

Swell AI Transcript: EIT Tony The Futurist V2.mp3

SPEAKER_00:

Peas will be as large as beetroots. Meals will be consumed in liquid form. Food will be delivered to our homes via tubes. These were some predictions from the 20th century and what our food system would be like today. Fun, yes, but even if they hadn't come true, would they have fixed the many problems of our current food system? Probably not. Right now we're at a place where we need more than a wildcard guess about the future of food. Our food system is in trouble for reasons that we discuss on the podcast a lot. How can we sustainably feed an ever-growing population? How do we adapt food production in a rapidly changing climate? How can we reduce food waste and biodiversity loss? Big questions, bigger challenges. So to properly prepare for what's coming, we need a roadmap into the future. A crystal ball of the food system that allows us to see what's coming next, so that we can plan better today. And this can't be based on gut instinct or opinions, but it has to be on cutting edge research, insights and technology. Luckily, joining me on the podcast today is a man who understands where the future of food is heading. I'd like to welcome to the show author, speaker and food futurist Tony Hunter. Tony is a global strategic foresight consultant who's leading the way in reimagining the global food system. With over three decades worth of experience working in the food industry, Tony is a passionate believer that agri-food tech offers massive opportunities to solve the problems of feeding a growing global population in a healthy and sustainable way. Topics that we'll explore on the show today. Tony, it's a pleasure to have you on the show. Thanks very much Matt, it's a pleasure to be here. So Tony, we love future gazing on the show and actually we just recorded our Trends episode 123 just recently, mainly looking at what's coming up in 2024, but we do go a little bit forwards. So it's really exciting to have a food futurist on the show. So can I just start with that though, so what exactly does that title mean, food futurist, and how do you become a food futurist?

SPEAKER_01:

Well I'll tell you what I'm not Matt, I am not a crystal ball gazer. I am not. I can't actually predict the exact future. So unfortunately, if any of the listeners are looking for the lotto numbers or who's going to win the soccer on the weekend, they're going to be bitterly disappointed. So I'm sorry about that. But yeah. But what I actually do is I look at all the technology and consumer trends and analyze those and say, OK, Where are these trends leading us? And particularly looking at that long-term future, looking at five, 10, 20 years out, where are these, what we call as futurists, as signals of change, where are they pointing? And of course, no one can say exactly what the future is going to be. You mentioned in the intro, you know, is it to appease the size of beetroots and things like that? Well, you know, okay, I suppose that was one possibility. but there are many what we call alternative futures that could happen. And they're not infinite, and you're guided into what they could be by looking at these signals of change that's going on by looking at all the events, all the trends

that are happening right now.

SPEAKER_00:

OK, amazing. I mean, what an incredible job. I mean, I guess the natural next question is then if the future is uncertain, why should we study the future? Do you think, you know, if you can't predict exactly what's going to happen, why is it important for us to look forward?

SPEAKER_01:

The key reason we explore the future is so that we can make the best decisions today, because as we know, current decisions limit future actions. So if I spend \$100 million on something today, I can't spend 100 million again in six months if I got it wrong. So if you understand the future and you'd look at these alternative futures, and then you extrapolate back to the present and say, okay, what options give me the maximum flexibility to react to what reality actually turns out to be? And that's the key in the whole thing.

SPEAKER_00:

Got it. OK. And is there like a secret sauce in terms of how you do this? So, you know, do you have like criteria? Talk about all the different sort of trends and insights. You know, what's actually your method for predicting the future without giving away too many trade secrets? Of course.

SPEAKER_01:

Now, look, that's fine. The thing is, what we start off with is we've got to start with data, right? Because we've got to be data oriented. So we look at all the things that happen. We look at the latest trends, cutting edge trends. and see how they affect food, ag and beverage, and then say, taking them to their logical end, what do they actually mean to the future? And the thing is, though, there are so many articles. I mean, boy, every day, if you're like me, you're bombarded with newsletters, webinars, conferences. podcasts as well, all trying to tell you what is going on.

SPEAKER_00:

Only the best kind, obviously.

