plastic

01:05:33 Speaker 2 - ST

Because? It's a mono material?

01:05:43 Speaker 2 - ST

Maybe to reduce contact with the food, you can go like this.... (draws on paper)

01:05:51 Speaker 3 - FL

Nice, yeah.

01:05:54 Speaker 1 - J

So only the center of the packaging is in contact with the burger?

01:05:57 Speaker 2 - ST

yeah

01:06:16 Speaker 2 - ST

I think like we should also write down the plastic idea.

01:06:40 Speaker 2 - ST

They now have the reusable packaging in MC Donalds right? Reusable cups?

01:06:46 Speaker 3 - FL

Yeah, in France.

01:06:51 Speaker 3 - FL

And then you can even make it yes. Make it from PLA?

01:06:57 Speaker 2 - ST

But I will be very curious if it actually solves the problem or anything.

01:07:05 Speaker 3 - FL

We can also make it out of sugar beets. I don't know.

01:07:07 Speaker 1 - J

Why did you think of PLA?

01:07:11 Speaker 3 - FL

Because it is biobased? I would say.

01:07:16 Speaker 1 - J

And it would become reusable?

01:07:20 Speaker 2 - ST

yeah, what I'm really curious about is if it actually is better.

01:07:25 Speaker 3 - FL

Well, isn't everything better than PFAS? That's a bit of the scenario that i a getting here.

01:07:32 Speaker 2 - ST

Well, come on, I can name a lot of things that are worse than PFAS.

01:07:41 Speaker 3 - FL

I'm not sure because PFAS will never degrade.

01:07:48 Speaker 2 - ST

Well, it's it's like it is a substance of concern because it's along the few parameters. It's very dangerous for you, but it doesn't really give acute heart failure when you ingest it or it doesn't really make you grow a third liver.

01:08:01 Speaker 3 - FL

I don't know, are there any materials worse than PFAS?

01:08:12 Speaker 2 - ST

I think there's like a lot of.

01:08:13 Speaker 2 - ST

Like editing some PVC that also can make you like really.

01:08:15 Speaker 2 - ST

Really sick.

01:08:22 Speaker 1 - J

You have 4 minutes.

01:08:31 Speaker 3 - FL

Let's try this one. You can also make it.... I guess it doesn't need to be double layers.

01:08:40 Speaker 3 - FL

You can do double structures like this.

01:08:52 Speaker 2 - ST

Well, you can do also like mindset change.

01:08:56 Speaker 2 - ST

That's even or you have to pay more for your packaging.

01:09:00 Speaker 2 - ST

And that people are motivated to buy hamburger without.

01:09:08 Speaker 2 - ST

Served on a plate?

01:09:18 Speaker 1 - J

What if it's to go?

01:09:21 Speaker 2 - ST

Or maybe we should de incentivize for people to order to go.

01:09:30 Speaker 2 - ST

We can we can improve the experience of eating at a fast food chain. Quick, easy, nice. And then you can reduce the packaging needed because people are more inclined to be there.

01:09:41 Speaker 3 - FL

there's also like bring your own...

01:09:48 Speaker 2 - ST

Yeah. Bring your own.

01:09:51 Speaker 2 - ST

Like maybe origami coffee cup that also could be transformed into a hamburger package.

01:10:02 Speaker 2 - ST

Multipurpose food storage slash liquid transport system.

01:10:39 Speaker 1 - J

OK. So just for the sake of the next step, do you want to choose one of those? So we can assess it?

01:10:47 Speaker 2 - ST

So do the combined one.

01:11:04 Speaker 2 - ST

Well this on is also in direct contact.

01:11:14 Speaker 3 - FL

I think we need this.

01:11:18 Speaker 2 - ST

Yeah, yeah, but then we're already assessing it.

01:11:35 Speaker 3 - FL

You can still make this, but then that's corner to open, so yeah.

01:11:45 Speaker 2 - ST

I don't know. I think we can solve this.

01:11:48 Speaker 1 - J

Yeah, yeah, you want did you choose this one?

01:11:56 Speaker 3 - FL

No, but it doesn't solve the problem. The main problem with the PFAS was that it leaks into food.

01:12:01 Speaker 2 - ST

Work arounds? Good challenge?

01:12:05 Speaker 3 - FL

All right.

