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Juliet Rothenberg, lead product manager for Google's climate AI initiatives, shares how AI is revolutionizing climate solutions, from optimizing traffic lights to providing flood forecasting alerts for 80 countries. She also discusses the role of a product manager when the planet is one of your key stakeholders. Hosted by Mike Lepech, professor of civil and environmental engineering at Stanford's School of Engineering.



Transcript

Juliet Rothenberg:

The part that PMs do perhaps a little bit more uniquely is the theory of change, of how do we connect this technological solution to a user group that will use the solution to take an action that then will benefit the planet? And that's a piece, oftentimes, that PMs can uniquely serve is, who's our user? What problem are we solving for them? And then the piece that's unique in our climate solutions piece is, okay, and we solve that problem for them, and how does that solve a problem for the climate simultaneously?

Michael Lepech:

Hi, and welcome to Move Fast and Fix the Planet. I'm your host, Michael Lepech, professor of Civil and Environmental Engineering at Stanford. I'm also an Associate Faculty Director of STVP, the Stanford Engineering Entrepreneurship Center, where we empower aspiring entrepreneurs to become global citizens who create and scale responsible innovations.

Of course, one of the biggest global challenges we face is climate change and the sustainability of our planet. In each episode of this podcast, we'll talk to a different expert about entrepreneurship, in climate and sustainability, and what's different about it, if anything, from entrepreneurship in other spaces. Our guest today is Juliet Rothenberg, who leads product management for Google's climate AI initiatives.

For nearly 20 years, she's focused on how we can use technology to tackle climate change, working across energy, transportation, and efficiency, in product management and product partnership roles. Her team at Google has helped cities optimize traffic lights to reduce stop and go traffic, help drivers select more fuel efficient routes, and helped homeowners forecast savings by going solar. Prior to her current role, Juliet was lead of Enterprise Product Management at DeepMind and a product manager at Waymo. She holds a JD from Harvard Law School and a BS from Stanford Engineering, where she graduated at the top of her class. She's also a yoga teacher, a member of the California bar, and has been listed on the Forbes 30 Under 30 in Energy.

Welcome, Juliet.

Juliet Rothenberg:

Thank you very much, Mike. That Forbes Under 30 was a few years ago now, but still happy to be representing a great community.

Michael Lepech:

We still count them. We still count them. So, Juliet, I want to get right into it. And recently, we had Andrew Ang here on campus as one of our entrepreneurial thought leaders, and he described AI as a general technology, kind of like electricity, one that's useful for a variety of different things. Now, your role is specifically focused on using AI in the climate space. So do you think the approach to harnessing AI for climate is different than for other types of applications where AI is being used?

Juliet Rothenberg:

So I know you mentioned that we might want to talk about product management later, but I really start thinking about AI applications for climate from a product lens, and like any good product manager or product innovator, really starting from the problem that we're trying to solve. And so for climate, it's really important to understand, what are the sources of emissions across different sectors, and where are the opportunities for biggest impact? As we look across sectors, of course, transportation is responsible for a significant fraction of global emissions, and then you can break that down further into road transportation and shipping and aviation. And then, of course, we have the electricity sector, but there are also other interesting sectors like agriculture and heavy industry that we need to make sure that we're addressing to solve the climate challenge. And so it's really starting with this problem that's important.

One important piece, by the way, that I think is often overlooked in the discussion of climate solutions, that is an area, unfortunately, that is increasingly important, is adaptation. Because we are already

seeing the impacts of climate change on a global scale today, and so that's a whole nother problem space is, what are the effects of climate change that we're seeing now, and how can we think about potential solutions? And so the starting point is the problem.

Step two is, what's your toolkit for understanding the problem and for solving it? What does AI enable? And if you look at AI, there are particular areas that AI is strong at. Seeing the world via satellite imagery, for example, is something that AI is classically good at, understanding the world geospatially, processing massive amounts of trends such as in transportation, for example. If you take a step back within this, AI as a tool is great at prediction. It's great at optimization and verification. And so what you can do is you can look at that map of climate problems, and there are many, many sources for where you can find this information, and then you can say, okay, great. Well, where could we help with prediction, optimization, verification, with a lens towards places where there's satellite imagery or large scale data sets that can help? And that can give you the space of what potential solutions are.