SPEAKER_01:

Yes, absolutely. And the thing is, anyone can go to a couple of newsletters, pick 10 articles, copy and paste into email and send them out. That's great. But what does it mean and how do you understand where all these fit? And that's where I've got my proprietary trademarked exponential concept. And basically what I'm saying is, if you look at food today, you cannot talk about food from farm to fork without talking about technology. I mean, it's just everywhere in food. And the other thing that we know, of course, is that technologies advance exponentially. That is why we have the computers we have today, Matt, to have this podcast is because of the exponential growth in electronics, in chips. Moore's law, that the number of transistors on a chip, doubles every 18 to 24 months, is the best example of exponential growth. And we've seen

what that can do in a matter of decades. And so therefore, putting that together, we have food is now technologies advancing exponentially. Food is now techsponential. And that's my Treybart concept.

SPEAKER_00:

I love it. I love it. And I was reading a quote from you as well. And you were talking about the best roadmap to understanding that the future of food is built on technologies. And is is this what you mean by your tech exponential concept? And maybe you could explain for our listeners, you know, what are these technologies and why do you think they're important for the food system?

SPEAKER_01:

Now, look, I really do believe what you quoted there, Matt, and say the best roadmap for the future is based on technologies. Now, those technologies are not just in isolation from consumers because the consumers have a role to play. If they don't like a technology and don't buy your product, doesn't matter how good your technology is. But consumers are being driven by what's going on in technologies. And I'm a believer in the old quote that was ascribed to Henry Ford and may or may not have been said by Henry Ford, that if I'd asked people what they wanted, they would have said faster horses. No one said, I want an iPhone with a screen, with apps, with a photo app on it, and I want a camera, and I want it to make phone calls, and I want it to do this thing called the end. No one said that. Steve Jobs apparently didn't believe in the app store. He didn't want apps on his phone. Is that right? Yeah, that's right. I listened to a podcast with one of his ex-employees saying, yeah, you get to push jobs into getting into the app store. And that's what's made both all smartphones, iPhones and Androids, whatever, driven those. So, yeah, so if we look at that side of things, there are so many technologies affecting consumers and affecting industry. And I break that down into five technologies that are going to be the most influential. That's alternative proteins, cellular agriculture, genomics, microbiome and synthetic biology. And then we've got three accelerated technologies that just drive these expanse with technologies even faster. And that's AI, quantum computing and sensors. And now I'm not saying to be clear, I'm not saying conventional animal and crop agriculture is going to disappear. Not saying that at all. I'm just saying these five technologies are going to be the most influential in where the future of food ends up in five, 10, 20 years time.

SPEAKER_00:

OK, and on those five areas that you mentioned, I mean, a lot of which we've we discuss on the podcast as well. But maybe for our listeners, you could give us just a sort of a brief summary of each one. And I guess I'm quite fascinated to understand how did you arrive at these ones? Why are these the big your kind of big place for the future?

SPEAKER_01:

Look, really, it comes down to all the research I've done over the

years, Matt. I mean, I started looking at this back in about 2017. That's when I really saw things were changing. I'm getting my newsletters and so on, and I'm reading them, everybody gets an industry, and I'm looking at it and going, I didn't know that was possible. Where'd that technology come from? Wow, that's gone so much faster than I thought. I never thought that would happen this fast. And so I started talking to my executive friends and saying, how do you keep up with it? And basically the answer was, I can't. I have meetings to go to, people to hire, quarterly results, the strategy, you know, coming up next year, and you want me to think five, 10, 20 years out? It's not going to happen. So that's how I got into the futurist side of things. And well, someone's got to do this and try and synthesize what all this means, not just what's happening, but what it means. And I thought to myself, may as well be me. So I decided to become a food futurist. And I'm a food futurist, not as against a generic futurist, nothing wrong. You know, if you Google futurist, there's thousands out there and some really good ones out there. But they'll tell you about flying cars and drones and Bitcoin and AI. Oh, and by the way, they talk about food. And I go, OK, yeah, sure. They are in the American parlance an inch deep and a mile wide. I'm an inch wide and a mile deep. I just do food. Anyone who wants to check that up, Google food futurist and see what you turn up with beside the people who have to pay to be on the first page of Google.