01:12:07 Speaker 1 - J

Are you ready to go through Step 3?

01:12:11 Speaker 1 - J

Yeah, yeah.

01:12:18 Speaker 1 - J

I'm going to give you this form. This is for the assessment, yeah.

01:12:30 Speaker 1 - J

Yeah. So this is this is a similar chart.

01:12:34 Speaker 2

To the previous one.

01:12:56 Speaker 1 - J

But you also want to reflect a little bit whether this new material that you chose or that this new configuration generates any form of new risk.

01:13:07 Speaker 1 - J

Or trade-offs.

01:13:09 Speaker 1 - J

Or new forms of environmental impact.

01:13:16 Speaker 1 - J

So I'm gonna give you 5 min.

01:13:20 Speaker 1 - J

It's a little bit short but I think it's just a small reflection exercise.

01:13:25 Speaker 2 - ST

Should we finalize the design first?

01:14:01 Speaker 3 - FL

So it is a box with a layer like this, yeah?

01:14:32 Speaker 2 - ST

OK, so, production/manufacturing...

01:14:33 Speaker 3 - FL

Well, it solves everything, right? because I mean, we have no PFAS.

01:14:40 Speaker 3 - FL

So maybe this one is a more important question.

01:14:48 Speaker 2 - ST

Maybe we can use PFAS here

01:14:54 Speaker 2 - ST

For the structural integrity of the thing, because otherwise it will collapse with the food. It will also be an interesting analysis. Because we reduce it and then maybe we can run an analysis of the reduction instead of just saying we fixed all.

01:15:14 Speaker 3 - FL

Sure, but, can we then put the PFAS on the other side?

01:15:19 Speaker 3 - FL

Then it is not directly in contact with the food.

01:15:37 Speaker 3 - FL

Can we do it with, other plastics?

01:15:43 Speaker 2 - ST

Other plastics...

01:15:47 Speaker 3 - FL

For structural integrity, I mean, maybe we do not. Do we have to protect the paper?

01:15:52 Speaker 3 - FL

Is it a problem if there's paper stuck to your burger?

01:15:56 Speaker 1 - J

Yeah, yeah.

01:16:00 Speaker 2 - ST

I think we should put PFAS in this area in like the cross.

01:16:12 Speaker 2 - ST

Right. OK. So then we have in production we have less.

01:16:16 Speaker 2 - ST

Like only two, do you agree?

01:16:18 Speaker 3 - FL

Agree. Yeah, yeah, yeah. We just reduce the contact. That's actually, yeah.

01:16:26 Speaker 2 - ST

So we use 2 bars instead of.

01:16:32 Speaker 2 - ST

OK, in transport?

01:16:32 Speaker 2 - ST

OK, in transport?

01:16:35 Speaker 2 - ST

Very similar. But it takes more space so that's bad for the environment.

01:16:42 Speaker 3 - FL

No no we can come up with a folding system.

01:16:46 Speaker 2 - ST

OK.

01:16:49 Speaker 2 - ST

So that's similar.

01:16:51 Speaker 2 - ST

Then we have the use phase. It is now better because we have less contact.

01:16:55 Speaker 2 - ST

Yeah. Is there other types of use?

01:17:06 Speaker 2 - ST

Skin contact.

01:17:09 Speaker 2 - ST

Or eating the wrapper?

01:17:12 Speaker 3 - FL

That's not a problem with the box.

01:17:13 Speaker 2 - ST

Skin contact? Also no.

01:17:23 Speaker 3 - FL

That's true, yeah.

01:17:32 Speaker 2 - ST

OK. So we just do one bar less instead of three?

01:17:42 Speaker 2 - ST

Nice, collection I think stays the same...

01:17:51 Speaker 2 - ST

OK. Then we have repair, remanufacturing and refurbishing.

01:17:58 Speaker 2 - ST

Yeah, maybe you can find a way to easily.

01:18:02 Speaker 2 - ST

Disconnect is, you know that there are possibilities. It's like a wrapper.

01:18:05 Speaker 3 - FL

Is it? Is it made of paper? Yes. But then the repair refurbishing is still single use, right?

01:18:17 Speaker 2 - ST

ah right then this is still a question mark or not relevant.

01:18:24 Speaker 2 - ST

Recycling? We can use like a peel off to separate the plastic.