And then, depending on your approach that you want to take to climate, you could rank potential solutions on, how impactful would they be to the climate? Is there a special sauce that you or AI could bring to the problem? And then also, can it really scale? Because that's one of the things that's very important in the climate space is that scale has to hit, not only the virtual world, but also the real world, in order to be able to have a significant climate impact, and so scalability is a really important question as we think about solutions and AI for climate.

Michael Lepech:

I love the three point breakdown that you've given to us. Number one, starting with the problem. We always try to tell young entrepreneurs, don't fall in love with the solution, fall in love with the problem, because if you do that, you will find the best solution for whoever your customers are. And that might be the solution that you think is obvious and you really have been thinking about, or it might be something completely different. So I love it when you say, start with the problem.

Juliet Rothenberg:

This isn't the first time. I should send some folks the podcast that you have on starting with the problem, because it isn't the first time I've had this conversation today on just how important that is for developing great solutions.

Michael Lepech:

And particular for engineers, it's so tempting for us to want to jump to the solution, and I think that's such an important thing. And so then second, you talked about, okay, then we've got the toolkit, and you have to know where to focus some of these technologies. And that really goes back to something that's near and dear to my heart because I teach our classes here on quantitative sustainability analysis, and that talks all about footprinting and wanting to make sure that, where does the problem actually exist? Is it far up the supply chain? Is it right at the point where the consumer is using the solution? And so knowing where that is is so important. And we always find the 80-20 rule applies for many of these things, where so much is due to small choices.

Juliet Rothenberg:

Yeah. I couldn't agree more, Mike. I think that there are so many companies that are out there right now that are wanting to do great things in climate, and I really admire a lot of groups that spend a lot of time thinking quantitatively about how large the impact can be. It's something that, within our group, we spend a lot of time thinking about as well. Just as if you were to take a look at the space of potential climate solutions, it's easy to find a difference of five orders of magnitude of the potential impact that solutions can have, and so why would you want to focus on a small problem, when you could focus on a big one? Unless, of course, the small problem has other benefits as well, like maybe it's an easy win or a low risk or other benefits that it has to society, but really, we need to focus on the largest solutions because the problem is really pressing right now.

Michael Lepech:

Yeah. Yeah, no, absolutely. I guess, along those lines, you talked about impact and how important it is to be impactful. And I want to talk about two different pieces of your background. When I'm talking to entrepreneurs who want to make an impact, I also often mention to them the concept of managerial control and how easy it's going to be to get your customers or other people, stakeholders in your environment to participate in. And the more people you have to convince to do it with you, the harder it can be.

So if I think about something like traffic light timing, getting people to buy in is relatively easy, because we all follow the traffic lights, and so getting you to wait a little longer at a red or maybe a yellow is somewhat easy. Whereas there are some solutions you've worked on that require significant behavioral change among your customer segments. How do you think about that? So how do you balance some of those things in your portfolio?

Juliet Rothenberg:

It's a really great question and it's something we spend a lot of time thinking about, because as you say, traffic light optimization is a solution that everyone can really readily understand the benefits of. You have less stop and go traffic for drivers. You have a fewer emissions for cities. And city traffic engineers get to do their jobs faster. Whereas otherwise it might take them weeks to analyze an intersection to figure out what the optimal timing should be, now they're able to do it in a matter of minutes. And so that is really something that can resonate on all fronts.

Within the working climate, it is a little bit different than traditional product management because, really, your end customer is the climate. And so you have to figure out how do you align other stakeholders to make sure that we're building something that works across a coalition of interests and ultimately serves the climate.

So if we think about behavior change, within Google, we've really leaned into our strength of sharing information and making information, our mission, making information accessible and useful, and how can we do that in the climate space so that we can really show stakeholders the information that's most relevant for decision making, to make decisions that are straightforward for them. So an example of this is our work in fuel efficient routing with Google Maps, where we share... In cases where it's the fastest route, we'll also share the most fuel efficient route for drivers. And what we found is that that's something that really resonates with a number of drivers. And also, we provide optionality so that drivers can make the choice. And so that's an area where we're really looking at what types of information is most valuable.

