

CONTEXT: Interviews conducted as part of an investigation into the barriers to, and opportunities for, achieving Circular Synthetics. Research was funded by Business of Fashion, Textiles and Technology Creative Research & Development Partnership (BFTT CRDP—£5.5 million) led by the University of the Arts London, part of the UK Creative Industries Clusters Programme (CICP) funded by the Industrial Strategy Challenge Fund, and delivered by the Arts and Humanities Research Council (AHRC) on behalf of UK Research and Innovation.

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Interviewee: Infrastructure venture capitalist

1: Interviewer

2: Interviewee

1: If you could just explain the organization that you work for and your role there that would be fantastic.

2: Perfect, I work for a company called [redacted]. We were created by [redacted] which is the parent company [redacted] in 2019. We're a very recent creation, we're ourselves a startup in that sense. We are created to really identify and catalyze technologies that we think are really transformational for traditional infrastructure sectors. We see that word infrastructure in our name, that means we cover things like smarter electric grids, we cover things like better mobility systems, and gasoline diesel powered whatever. We look at advanced logistic systems and automation and how we can move things around better. We look at better starter water management systems.

Effectively infrastructure we think of as all things that are essential in our society and typically involve long lived fixed asset basis, we're very capital intensive. This isn't like a software business. Software businesses, you invest in those, you're paying for people's time. If you're building a power plant, it's very capital intensive. Whether its power plant or warehouse for your automated logistics or a new type of transportation system, it's all very expensive quite frankly. Our goal is to really try to go in relatively early for those technologies, identify them and try to help those folks speed up generally and scale what they're doing by providing them with additional investment dollars.

1: What's the motivation for that focus in particular for your organization?

2: It's a great question. [redacted] has struggled traditionally as a technology company--. Let me put this in a better more flattering way, [redacted] has traditionally been focused on the digital-only realm to a large degree with some exceptions. One of the co-founders [redacted] was really interested in what he called the built environment and how technology was impacting the built environment. He has put a lot of time and thought into--. Even though it's not necessarily core, we still think that this two [unintelligible 00:03:36] strategy. I think they believe that it's going to become more significant over time and they want to basically get involved relatively early in some of these areas so they look at us as a platform to do that.

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I do think they expect when we make an investment, whether it's into a solar power plant that's doing a new type of micro grid or a new water management system, they expect those to be profitable systems. We believe that sustainability is deeply linked to profitability because ultimately, if it's not profitable it's just someone doing it out of the goodness of their heart quite frankly. That's great for a while or that's great if you're a philanthropist but we truly believe that we've got to find the right business models to pair these technologies with to really allow people to make money while doing them. That is how we will truly scale them.

1: Obviously, I imagine the digital space is quite saturated with investment. Is infrastructure a good opportunity because there's not so much focus on that?

2: Somewhat surprisingly there are tons of people doing infrastructure investment. If you google launch infrastructure fund you will see a whole bunch of people that have launched infrastructure funds recently. We are part of that trend but the difference is all of those infrastructure folks that already are out there, they don't know much about technology. We're trying to do something a little bit different. Those folks want to invest in really traditional stuff and they refer to that as core infrastructure, that's the term. We are looking at things that are not as commercialized frankly these are more newer--. We're talking about advanced recycling.

There's a few folks of pilot projects but this is not a mature industry, to state the obvious. You've really got to find investors who want that combination of capital intense long term assets plus willingness to engage with technology. That combination is pretty rare, I find. Another example I might just give you, it's not in the recycle space but it's in another one is a company called Energy Impact Partners. All they do is energy but they really look at these infrastructure technologies that they think are changing in this case how energy works. You could think of 2 Infrastructure as taking a similar model. I often use that like, "Who are you like? Who else is doing stuff like this?" I would point you to them if that's helpful.

Another one that we see a lot, Breakthrough Energy Ventures. They are funded by the folks who created Microsoft and Amazon. It's a combination of they want to make the world more sustainable but they're very smart about technology.

1: At the long term nature of those investments, does that make it more risky to invest in this area?

2: The answer is yes, the sturdy answer is unfortunately yes. The longer we need to get our payback on our investment, the more conviction we're going to need to have about those macro trends, maybe the more contracted elements of the deal. Somebody says, "You'll get paid back in a year but there's not a lot of risk mitigation."

I'll say, "Just a year, that's okay." If somebody says, "You're not going to get paid back for 10 years." I'll say, "No, I'm not interested." Somebody says, "You're not going to get paid back for seven years." I'll say, "Okay, may be interesting but it really depends on how much risk you have been able to take off the table and get rid of that risk and make it somebody else's problem."