01:18:34 Speaker 2 - ST

So we give recycling one less.

01:18:38 Speaker 2 - ST

It's also a little bit.

01:18:39 Speaker 2 - ST

Biased because we're kind of defending our own designs and it's still hypothetical.

01:18:49 Speaker 3 - FL

I think then we just see.

01:18:52 Speaker 3 - FL

Because there's a question mark if it's.

01:18:56 Speaker 3 - FL

Probably a lot of people won't separate. It should be same, but there's less PFAS, so it's a bit better. So I would say a bit better so.

01:19:07 Speaker 3 - FL

we have less pFAS so that's better.

01:19:07 Speaker 2 - ST

But we use more material.

01:19:16 Speaker 1 - J

Yeah, but in terms of PFAS then it IS better right?

01:19:21 Speaker 2 - ST

1 less.

01:19:25 Speaker 1 - J

Because the new the new environmental impact you mark in red, so that's.

01:19:31 Speaker 2 - ST

Because we only reduce until this point.

01:19:34 Speaker 1 - J

Yeah, good. Did you generate any environmental impacts somewhere else?

01:19:40 Speaker 2 - ST

Yeah, it's more more paper material that we are using.

01:19:43 Speaker 1 - J

OK, what else?

01:19:45 Speaker 2 - ST

More manufacturing.

01:19:50 Speaker 2 - ST

I don't know. I think like the Assembly of The thing is, more is more extensive. The actual sheets are more and is less stackable maybe.

01:20:03 Speaker 1 - J

So you have an increase in materials, an increased cost and an increased assembly.

01:20:08 Speaker 1 - J

And so those would be your trade-offs at the end.

01:20:09 Speaker 2 - ST

Yeah. OK. what about incineration?

01:20:18 Speaker 3 - FL

It's better because we have less PFAS.

01:20:27 Speaker 2 - ST

OK, so there's more paper.

01:20:33 Speaker 2 - ST

More assembly.

01:20:45 Speaker 2 - ST

maybe reduced performance. Yeah, that's maybe.

01:20:50 Speaker 2 - ST

Isn't it less stable?

01:20:54 Speaker 2 - ST

It also asks more from the user because you need to do this separation...

01:21:36 Speaker 2 - ST

Organizational limitations.

01:21:45 Speaker 3 - FL

Already in there.

01:21:47 Speaker 2 - ST

Yeah. More big, more assembly.

01:21:53 Speaker 2 - ST

This is it. How are we doing on time?

01:21:57 Speaker 1 - J

Yeah, you're doing perfect. We can take a 5 min break.

01:27:31 Speaker 1 - J

Yeah, but what? What did you think about Step 2 and Step 3?

01:27:38 Speaker 1 - J

Step 2 Step two was. Yeah, this pyramid of possible strategies.

01:27:47 Speaker 2 - ST

What I found was that I had the assumption.

01:27:51 Speaker 2 - ST

In the first couple of minutes..

01:27:54 Speaker 2 - ST

that we have to design something and then evaluate our designs like the quality of the designs afterwards that this assessment, but assessments is more in relation to substances of concern. That's really logical of course but that was not in my brain was because we were not in this topic yet.

01:28:13 Speaker 2 - ST

I thought we would just like green housing everything and concepting looking for far out to this. And then we would assess how feasible it would be. But that is also in this part. And then if we have a feasible design then we assess it in relation to substances of concern.

01:28:29 Speaker 2 - ST

I don't know if you had the same feeling?

01:28:37 Speaker 1 - J

Yeah. So your expectation was that it was going.

01:28:39 Speaker 1 - J

To be more of a feasibility.

01:28:40 Speaker 1 - J

Feasibility assessment rather than a.

01:28:42 Speaker 1 - J

Assessment related to the substance.

01:28:44 Speaker 2 - ST

Yeah, yeah, yeah.

01:28:47 Speaker 2 - ST

Feasibility assessment. Yeah. Yeah, that's what I thought would be.

01:28:52 Speaker 1 - J

Yeah, we will. We will. I have questions about that in a little bit.

01:28:55 Speaker 3 - FL

Because I think this one is really good that you force people to write it down because there is always a trade off in the end the client has to make the choices they want to spend the money on.