There's been a lot of thought and effort into what information is most valuable for people as they think about which mode of transportation to take, so that we can make sure that we're providing all of the information that's relevant for people as they think about how to get from A to B. There's nothing that I can share publicly at this time on that, but it's something that we think a lot about, and we have a lot of expertise and awareness in, what is the information that people want to know to make their decision?

Michael Lepech:

And I also think, from a transportation standpoint, it becomes so interesting, because in the context of, say, quantitative sustainability analysis, we always talk about functional unit, and what are you actually trying to achieve? And Google's offerings are quite unique in that, yes, okay, we can optimize your trip across town for fuel efficiency or time, but we can also offer video conferencing, and how does that fit into some of the things that you are thinking about in terms of your product offering? Is there a role for Google to play, to say, yes, here's the shortest path, but oh by the way, here's a link to send to your other party if you want to do a video conference right now and not make this trip across town. Is that something you're thinking about?

Juliet Rothenberg:

I know there have been discussions about that. The decision of whether to have an in-person or a virtual conversation has many, many, many factors at play. And also, it's actually somewhat complex from a climate standpoint as well because it can depend on a number of factors. For example, if people are going into the office, they might not be heating and cooling their homes to the same degree during the day. So ways you really think about it from a quantitative climate analysis perspective... I forget the name of your class, but it sounded like a great one. Did I get it right? Quantitative climate analysis?

Michael Lepech:

Quantitative sustainability analysis.

Juliet Rothenberg:

Quantitative sustainability analysis. As you think about it from that perspective, there are a lot of other factors to consider. I would welcome seen analysis that you have about remote work, because I've seen them in both directions.

Michael Lepech:

Absolutely. And unfortunately, it's always context dependent, in terms of the number of individuals and how far people are going and some of these other things, but it's great to hear that you're thinking about offering a variety of different tools that can meet all of those different needs.

So you talked about sort of the range of climate solutions, and we can think about mobility, we can think about optimizing homes. I mean, in some regards, it reminds me a little bit of how MedTech feels. MedTech is kind of like everything from Fitbit to genome sequencing. And there's a lot in between Fitbit and genome sequencing in terms of technological depth. And so, as you think about giving advice to young entrepreneurs or innovators, looking to leverage AI in the sustainability solutions space, where do you think are the unique opportunities and the unique challenges in this grand scheme of reduce, reuse,

recycle, all the way up to fusion energy production? There's a big space in there. Where would you go if you had the option today?

Juliet Rothenberg:

One of the things that I oftentimes hear people say as they're getting started in the climate space is, gosh, I'm not an expert yet. Where do I start? I feel like I have to learn all of this information before I can get started. The thing that I realize after now nearly 20 years in this space is that, there are and always will be pockets of this space that I don't know that much about. I know how to think about climate overall, and I think your quantitative sustainability analysis class sounds like a great framework to start in in terms of how to understand the problem overall and how to think about frameworks for policy and market dynamics and, really, other factors that need to be brought to bear towards bringing a solution to market successfully. But all of that can be learned while digging into an area that's very, very specific.

And so, I would encourage people to find a solution, that is high impact, that they are excited about with people that they will learn a lot from, and to go and to dive in and not be afraid of getting very specific, and not worry about, oh, well, you don't know this space. Because the truth is that you'll learn, and people can learn very, very quickly. I've seen it time and time again with people who are onboarding to the climate space. It really does have a lot of parallels with life sciences, for example, in being a science-driven industry, that also has an element of how can we help people, that also has an element of many things within climate, are oftentimes B2B, some of them are B2C, the same is true in health. There are a lot of parallels with other industries that people can draw on, and so I would really just encourage people to get started.

Michael Lepech:

I guess, along those lines, and one of the things that we have heard is that, interesting opportunities in the space can be what I would call climate adjacent. It might not seem like a climate focused startup or climate focused idea, but in fact, it does hit upon many of the climate needs. An example I can give is a startup that I met that was looking at trying to think about solving the challenge between renters and landlords, whereby the renter normally pays the energy bill, but the landlord normally invests in energy efficiency capital improvements to the building. And so, there's an agency problem between who's paying the energy bill and who has the incentives to put energy efficient technologies in.