SPEAKER_00:

Well, absolutely. Yeah. I mean, it's great that you've kind of gone deep into that niche because obviously the food system, like I say, has a lot of challenges to unpick. So going to these areas then. So alternative proteins, again, a topic that we've spoken about a lot on the show. What is it about alternative proteins to start that, you know, that you think is going to really rapidly evolve going forwards?

SPEAKER_01:

I think if we just sort of step back one little bit from there, Matt, and say, why do we need any of these technologies at all? And we've got one fundamental problem in food supply over the next 15, 16 years to 2050. There is not enough arable land or fresh water on the planet to feed everybody by 2050 the way that you and I and people in countries like the UK, throughout Europe, US and Australia will eat. It's not going to happen. Well, I suppose we could just deforest the entire planet and put crops in, but I'd suggest that probably will not end well. So that's the fundamental problem that we've got. And I get people saying to me too, oh, but we grow enough food to feed the planet. And I go like, yeah, there's the world we would like it to be. And there's the reality. And the reality is it ain't going to happen. I've been telling people for decades, don't eat so much food or you'll die. You'll die of lifestyle-related diseases. How successful has that been? And now you want to say to people, could you please stop eating so much food because I want to send it somewhere else in the world? I would suggest that that sort of approach, which I see from the World Resources Institute, is just not going to survive contact with reality. So that's why we need to

look at technologies that use either no or very little arable land and fresh water. Now, a lot of these alternative protein products, if you look at mycoprotein and biomass and even some of the plant based products, they either don't use any arable land and or very little or no fresh water. So what we're doing is we're making more food with less resources. They also don't need the massive amounts of nitrogen, the massive amounts of phosphorus that's required to get the yields that we need. And we've seen that growing product in one part of the world or sourcing resources in one part of the world and sending it to the other part of the world, not the good idea we once thought it was. The COVID showed us that. The Ukraine-Russian war showed us that. And recently, the problems in the Red Sea and the Suez Canal and the Houthi have shown us again, it ain't the good idea we once thought it was. And these, a lot of these technologies can be localized. So you're not waiting for that ship load or thousands of shiploads of resources that come in to grow your food. You're independent of that. So that's what a lot of these alternative protein products offer. They are for not just food security, which means I can get as much food as I want, and places like Singapore, they import 90% of their food, but they're pretty food secure. They can buy whatever they like until they can't. And then food sovereignty, having control over your own food supply, comes in. So there's a difference between the two. You might have a food sovereignty that doesn't taste very nice, but if it's that or your population dies, I think I know which way we need to go.

SPEAKER_00:

That's fascinating. I think that's the first time on the show someone's mentioned food sovereignty before. We talk about food security a lot, but I love that distinction between the two. You've split out alternative proteins and cellular agriculture as in terms of the tech. Can I ask why that is the case? Is it because you, you know, to your practical point, you think people are going to continue to want to eat meat, fish, and actually we just need a more resource light way of producing it?

SPEAKER_01:

Yeah, I think that's right. So, I mean, some people would say alternative produce includes cellular agriculture. Well, yes, it does. But in my model, it doesn't. It goes into the other category because there's more to cellular agriculture than cultivated meat. You can actually grow plant cells in stainless steel reactors and make products. You can grow cacao plant cells. This is a company called California Culture that are doing. And they are growing the ingredients for chocolate in Stainless steel reactors, that's cellular agriculture. So people think it's all animal cells, but it's not. We've got plant cells as well. So there's more to it than just that. And I mean, if you want to look at the chocolate ingredients, I hate to tell you this, I assume we're going to have a lot of people out there love chocolate, but in West Africa, yields are dropping, disease is increasing. We've got climate change problems, labor problems. our supply of chocolate is in danger. So I'm very glad, relieved to be able to say that people like California Culture may help us bridge the gap between what could

disastrous thing could be that we would no longer have as much chocolate as we want and the reality.

SPEAKER_00:

Someone has obviously looked forward and, as you say, have understood the problems and challenges which are happening, seen the trends and decided, let's innovate around this and fix the problem. You know, that which I guess is why we need to do this. And then we start talking about perhaps a little bit some more complex topics. So genomics, explain to our listeners what you mean by genomics and why it's important in the future.