01:29:21 Speaker 3 - FL

Difficult to look at it. Right?01:29:25 Speaker 2 - ST

no, I think I could...

01:29:29 Speaker 2 - ST

You wanted to go for avoid.

01:29:32 Speaker 3 - FL

Mhum... yeah, I jumped into it.

01:29:32 Speaker 2 - ST

That's also the risk with designers that we will always go for the extreme and see if that will work...

01:29:40 Speaker 2 - ST

And then in this session, cause it was a little acted.

01:29:47 Speaker 2 - ST

We still stayed in the domain of like the ideal , and like the reality or like the evaluation of our concept is not really part of this session. We always try towards the best we idea in that region and then when reality hits we adjust.

01:30:04 Speaker 1 - J

Then you're like, OK. That's not going to work..

01:30:06 Speaker 2 - ST

Yeah, exactly. Then we would go for reduce and control.

01:30:11 Speaker 1 - J

That's OK, right, because.

01:30:13 Speaker 1 - J

Last time you even drew in your general process you drew the double diamond...

01:30:18 Speaker 1 - J

So you are starting with this big ideas and then...

01:30:22 Speaker 1 - J

Then eventually you have to be like, OK. That's not possible.

01:30:27 Speaker 1 - J

Yes. All right. Do you have any more comments about the tools specifically, was it, I understand that the timing is a problem

01:30:40 Speaker 1 - J

And we talked about some of the misunderstandings. with the wheels.

01:30:57 Speaker 2 - ST

Yeah, yeah.

01:31:00 Speaker 2 - ST

I think what's maybe good for us as designers is that we there's like an implicit knowledge of how the design process works. And we know that we have to iterate the design process and really brainstorm

01:31:17 Speaker 2 - ST

I think this is really good for designers. Maybe you can also make a.

01:31:20 Speaker 2 - ST

Version that is less.

01:31:23 Speaker 2 - ST

That's more like detailed and how you are going to iterate on your design process evaluated.

01:31:30 Speaker 1 - J

You mean how it integrates with the design?

01:31:33 Speaker 2 - ST

More like how the design process itself works, and for them to double diamonds. Maybe you can also.

01:31:36 Speaker 2 - ST

Yeah, yeah.

01:31:39 Speaker 2 - ST

I actually don't know that's a good idea, but maybe like the touch you can also incorporate that like the double diamond....

01:31:46 Speaker 3 - FL

So yeah, for people who don't know it. Yeah, OK.

01:31:48 Speaker 2 - ST

Right.

01:31:50 Speaker 2 - ST

Because because then this tool could also be used by people inside the organization that don't have design background.

01:31:59 Speaker 2 - ST

I don't know if you would like that.

01:32:02 Speaker 1 - J

Yeah, that, that, that could be one of the options

01:32:06 Speaker 2 - ST

Cause then you can do this with material experts, for example.

01:32:08 Speaker 1 - J

Yeah. Yeah, that's a little bit more difficult because well, it's difficult to cater to a bigger audience. Yeah, but.

01:32:19 Speaker 1 - J

Yeah, it would be.

01:32:21 Speaker 1 - J

It would be nice to give at least an indication on which stage of the product development process you could fit these things maybe.

01:32:36 Speaker 1 - J

Because right now we did it as like a one hour one single go activity. However, that's not how you in practice.

01:32:49 Speaker 3 - FL

I feel like in here, while we were designing and we were choosing different materials...

01:32:53 Speaker 3 - FL

We actually need to know what we were discussing? Is this what I'm choosing now? Is this worse or better than PFAS? So we would need maybe like a scale? Of different materials and toxicity.

01:33:06 Speaker 1 - J

Yes, what you had mentioned on the last meeting.

01:33:10 Speaker 2 - ST

So that's maybe the preparation phase or something. Now it says identify the substances of concern in the product or generated by the product, maybe you can also say...

01:33:20 Speaker 2 - ST

Within this phase, if there are already alternatives now, you can already incorporate those so you can fall back on those on that knowledge.

01:33:27 Speaker 3 - FL

That would be a nice extra step that is 1st look at materials and then design.

01:33:42 Speaker 1 - J

What I want to have is this discussion. But then if you want to add steps or change the steps you can do it directly.