And this startup was focusing on a FinTech solution to help address that problem, and I would call that sort of climate adjacent. It's a FinTech solution, so it's a FinTech startup, but it's trying to address an energy efficiency problem within a PropTech kind of marketplace. And that's what I would call climate adjacent, because you wouldn't normally think of it as being in this space, but I think it is. What are your thoughts?

Juliet Rothenberg:

Yes, agreed. I see opportunities like that all the time. I think one space that's really common for us to see those types of opportunities is in agriculture. So for example, we've been doing some work with our team out of India on understanding agricultural landscapes. And on the one hand, you can think of that as not necessarily directly related to climate because they're not solving climate direct problems immediately, but the toolkit that they're developing has a lot of applications in a space that's responsible. Collectively, agriculture, forestry and land use is responsible for about 24% of global

emissions. Platform technologies that we have in that space can be really important in helping drive additional solutions.

And so, what I like about the landlord-tenant example that you gave is, it solves structurally a market problem. There are also climate adjacent solutions that... I'm a technologist, so I come at things from technology first, but there are also solutions that can solve a technology problem, that can then be an interesting platform to use in other climate applications.

Michael Lepech:

Not everybody needs to be developing the next solar panel or the next wind turbine technology to think about being an energy entrepreneur.

Juliet Rothenberg:

Very much. When I was at Stanford, I majored in energy strategy and engineering, and it was because I was passionate about climate change, and at the time, climate change was basically associated with energy. That's what we thought of. And now, I think there's much more richness and diversity of thought and awareness of, no, no, no, there are these other problems as well that we need to solve, so let's take a holistic look at the solution.

I think another example of this that is... Actually, it's directly on the nose for climate, but I think it's an area that is non-intuitive for a lot of people, and it was definitely non-intuitive to me before I heard about the problem, is our project around contrails. So contrails, those white lines behind planes that you see oftentimes in the sky, are responsible for over a third of aviation's warming impact. And it turns out that, just like your breath fogs on a cold day, contrails don't always form, they only form in specific conditions, and AI can predict when those conditions occur. And so work that our team at Google did together with American Airlines and Breakthrough Energy was to test out our predictions on a set of live flights.

And what we saw is that we were able to reduce contrail formation by over half. And we could verify that in satellite imagery, and so using AI on a number of different fronts. But it's these non-intuitive options that really are where we have the opportunity for outsized impact in climate, or where I encourage people to look oftentimes to find really creative solutions.

Michael Lepech:

And that's a great example of, once again, that climate adjacent idea. And to help students think about coming up with those ideas, I like to break down our energy consumption globally in to kind of three big buckets. And it's not exactly a third and a third and a third, but it's helpful. And those three big buckets are food production. We use tremendous amounts of energy and resources to feed ourselves. Shelter. We use tremendous amounts of resources and energy to house and play and work and learn and giving us all those spaces. And the third is transport, moving ourselves and our stuff. And so just breaking them down into those big three buckets, I find, can help students, and any entrepreneur for that matter, really kind of say, look, of these three, where does your passion lie? And then starting to go deeper and deeper and segmenting those spaces more and more to get down, to something that, once again, going back to your first comment, be passionate about the problem, not about the solution.

Juliet Rothenberg:

Yes. Agreed very much. I encourage all folks who are new to the climate space to read Bill Gates's book, *How to Avoid a Climate Disaster*. I think it's an excellent overview. He has a slightly different breakdown. I thought this is where you were going to go, how we make things, how we move things. I forget exactly his breakdown, but he has another breakdown that's very similar to what you outlined. And there are different ways to slice and dice it, but I think he has a really nice overview of the space.

And then the thing that I recommend to people, and I maybe recommend this because I went to law school and I had a high tolerance for reading long documents, but I really do think that the IPCC's reports are great reading. We had a reading group within our climate AI teams at Google earlier this year, where we went through and we read chapter by chapter and discussed different problems and opportunities that we see. And there's so much richness within those reports.

For example, we mentioned contrail's responsible for a surprising amount of warming. Also, rice paddy flooding, specifically rice paddy flooding. You can solve other problems in agriculture. You can solve the cows burping and farting and whatever angle we are there with cow methane, but also rice paddy flooding is responsible for a significant fraction of the world's CO2 equivalent emissions, something like 2% on a GWP a hundred basis.