If you come in and say, "It's a seven year payback. We've got really really great customers. We've got topnotch technology." I'll say, "Okay, let me take a look." That helps but we don't look at it like an absolute, it's got to be x percent return. We look at it as risk adjustment basis.

1: Perfect, because we are so short on time, one of the first questions I wanted to ask was what your experience so far has been of this sector. What have you noticed and why have you been drawn to the recycling?

2: I came to this sector because we made an investment in a company called [redacted]. They make robotic technology that sorts out stuff, mostly recyclables, mostly paper and plastics, makes paper and makes plastics. We got into this from a perspective of, "Wow here's a new technology that could change how this industry operates."

Then we understood that once you sort stuff out, what are you going to do with it? That's where we came into recycling. In the US we refer to this as environmental services industry and that covers everyone from the beet biffers, waste management companies. We had some experience in that and that's how we came to this.

1: Interesting. What do you see as the main barriers to getting this system of circular synthetics going if you like?

2: There's a few critical areas where we think this key rests for us. To state the obvious, one is the technology itself and getting enough data. People are very cagy about sharing actual results. Outside of NDA I'll talk to them for two weeks, three weeks I'll be, "Okay, we're really interested. Show me your data." They'll be like, "Data?"

That's been not easy to be perfectly honest. People are [unintelligible 00:09:50] about their results. There's a group called [redacted] it's working on a data study for advanced recyclers right now [redacted]. If you're interested to speak with her, I know her well.

1: Okay. That's interesting. Yes, maybe that would be interesting to do.

2: They're another investor in the sector.

1: Okay

2: I would say that the risks are really in four main buckets. The first is the technology risk as I mentioned, proving that it really works. The second is what I would call implementation risk which is, you've got a technology that works, call it 10 tons per day. I guarantee you, when you scale that to a hundred tons a day, you are going to come up with new problems you didn't even know about. So there's that implementation scaling risk. The next risk is really, is there a market given what we know about this? Technology is still expensive. Are there going to be corporates that will commit to pay? Virgin plastic is very cheap today. Virgin polyester is crazy cheap right now. So what kind of contractor these guys are going to be able to get? There's that element. Then, really, I think there's the feedstock, that's the last big risk here.

It's a mess in the United States. It's an utter mess. You've got landfill companies that own MRFs, they don't have a lot of incentives. They own a landfill with a bunch of stuff. They've got crap equipment, packaging is changing all the time. I think you've got to get a really good story about how you're going to get really good, pretty pure feedstock because I think the secret of advanced recycling it's everyone wants to believe, "Just throw it all in there and we'll recycle it."

The truth is you need really good sortation for advanced recycling to work well, and you need consistency in feedstock and you need quality control. Those are real challenges. We talked to advanced recyclers, "Oh no, we just put whatever in the pulverizer." And it's like, "Yo, what's your yield like? Oh, you won't show me because you won't tell me your data. Oh, okay. I understand."

1: That's interesting because clearly, from what you've said, you've got probably of those, I don't know but, of those four things. It sounds like you've got more knowledge, I guess, or experience of the feedstock side of things because you've been looking at sortation and that thing kind of thing. What are you doing yourselves to investigate or understand those risk areas? Are you investing in other--?

2: We have not made any other investments. We're still in that investigation phase. Typically we really seek to engage with experts who already work in the field, who will give us a little bit of their time and that helps us get knowledge of a sector, come up with a learning curve, but I don't think I have anything that I can share about the specifics of how we will handle these risks, but I at least can share what we see the difficulties as. Then it gets into some of our competitive advantages.

Like, "Okay, well, I've told you everything that--" Somebody who's been looking at recycling already knows everything I've told you on this call, but I think we just look at it with a certain framework of, "Okay, different buckets of risk, each needs to be addressed before this thing really can move, before we really going to get real capital."

1: I don't need to know specifics, but I'm just interested in-- Because what you've mentioned there is the whole life cycle of problems. It's quite a big overview. It's quite a big macro view of-

2: Yes. I think that's the problem is for a lot of these guys. Some guys that I speak who are advanced recyclers is they've really locked up the feedstock. They've got a great partnership with the feedstock, but they don't even have a pilot plant. Then you got another guy. He's got a pilot plant, he's got data, but he has no way he's going to manage the feedstock. It's really, really hard to find something that's honestly done this well enough to really answer all of these questions and until you even at least have a good story on each of them, it's not really investible.

1: Yes. This is difficult, isn't it?

2: [unintelligible 00:14:00] the system's issue.

1: Exactly.