01:33:57 Speaker 1 - J

So there there will be an additional step between identifying the SoC and...

01:34:02 Speaker 2 - ST

yeah and looking at related materials or something.

01:34:06 Speaker 2 - ST

Is it clear?

01:34:08 Speaker 1 - J

So you mean like is there any alternative? and that would be a 1 to 1 alternative, but a safe one, right?

01:34:21 Speaker 2 - ST

It doesn't need to be a one-on-one. It can also be like another material that has certain characteristics.

01:34:31 Speaker 2 - ST

But we can incorporate that in the design process.

01:34:46 Speaker 2 - ST

I think as a visual I would like I didn't understand the iterate part, I thought was applicable to the whole thing and didn't know it was related to this step.

01:34:54 Speaker 2 - ST

But that's more like the visual, I don't know, maybe it needs to be connected here somewhere.

01:35:11 Speaker 1 - J

All right. So if understand correctly here....

01:35:14 Speaker 1 - J

Once you know what the substance is.

01:35:20 Speaker 1 - J

Last last session you were talking about something like. OK, can we find alternatives that also fulfill the same function? So you wanna analyze? OK, some PFAS is for. Yeah. Yeah, yeah.

01:35:35 Speaker 1 - J

Waterproof and oil proof, and whatever else..

01:35:37 Speaker 1 - J

But you were also like talking about, maintaining the structure of the packaging and what not..

01:35:43 Speaker 1 - J

You also define like the function of the product together with the function of the substance of concern. That's what happened just earlier.

01:35:53 Speaker 1 - J

You could have related materials, you mean like. Then you could have something that fulfills those functions. Then you could jump into.

01:36:05 Speaker 2 - ST

Yeah, maybe identify that PFAS is good for creating a barrier and being water resistance.

01:36:09 Speaker 2 - ST

Maybe there are other materials that satisfy one of those categories maybe not all and just one.

01:36:17 Speaker 1 - J

OK.

01:36:18 Speaker 5

And then we can look... does the product work if we don't have this, or do we redesign a bit so we don't need the other characteristics.

01:36:30 Speaker 1 - J

Yeah. And the and the point of doing that would be to avoid having a lot of changes, so having minimal changes in the product?

01:36:37 Speaker 3 - FL

Yeah, but also trying to use something that is actually not worse than PFAS.

01:36:47 Speaker 2 - ST

Yeah. And I think for us, we need something like this. I think it's very important that we have this information about the substance of concern like we need hard data. Yeah.

01:36:59 Speaker 2 - ST

That's very important.

01:37:01 Speaker 2 - ST

That's super difficult and we.

01:37:01 Speaker 2 - ST

That's super difficult and we experience that as well.

01:37:07 Speaker 2 - ST

But that's what we are always trying to strive for because then we can have a story to refine and have good arguments.

01:37:14 Speaker 3 - FL

And that is actually what we need to convince our clients. 01:37:20 Speaker 1 - J

Yeah. OK.

01:37:30 Speaker 1 - J

We can continue for 5 more minutes with you just giving me feedback in general or I can also just ask very specific questions. Do you have anything in mind that you still wanna discuss?

01:37:42 Speaker 3 - FL

I think this is no for me, not you.

01:37:46 Speaker 2 - ST

Maybe it will come up later.

**F) Discussion – Improving the method 1:37:48 – 1:58:30**

01:37:48 Speaker 1 - J

All right. OK. So one of my first questions is, do you think this method?

01:37:56 Speaker 1 - J

Is or could be suitable for professional practice.

01:38:04 Speaker 1 - J

And what would you modify to make it suitable for your practice?

01:38:09 Speaker 3 - FL

I think we can follow the steps. I think what we would need in the end is something that is presentable and that would really.

01:38:19 Speaker 3 - FL

If, like the end result of this would be like, one slide with all data that automatically fills in somehow?

01:38:28 Speaker 3 - FL

Yeah. Makes nice. Yeah. For your clients. You want to be able to communicate the results of this tool to your client, right?

01:38:35 Speaker 2 - ST

That's super important!

01:38:47 Speaker 3 - FL

It would be super helpful if the end like or filling this in or an excel sheet, you can just copy paste some of the visuals and then you're done. So you don't have to repurpose the information and make something out of it yourself.