And gosh, that's a very specific problem that could have very specific solutions. Maybe that's an area that someone is passionate about that they didn't know. And then you can look to see, okay, well, where does most of global rice production happen? And what types of toolkits would be relevant for the stakeholders who would need to change their behavior? And what types of incentives can we create to make this a win-win? Which is always an important consideration in climate is, how do we think about providing solutions that can be a win for all stakeholders involved? So a lot of different places to go to get information about problems and about challenges, but it's such a rich space and we need so many more solutions in this space.

Michael Lepech:

No, I like the recommendation of reading the IPCC. Yes, it's long, and yes, it's dense, but there is such good information in there about where our challenges, and therefore, the opportunities lie.

So you brought up an interesting comment, and one that I want to dig a little deeper on. Yes indeed, you did go to law school and you are a lawyer. Can you talk a little bit about that journey, from the technology focused undergraduate degree that you got here at Stanford, and then choosing to go to law school? You're a member of the bar, and now your position is one of product management, which is a business position, but one that's kind of technology focused, given what you're focusing on. Can you share with us a little bit of that journey, and how that came about, and how you see all of that coming together?

Juliet Rothenberg:

So climate is a space that involves bringing together a lot of different disciplines, and part of what I wanted in my educational journey was to understand the different disciplines that are brought to bear, within the space of climate. And so engineering, of course, I'm very much an engineer at heart and will always be, and so I think engineering is a really important place to start. Climate is fundamentally a scientific problem with engineering solutions, and so starting at the space of understanding the problem and the solution is really critical. But then also, policy, as we've seen with the Inflation Reduction Act, as we're seeing in the EU, is an extraordinary influence in the climate space.

When I was at Stanford, I was in the Mayfield Fellows Program. And as part of that program, I worked for a fuel cell startup, and I could just see very clearly that regulation was important for fuel cells. Favorable policy, and at the time, incentives from the state of California were important for fuel cells. And then also, there were interesting contractual structures that you could create, that could be advantageous, and so many different fronts within an individual technology. And that's just fuel cells.

And then you take other aspects as well, thinking about international trade. Or other solutions that I've seen in the climate space have had issues around, how do we raise investment from foreign entities and appropriately protect our IP? There are so many considerations that are relevant to law that relate to climate. And so that was a large part of the reason why I wanted to go to law school.

I confess, I got to law school with very much bright eyed and bushy tailed and here we're going to bring innovation. And within two weeks in law school, I realized that law is all about precedent. And precedent, if you look it up in the dictionary, I don't think it will say the antithesis of innovation, but it kind of is, right? It's like lack of innovation for the very purpose of lack of innovation. And so that was an interesting realization for me to have is, okay, how do I get steeped in the way that things have been done, so that I can understand that really well and start to move it towards, how can we create the future that's sustainable for our planet?

So while I was in law school, I was really fortunate to spend a lot of time at MIT, which, like Stanford, has a really incredible energy and climate community, and was able to participate there in a number of the activities that they have there around starting clean energy companies. I think both Stanford and MIT have similar classes around that. And then clean energy prize competitions for business plans, so a number of great activities that was the saving grace for me of being in law school, because I got to stay close to innovation. But the awareness and understanding that I have of spaces that are really relevant to so many aspects of climate is invaluable for me, which is not to say that I recommend that everyone who wants to work in climate go to law school. I get that question a lot. I think it's a long investment. It's a tricky investment. It takes a lot of time and a lot of nose to the grindstone.

I actually think, this is totally an aside, but I remember reading some stats about mental health and law school after the fact. And I think if I had read those stats before going to law school, I wouldn't have gone, because I do think it is a tricky environment to be alone with your books for so many hours a day reading. And having been alone with my books for many years in law school, I ultimately decided that I was going to be able to add more value on the business side.