SPEAKER_01:

The reason I've got genomics in there is that that covers both industry and consumers. Now, from an industry point of view, we're seeing things like CRISPR, Cas9 come in for gene editing. And also we're seeing now the cost of a whole human genome was \$100 million in the year 2000. This year it will drop, that's US dollars, it will drop to 100 US dollars today. Oh my lord, that's incredible. Now when COVID was on, who would have thought a newscaster gets up and says, they have sequenced the genome of the latest COVID virus, and it is indeed the Omicron strain. And people are going, it took him two days, what took him so long? You know? Yeah, I know. That is how common genetic, genomic analysis is becoming. And the cost is such that, it's not a major problem. So you can actually use AI and say, OK, AI, here's the genomes I've got of all these species of plant. Now, tell me the best crosses to give me what I want. And also cross this one, this one, then cross that one with that one and then get the thing and do that with that and you'll get what you want. Yeah. OK, you can do that because you are able to do the genetic sequencing and accelerate plant breeding and what you and the outcomes that you get. Now, one thing that always amuses me, I have to bring this up, I'm sorry, in the EU, you can use gamma irradiation and mutagenic chemicals and mutate plants as much as you like and sell them on the market with no novel foods. Don't need any clearances. It's a traditional plant breeding method.

SPEAKER_00:

Traditional?

SPEAKER_01:

I mean, and so let me see. It's just gamma irradiate the bejesus out of the thing, and then look for the ones that aren't mutated and don't have horrible nodules and all sorts of mutated growths on them, and check them and see if they're a bit bigger and grow better, and then I can sell them, no problems. Oh, but off-target mutations from CRISPR, oh, I mean, how off-target is random mutagenesis? That's why it's called random. You don't know what else you've done to it. So, you know, it just, I think the EU has got a major problem going forward. Unless it gets its act together, it is going to have some real problems against the rest of the world in the next 10, 20 years when it looks at the viability of its crops and food supply. It's got to get with the program.

SPEAKER_00:

Well, hopefully genomics will help solve some of these problems by the sounds of it. And then you have synthetic biology, which sounds fascinating. I mean, and then the final one, microbiome, which we've which we've spoken about on the show. But synthetic biology, what do you mean by that?

SPEAKER_01:

Well, synthetic biology generally is you take the gene for something you want, you put into another organism and you get it to grow the product that you want. One you've probably talked about in the past is producing things like whey protein, dairy proteins from yeast. Perfect day in the US, raised a 750 million US dollars so far. I think they just raised another 90 million or something the other day, and they're producing whey protein out of yeast. And then you've got the Every company, they're producing egg white proteins out of microorganisms. Now, the interesting thing with the Every company is there are 150 different proteins in an egg white. The one that gets used the most is the ovalbumin, which grips up and does all the nice things you want an egg to do. But within the egg white, there are multiple antimicrobial products, antimicrobial proteins. There are all sorts of really interesting things, but the cost of purifying them is so enormous that it's not worth it. It doesn't matter. But imagine if I can grow that tiny 0.1% protein as easily, and I use the word easily, advisedly, as I can grow the 90% or whatever it is of albumin. Suddenly, I've got access to a whole new range of protein products I couldn't get to before that might have some amazing properties for the food system, for preservatives, for all sorts of things, and they are naturally occurring. So that side of synthetic biology is a really, really interesting one. And one of my favorite ones, though, is plant molecular farming.

SPEAKER_00:

I don't know whether you've covered that off before, where you put... I'm sure we have at one show, but yes, carry on, please.

SPEAKER_01:

You take the gene for something. I'll use a company called Nobel Foods in the US. You take the gene for casein, put it into soybeans, grow the soybeans, extract the casein, process the rest of the soybean and use the casein to make cheese. And you can make cheese without the animal. No problems at all. There's a company called Orph Genetics out of Iceland, and they are making the growth factors for cultivated meat in oats. So they're into that sort of thing. So there's another company, a couple of companies, Tiamat, Mulek Sciences, they're all into plant molecular farming. Big advantage is you don't need huge stainless steel reactors. And if you want to double production capacity, you just double the number of acres. So from a scale-up point of view, it's much better. And you can even make interesting products by growing them in lettuce. So you put the gene in lettuce. You put the gene of what you want into lettuce. Now, the reason you do this is some of the products you want to make, if the plant makes them, they're toxic to the plant. So no, it's a zero sum game. But what you do is you put the gene in and you