01:38:55 Speaker 1 - J

What would be the information that you do put on that slide?

01:38:59 Speaker 1 - J

Out of everything that we went through.

01:39:02 Speaker 3 - FL

I think that the circles would be helpful, but you can you a comparison, and it's like this was before and this was after. This is of course a quality assessment. It would also be nice to OK we have these materials with these weights so that would be more of an Excel thingy maybe, like an LCA? and perhaps with a score of the level of toxicity perhaps on a scale from 1 to 10 .

01:39:26 Speaker 2 - ST

Then it is more like hard data.

01:39:30 Speaker 3 - FL

I know it's really hard but maybe something like, we replaced x kilograms of this material with 10 rating toxicity by x kilograms with this other material with x toxicity.

01:39:41 Speaker 3 - FL

So then you can also maybe make off something we use more material but it is less toxic, for example..

01:39:52 Speaker 2 - ST

Yeah. I think also like this tool, we use internally and we present the results to our client because the process... the client is interested in the process, of course but is really more interested in progress of the of the design and not so much how we got to the result...

01:40:09 Speaker 1 - J

Yeah. Yeah. OK. Because you you mentioned well right now. And then also in the past that you wanted... that is good to have data to justify your decisions... and you can build good arguments..

01:40:27 Speaker 1 - J

Which I understand. But when you are.... designing, you have a stage where you have almost like a baby phase...

01:40:43 Speaker 1 - J

Then later on you start developing it further and then that's when you can, you know, like make more informed decisions.

01:40:53 Speaker 1 - J

When you see this tool, you can start in a very qualitative way with your assessment and your indications of what is a better material or what is a worse material..

01:41:05 Speaker 1 - J

Do you think that's useful? Do you think it's useful to have just a qualitative exercise internally?

01:41:14 Speaker 2 - ST

I think it is but I think it is more viable if it is like, hard data.

01:41:23 Speaker 3 - FL

Yeah, it doesn't help if it stays vague...

01:41:28 Speaker 1 - J

And this is too big.

01:41:33 Speaker 1 - J

Well, don't think about what we did now, but if you were to follow.

01:41:39 Speaker 1 - J

All of this, and do your own analysis.

01:41:44 Speaker 1 - J

And just base these decisions on reports that you found or existing risk assessments. Do you think this would be enough?

01:41:51 Speaker 1 - J

Or would you have to go all the way to asking a risk assessment expert?

01:41:58 Speaker 3 - FL

I'm not sure because you fill in the circle yourself and I don't know how.

01:42:06 Speaker 3 - FL

I don't know if you could better fill in the circle if you have reached out to several people or is it the same? Is it still the same amount of guess? If you don't have some data like, is it still too vague to have discussions, then your arguments are starting to fall.

01:42:22 Speaker 2 - ST

Yeah, yeah. You use the tool with data that you have collected and you try to interpret it.

01:42:34 Speaker 2 - ST

But the actual reading of the data actually also all also gives input for the designer for the assessment.

01:42:46 Speaker 2 - ST

And is that what you said like it's difficult to assess your own work in that sense?

01:42:52 Speaker 2 - ST

For these exercise that we did right now, maybe it's better in later stages....

01:42:57 Speaker 1 - J

Because what I saw in your assessment is that you were assessing and redesigning at the same time.

01:43:03 Speaker 3 - FL

For sure. Yeah, that's how it works, right? your mind doesn't sit still. Yeah.

01:43:10 Speaker 1 - J

All right. Do you have more comments than this?

01:43:19 Speaker 1 - J

Yeah. We talked a little bit about how the method integrates in the design process.

01:43:25 Speaker 1 - J

How do you think you could?

01:43:26 Speaker 1 - J

Modify this tool to integrate it in your development.

01:43:37 Speaker 3 - FL

Yeah, I will make a yeah, it's a bit boring but I think I would like an excel sheet.

01:43:43 Speaker 1 - J

Yeah, but do you think it's integrating your analysis?

01:43:50 Speaker 3 - FL

yeah, that's also when we do fast track LCA things. or just like quick calculations, and that's also often an excel sheet coming out as a result.

01:44:02 Speaker 2 - ST

Yeah. I think also like if we do this method multiple times, maybe there's like a common ground for all the products that we develop because we are a design agency we are working in a lot of projects that have common demeanor, ground?