I think that lawyers are able to add tremendous value towards companies, but it's also the type of thing where you add more value the later you are in your career. And I'm an impatient person and I wanted to add value immediately. And as I looked at product management, what I saw was the opportunity for a career where I could continually be growing my skillset. Every quarter, I find that I have something new to grow in and learn. And I have confidence, I'm over 10 years in now, I have confidence that this will be the case for my entire career is what I see from people around me, and I wanted to be in the space where I could add immediate value and also keep growing my skillset over time.

Michael Lepech:

Yeah. So one of the things we often talked about product managers, of course, is, is that you do have to talk over many different disciplines and try to bring them together and have that ability to translate among a variety of different groups.

So one of our previous episode guests was Dan Dorosin. So Dan's a partner at Fenwick & West, and has said that the policy requirements associated with the climate and sustainability space and the regulatory constraints are one of the things that really sets it apart. Of course, pharma has tremendous regulatory requirements and has pharma startups and big pharma have a lot of actors in the political sphere. And so, how do you view the policy piece? Does it make it truly unique? Is it just one other thing that everybody has to deal with and maybe there's a few additional pieces here? How unique do you feel the policy piece is?

Juliet Rothenberg:

I agree with you that I think pharma, but also, really, life sciences as a whole, medical devices. There are a few pockets that don't have regulatory implications within life sciences, but to me, they seem like more of the exception. And I think the same is true of climate and energy. I guess, I haven't thought about other parts of the climate space that don't require regulation. I mean, I guess, traffic light optimization probably has some local regulations, although we haven't ever encountered any elements of it. We would just work directly with city traffic engineers, and in so far as there are regulations they're aware of and on top of the-

Michael Lepech:

I mean, the yellow has to follow the red, and then the green has to follow the yellow, but that's about it.

Juliet Rothenberg:

Surprisingly, traffic lights are far more complex than that. You say that, but then-

Michael Lepech:

They are.

Juliet Rothenberg:

There's a minimum time for pedestrian crossings, for example. I don't know where that's enshrined. I don't know if it's in regulation or not. But yes, it actually gets quite complex when you dig in.

Michael Lepech:

We've done a lot of work on traffic light timing, so I can appreciate that. I know exactly what you mean.

Juliet Rothenberg:

But on the whole, I'd say most spaces do have some policy component.

And the other piece that they have is, we can't solve this climate crisis alone. I don't think any company, any country can. We absolutely need to work together across many, many stakeholder types. And because of that, you're also going to have really complex partnership agreements, and that's another avenue that basically every aspect of climate will have. So law and policy will intersect most spaces in the climate sphere, in a pretty deep way.

And there are some spaces where policy will be absolutely critical for making sure that things go forward. There are other spaces where policy could, a hundred percent, bring it to a hard stop. If you

read some of the policy that has come out, I believe there was a startup that was attempting geoengineering in Mexico, and there was some pretty hard policy backlash around that. So it can either be a full enabler, a hard stop, or somewhere in between for most spaces.

Michael Lepech:

So one of your broader goals is to foster innovation in the climate and sustainability space. Are there some specific principles or strategies that guide your work as you think about that? And are they different, do you think, than the sort of strategies and principles that guide innovation in other spaces?

Juliet Rothenberg:

Because we start with the problem first, we have very specific goals as we look across our portfolio. So within our climate AI portfolio, we look at, how large can the impact be? How much do we, as Google, have to bring to bear on the solution? Is it something that others can do just as well, or is there something that Google can bring that will be more beneficial and more valuable in this space? Those are really the two most important things that we look at.

We also look at, are there other benefits for this solution? For example, there's a lot of overlap between climate and biodiversity. And so if a solution can simultaneously help climate and biodiversity, of course, that's a wonderful thing, and we would love to be able to support that.

From the adaptation side, we care very deeply about the degree to which our solutions can help people. For example, we provide flood forecasting alerts up to seven days in advance, and we cover, right now, about 80 countries, covering over 460 million people. And so, the ability to hit scale is a very important part of the underpinning of the solutions that we drive.

Michael Lepech:

Very cool. Very cool. I think those types of principles and strategies keep you entirely focused, ambitious, yeah, grounded.

Juliet Rothenberg:

Very much. It's been really helpful to us to have an orienting framework as a team.