don't activate the gene until the lettuce is fully grown. Then you spray an activator onto it. It then makes this relatively toxic product, but hey, it makes a lot of it very quickly because it's almost fully grown. You harvest those and there's your product. A company called Pigmentum is doing that. And the good thing about lettuce versus soy, you get a lot more lettuce crops than you do soy crops in a year if you've got the right conditions. So that's a really interesting application of synthetic biology.

SPEAKER_00:

Amazing. And I'd really like to pick up with you in a second about consumer acceptance about these sorts of things, because it sounds all incredible, you know, like the world is anything is possible, but I'm just interested in how accepting people are. But before we get to that, the final one, microbiome, which, like I say, we've spoken about a lot. Everyone seems to be talking about the importance of the microbiome and, you know, the fact that we've really only scratched the surface in terms of how important it really is. Could you talk a little bit about why the microbiome is going to be so important in the future and where it's going?

SPEAKER_01:

Back in the day, my postgrad degree was in microbiology. And back in the dim, dark days of the dinosaurs, what they said was the only good microorganism is a dead microorganism. If we could just kill every organism on and in our bodies, our genetics would live our optimum life. And now we know how far wrong that is. I mean, the importance of the microbiome is the most important human nutrition discovery ever. If you go back to 2012, there were a couple of thousand papers on PubMed talking about microbiome, microbiota, et cetera. End of 2022, it was up to about 25 or 30,000 articles a year. And it's literally gone exponential. And we're finding all sorts of correlations between things. We can correlate a disease with a certain microbiome, but they've got to understand the difference between correlations and causality. So we can correlate that. But what we don't know is, do you have that microbiome because you have that disease? Or do you have that disease because you have that microbiome? Or is there something in the middle that influences it on the way through? And I think over the decades to come, the causality piece is going to become more and more apparent. We're getting very, very close to causality between our microbiome and our nutritional reactions to food and development of diseases. And that is absolutely fascinating space. And that's why that technology is so important from a consumer and industry point of view, because the consumer is going to go, well, my microbiome says I should eat this type of food and not eat that. The Weizmann Institute in Israel did a study and they fed a cohort of people exactly the same food. Cookies, it was in the US parlance, and a banana. So they fed them both, said person that. Person one, cookie, spikes their blood glucose. Banana, not really much at all. Common sense, right? Guess what? Person two, banana, spikes their blood glucose. Cookie doesn't. So one lucky person should eat the cookies and the other person shouldn't should eat bananas and vice versa. So that's how individual our responses are to identical food. And so that

correlation is going to mean that consumers are going to want true personalization, not personalization apps and all these things. They're going to know they're going to know I should not eat bananas and I go to a restaurant and the It looks fantastic dessert, but it's got bananas in it. They're going to go, I want the one without bananas, please. What else can you put on there for me? These restaurants that go, no, no, no, that's the food. Perfect. Take it or leave it. They're going to start to go out of business because people are going to go, well, I'm not going there because I can't get what's good for me. They expect me to eat something that's bad for me because that's the way the chef wants it. Sorry, not going to happen. So we're going to see this increasing hyper personalization of our nutrition in the years to come driven by generative AI in particular. And also, this is a really good one to talk about our accelerators. Because if you look at the moment, about one in four people in the US has some sort of fitness tracker device. It could be a Fitbit, an Apple Watch, a Garmin, whatever. And they track their blood glucose and they track all sorts of other things. Now, we're now at the point where you can get flexible sensors, self-powered sensors developed by Caltech that will do lactates, glucose, blood pressure, all sorts of things, self-powered on a little patch that goes on the back of your wrist. It doesn't need anything. There's another one that just came out from Stanford. It's like a sheath that fits around your wrist, maybe about, I don't know, 15 centimeters long, flexible material. got batteries in it, powers, and it can use the Wi-Fi to download the data and charge itself. So we're gonna have more and more information on what our food's doing to us. And if we've got that hooked up to an AI, the AI says, Tony, what you just ate spiked your blood glucose. Something in there is not good for you. Because as we know, really, really rapid spiking for blood glucose is a prediabetic condition. So you do not want that. So knowing that enables you to look and modulate your diet to suit your microbiome and your nutrition. And I hook that up with you generative AI, and that can tell you these things and track all this data. Because imagine you've got all this data. What are you going to do? How are you going to analyze it? And there's a paper came out recently, last few years, something called Harvey and Halfetta, digital, virtual, digital twins, male and female, 26 organs, 80,000 biochemical reactions, six blood types, and your microbiome to determine and predict how you will react to food. Imagine that hooked up to your senses, hooked up to your generative AI, which is telling you what's good, what's not, and your genomics and what that's telling you. and your microbiome analysis, and all there, always on. So I call it an AI shell. We're surrounded by an AI shell, looking inwards to our body, taking all the data from our senses, telling us what's happening with our nutrition, telling us what's going on, and then looking outwards to the rest of the world. And when we go to the supermarket and look at buying a product, if we've still got supermarkets in 30 years time, who knows? And we say, oh, that Heinz soup looks good. And then your AI goes to the Heinz one and everywhere else makes sure it's getting the right data, says, no, that one doesn't suit your particular metabolism. Campbell's one's actually better and it's got a better flavor profile for what you want because of the analysis that I just got