01:44:28 Speaker 2 - ST

They have common ground, all the products, so if we if we use this tool multiple times, it could be that the results are in line and what would be really interesting to steal these results and present them as a given at the beginning of the design process. And we could take that into account...

01:44:47 Speaker 3 - FL

And it doesn't even need to be hard data. It can also be a color, for example, like with defined like 1 to 10 scale or something.

01:45:00 Speaker 3 - FL

That has some background, that an expert has defined and not just yourself because then we just have to label the colors and have discussions.

01:45:07 Speaker 1 - J

Yeah. No, I understand what you mean because one thing is for you to decide how good or bad you are doing...

01:45:13 Speaker 1 - J

And another thing is if I give you a scale and you use that scale and you say according to this scale (or researcher) this is how we're doing.

01:45:20 Speaker 3 - FL

Yeah, then that would be better. This material is like a four out of 10 in the scale. And you have your reasons for giving it a certain number, for example, that would be very helpful.

01:45:40 Speaker 1 - J

But it's good to understand how far you want to go, right? Because we could go all the way to involving a risk assessment expert...

01:45:44 Speaker 1 - J

and a toxicilogist...

01:45:46 Speaker 3 - FL

Yeah they're not going to do all that.

01:45:54 Speaker 1 - J

Exactly so what I am trying to find is middle ground..

01:45:57 Speaker 1 - J

Because when I hear that you use tools like hotspot mapping. The hotspot mapping is not a quantitative tool. The hotspot mapping is like a well, which like they give a scale they give. They have a scale for like if it's a non reusable.

01:46:13 Speaker 1 - J

Fastener than this is the scoring that it gets and then if it's a usable fastener, it is the scoring their gets and then you have like a final calculation of scores that happens in a black box that you cannot see and then you have a result and then you get your flags. So...

01:46:30 Speaker 2 - ST

I think yeah, because yeah, you said it's. Yeah, you....

01:46:31 Speaker 3 - FL

That would be enough I think.

01:46:35 Speaker 2 - ST

So you said it is not quantitative...

01:46:37 Speaker 1 - J

It's a little bit it's a mix because what they did was give it a scale and then they make a calculation in the back.

01:46:44 Speaker 1 - J

And then you fill in your table and then you get that score, but you don't get like.

01:46:49 Speaker 2 - ST

Yeah ok, but I don't mind the black box.

01:46:54 Speaker 1 - J

Black Box is fine but also this kind of scoring systems you think is enough for your own argumentation?

01:47:00 Speaker 3 - FL

Yeah, because then we don't have to. Yeah, that's a given, sort of.

01:47:06 Speaker 2 - ST

It's always easier.

01:47:06 Speaker 2 - ST

To quote somebody else than to quote yourself, because then like if it's wrong or it's good then the authority is with another person.

01:47:31 Speaker 2 - ST

Yeah, it's, there's value in that.

01:47:35 Speaker 1 - J

Yeah, good. This is good.

01:47:37 Speaker 3 - FL

Research that we can do and get to give scales or numbers or.... that would be very helpful....

01:47:46 Speaker 1 - J

Yeah this is good insight since I'm having trouble finding that middle ground.

01:47:53 Speaker 3 - FL

No. If you make the qualitative quantitative indeed, that could be helpful.

01:47:58 Speaker 1 - J

OK. Yeah, sounds good. Can I ask what do you think would be the possible barriers for the implementation?

01:48:18 Speaker 2 -ST

Maybe I'm wrong, but I don't think we use like the really toxic ones.

01:48:25 Speaker 2 - ST

I don't know if you agree.

01:48:27 Speaker 3 - FL

Yeah, I agree because we don't really use this...

01:48:31 Speaker 2 -ST

single use plastic we don't use, we always make products that have a really long lifetime

01:48:39 Speaker 3 - FL

Yeah. So it's, we don't usuallu work with products that are related to PFAS.

01:48:47 Speaker 3 - FL

Well, or maybe we just just don't know.

01:48:50 Speaker 2 - ST

Our big brands are like 10,000 pieces or something, so not very big production volumes.

01:48:58 Speaker 1 - J

And so obtaining data on all of those materials would also be I think a challenge no?