2: It's not a point problem. A point solution does not solve this. You've got to have partnerships, you've got to have industry partners. I honestly think recycling is one of those things the more I've learned about it, it's not my background, but it's a really great example of, "Oh, that's somebody else's problem." Every single stakeholder believes it is somebody else's problem. I don't know, I don't have the solution yet. I'm just telling you. You asked me what the difficulties were [crosstalk]

1: No, it's interesting because obviously the research that we're doing is attempting to do a similar thing to what you're doing but you're an investor, it's different. It's a different thing but when we're facing the same problems. There's a lot of things to do all the way through the supply chain, so it's quite interesting to hear you say that as well.

2: At least you can feel like you're not the only one.

1: Yes, exactly.

2: You should connect with [redacted] though because she's doing more of a study like you, so I think she'll be able to share their perspective, how they get data, how they interact with some of these advanced recyclers, and maybe that could be really creative to your process.

1: Yes, quite possibly. Yes, that could be good. Obviously, you're a private equity investment organization, how does that fit alongside the other types of investment that these technologies might attract? For example, government investment. How do you see that?

2: A lot of these guys have gotten government grants. That's almost required to get yourself going because this does take so much money. Thank God, frankly, for some of that. A lot of really good venture-backed companies got their start, either in academia or with government, and that's totally standard. We are happy when folks get government grants because it's money we don't have to pay for, [laughter] but it also just allows them to answer questions with that money that then can make things investible, that can get the companies to a point. Sometimes it's not government grants, sometimes it's what we call friends and family.

I think that traditional venture capital is a little tricky because they're not chemicals oriented. They don't know what PET is, they know what software is. So I don't see a ton of activity there, some. You have to be pretty specialized in sustainability. There's a whole class of investors that all they do is sustainability. Those are typically folks-- One of them is Climate Change Capital. They're based in London. Everything they do, they do because it impacts climate change. Those are the folks that have a strategic reason to help these things move along here. For us, I think we don't have that. I need to wait for these guys to prove themselves out a little bit, I think.

1: You're doing the scoping phase at the moment and you're not really probably quite sure how it's all going to pan out, but what's driving you forward? What opportunities do you see in the sake of the synthetics, and in the textiles in particular?

2: We haven't spent as much time specifically on textiles, to be honest with you, just looking at broadly a bunch of different waste stream but I think, in particular, textiles is really interesting because A-- The things that make us interested in a waste stream is, A, a low current recycling rate. That means there's a lot of room for growth. B, dense and heavy material. Nobody wants to recycle polystyrene, EPS foam, because it's not dense. A truckload of foam is not a lot of weight. A truckload of fabric is super heavy. I love that about it. The other thing that's really nice for recyclability is stuff that doesn't have that many ingredients. Clothing and textiles is perfect for that. Recyclability is really challenging with electronic waste where you've got tons of metals and plastics, and everything's all woven together. It's a nightmare.

1: That's so interesting because you've just said two things which everyone else who works in textiles has been saying the opposite about, because you're comparing it to other waste streams. Whereas I think that within textiles, polyester becomes the lightest fraction so that it becomes the most problematic.

2: I think with textiles, the issue really is the blending. I know Worn Again is one company that really is trying to be able to recycle cotton blends with synthetics and do it all in one process. I think that's critical because very little clothing now is made 100% polyester. I think whatever the technology is, it better be able to handle that issue on the textile side. Blending is the critical thing.

1: Sure. Okay. That's really interesting. From an investment point of view, because this is a problem which falls on quite a lot of different areas, might a suite of investment for a range of problems be one way of solving it, or are you just focusing on the chemical recycling?

2: Yes. I think as we mentioned, it's a system's problem. I think at the same time we are only human so we have to start somewhere, and that's what we're studying now. Where is the range of what we can do? Where should we start? I don't have great answers on that yet, sorry.

1: No, it's all right. It's okay. I obviously came to this conversation not knowing quite where you were at with this, so it's really interesting.

2: I also know we're about only a few minutes left because I have a 10:15 Eastern call.

1: Okie-doke. Okay, no problem.

2: But hopefully this is helpful, and I do think there's some other folks that can continue this dialogue, other investors that I think-- If that's an important stakeholder group for you guys to understand better, [crosstalk]

1: No, that's fine. We've got quite a few people. You're the last interview actually so we've done quite a lot already, but we didn't have this point of view so that's really nice. Thank you very much for your time.

2: Awesome. 1, really great to meet you. I really wish you well with the study. I'm sorry we started a little bit late but hopefully, this was helpful.

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1: Yes, it's really helpful. Thank you, 2. Speak to you soon. Bye-bye.

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[00:20:51] [END OF AUDIO]