Michael Lepech:

One of the things that you had talked about early on was, unlike many other types of product managers, the planet is one of your customers, or at least, a very critical stakeholder. And one of the things that I have heard from many product managers is that, when you get together for a product management team, you've got a representative from the finance group, you've got a representative from engineering, you've got a representative from marketing, and one of the things that you don't have necessarily is a representative of the customer, because rarely are customers sitting in that room. And so as the product manager, it's one of your jobs to represent the customer viewpoint and to keep your team focused on the customer that you're trying to serve. Do you also see representing the planet, so to speak, as one of your roles as a product manager in the climate and sustainability space?

Juliet Rothenberg:

Yes, very much. Our entire climate AI PM team does hue to that as our customer. And at the same time, it's important that this, and I believe this is true actually for product managers as well, I don't want to ever be the only representative of the customer in the room. As a PM, at the point that the engineering team that I work with is also championing the customer, that is a win for me. So I, oftentimes, when I work directly with teams, will bring engineers along to user research interviews, even if they're led by someone else, just so engineers can get that exposure.

Within some of our projects, we actually have had engineers be responsible for leading customer meetings, so that they feel the needs and the challenges that customers face. I never want to be the only representative for a customer on a team, because I view my job instead as a PM to bring that customer oriented mindset to the team, in whatever way possible. So that's one piece.

The other piece is, in terms of, the part that PMs do perhaps a little bit more uniquely is the theory of change of, how do we connect this technological solution to a user group that will use the solution to take an action that then will benefit the planet? And that's a piece oftentimes that PMs can uniquely serve is, who's our user? What problem are we solving for them? And then the piece that's unique in our climate solutions piece is, okay, and we solve that problem for them and how does that solve a problem for the climate simultaneously?

Michael Lepech:

No. You get to string together a number of different customers, so to speak, all of whom are part of the value change.

Juliet Rothenberg:

Absolutely.

Michael Lepech:

Very cool. Very cool. All right, well, Juliet, before we let you go, we have a series of questions that we ask every one of our guests. We call it four to fix the planet. And so it's a chance for you to shine a spotlight on some things that are important to you and maybe are helpful to others. You ready?

Juliet Rothenberg:

Yes.

Michael Lepech:

All right. First off, what's on your bookshelf, playlist or feed right now?

Juliet Rothenberg:

So again, this might be the lawyer in me, but I am reading through some of the methane regulations that came out in the US recently. There's been a lot of heat around methane, shall we say, in the past few weeks. And so, it's fun to read what's been happening there.

Michael Lepech:

Wow. That is, yes, we have not yet heard that one.

Juliet Rothenberg:

Oh, there are so many good-

Michael Lepech:

That somebody's on their playlist. All right, number two, what's keeping you up at night?

Juliet Rothenberg:

You've probably seen the graphs of warming in 2023. The New York Times has won an infographic that's especially compelling, but seeing how much warming in 2023 has accelerated, and how much climate change is happening faster than we anticipated, is definitely keeping me up at night. It's part of the reason why adaptation is such an important part of our climate AI portfolio. We have work in floods. We have work in wildfires. I myself was evacuated due to a wildfire for over a month a few years ago. And so that's a problem that's really near and dear to my heart personally.

Also, solutions around extreme heat, because that's going to impact a really significant portion of the population. So it's the pace at which climate change is accelerating and all the work we have to do.

Michael Lepech:

All right. On the flip side, what's giving you hope?

Juliet Rothenberg:

We talked about this a bit before, but there are so many different potential solutions in this space. I'm thrilled that the team at Google is working on so many solutions that will be really impactful and really meaningful, and that we're seeing a lot of interest in uptake and adoption around. And there are so many more great solutions here that I see and hear about every day. So my hope is that the listeners of this podcast will dive in with us and help bring more of those to fruition.

Michael Lepech:

Very cool. What's your favorite sustainability hack, something that our listeners can sort of do in their day-to-day lives?

Juliet Rothenberg:

Well, one thing that you can do is you can go into your settings in Google Maps and switch towards Eco-friendly Routing as a default. So it is something that we favor for all users, but we absolutely welcome people to be more progressive on their eco-friendly routing preferences.

Michael Lepech:

Great idea, and great job as a PM on that one. All right. Well, I'd like to thank today's guest, Juliet Rothenberg from Google.

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