01:49:03 Speaker 3 - FL

Yeah, indeed, but also like things that are mixed together with all the plastics.

01:49:08 Speaker 2 - ST

what's very good to say is that...

01:49:09 Speaker 2 - ST

We try to push sustainability in the company as well. And what we're trying to do right now is like look at all the manufacturing techniques and all the materials that we can really use, find a lot of information on that and to have like certain parameters where we can say something about it. So that's like in production in processing .... in use .. just try to write something down in relation to the material...

01:49:35 Speaker 3 - FL

rules of thumb like if this then use this.

01:49:38 Speaker 2 - ST

Yeah. And then in that sense, we try to pre-think for all the other people who actually want to integrate this tool, but find it too much work or don't have time or don't have the funding to do such an investigation.

01:49:53 Speaker 3 - FL

Therefore, such a scale could be very helpful.

01:50:02 Speaker 1 - J

Because one barrier that I think is present, but maybe maybe you didn't see it because right now I gave you all of the data.

01:50:12 Speaker 1 - J

I gave you a case. It was a very generalized case. But you were suddenly given like...

01:50:21 Speaker 1 - J

yeah, an important scenario is this and the PFAS migration into the food is aggravated by oils and so on..

01:50:33 Speaker 1 - J

If you were to do this on your own, where would you search?

01:50:36 Speaker 2 - ST

google....

01:50:39 Speaker 3 - FL

Yeah, yeah, whatever is there.. Yeah. And ask suppliers also, our plastic suppliers...

01:50:53 Speaker 3 - FL

From now on, we ask you, yeah.

01:50:56 Speaker 3 - FL

Yeah, I think so, right? Yeah.

01:51:01 Speaker 1 - J

Yeah. OK. Interesting cuz there will be, there will be a lot of information out there. If you have risk assessment reports on substances.

01:51:20 Speaker 1 - J

Do you think the steps of the method are complete and in a logical order? We already talked about that a little bit, yes. So you see this new step of the related materials as a shortcut to go directly into Step 2, correct?

01:51:38 Speaker 2 - ST

Well.... It is an addition to like step one I think, yeah.

01:51:51 Speaker 2 - ST

Yeah, like this is more like desk research, and then you analyze if there are alternatives...

01:51:58 Speaker 1 - J

Would you make any other changes to the steps?

01:52:05 Speaker 2 - ST

Yeah. What I said maybe is that we can elaborate a little bit on the design process and I think I don't need it but maybe other people will.

01:52:16 Speaker 1 - J

Yes. So you would just intuitive maybe do XY in your design process, but then you don't think that everybody would be able to do this...

01:52:22 Speaker 2 - ST

Yeah, we do this all day, every day.

01:52:29 Speaker 1 - J

OK. If you think back to your to your process, the process that you proposed last time...

01:52:42 Speaker 1 - J

Do you see any elements, steps or yeah, stakeholders that you see missing in the process that you went through today?

01:53:06 Speaker 2 - ST

Right. Yeah. Maybe what I said like because you have like the three areas where you have like avoid or contain and other ones...

01:53:17 Speaker 1 - J

Yeah. The little pyramid, yeah.

01:53:20 Speaker 2 - ST

Yeah. In the beginning, we're always inclined to aim for the best possible solution...

01:53:37 Speaker 2 - ST

then afterwards we have to, adapt it a little bit... Right now we we are really much into the avoiding section of of this step (step 2). But I think that if we would do the same analysis later on in a design process we wouldn't be able to do this anymore because we have more knowledge and we say, well OK, the avoidance is not feasible because of this and this reason, and then we don't have that ambition anymore, because we're in very early stages...

01:54:09 Speaker 2 - ST

So I think these different sections, are in different space of the design process....

01:54:15 Speaker 1 - J

The reduce and control you think come when you have more information.

01:54:19 Speaker 2 - ST

Yeah, and like more contextual information of what we're doing and how we're gonna solve something, yeah.

01:54:25 Speaker 1 - J

So in a very instinctive way, designers are always gonna go first for avoid...

01:54:31 Speaker 1 - J

And then later on, when they know better, you're gonna go for reduce or control?

01:54:41 Speaker 2 - ST

I think so yeah...

01:54:44 Speaker 1 - J

Do you have any more comments? We're done here. So yeah. If you have any other feedback please let me know.