from the net.

SPEAKER_00:

So I was going to ask you to kind of paint our listeners a bit of a picture of the future, but you've actually just done that really well. I mean, I'm listening to all this and I'm trying to process it myself. And I'm also, I've got one eye on your Guardians of the Galaxy Volume 2 poster that you've got in the background, because this all now really sounds like way, way distant into the future, which of course, I love all this stuff. But Going back to consumer acceptance, where do consumers stand on all this? Will they trust food that's being created by all this technology? I know that as humans, we tend to prefer traditional. We always look back to the past and think that was better. Actually, people tend to be a little bit worried about hyper-technology and where these things will take us. How do we get consumers to embrace this and do you just think they will naturally as we go forwards?

SPEAKER_01:

Just quickly, the other thing just we're talking about that, you know, it sounds so sci-fi, you know, the AI. There's a company called Humane in the US that is now selling a device you put in your top pocket, smaller than a smartphone, connected to the open AI that will scan food for you and tell you, based on its knowledge, whether that bit of food is good for you. And it's on sale now since November 16 last year.

SPEAKER_00:

Wow, okay. Was that Humane, did you say?

SPEAKER_01:

Humane, H-U-M-A-N-E dot A-I. And if we look at consumers, consumers really don't realise the technology that goes into their food. Because in the past, you didn't have to ask consumers, you know, what are you going to do, take a full page out in the newspaper to tell people about, you're going to do this, that or the other? Now, the story I use when I speak, because I speak globally and consult globally, is I tell them the story of cheese. So how cheese was originally made, right? Take the fourth stomach of a two day old dead calf, cut it into strips, clean it up, put it in its mother's milk, wait for the lumpy bits and squeeze it all out and make cheese from it. Now, that's very oversimplified, of course. Just an aside, people think that cheese is natural. I've never seen a cow or a calf do that in nature myself, so not sure that cheese is a natural product. But anyway, back in the 80s, our friends at Pfizer who make the vaccine realized two things. Hmm, not enough dead baby cows around to make enough of this rennet that we need to make cheese. And number two, people seem to have something against killing all these baby cows. So we sort of need to do something. So they put the gene for chymosin, which is the primary enzyme in the rennet, which is what causes the curdling of the milk, the curds and whey, and they put it into microorganism and they made fermentation produced chymosin that has been used since 1990 when it's approved by the FDA to make cheeses. If you live in an industrialized country, you have

eaten the food made with a product of a genetically modified organism. because 90% of all cheeses are made using fermentation-produced chromosome. Now, I've asked people at conferences, put your hands up and shout out, no more cheese for me if you're going to stop eating cheese, because I've told you that story. Not one person has told me they're going to stop eating cheese. Why? My view is there's something in it for them. Well, I like cheese. I want to keep eating cheese. I've been eating it for X number of years. It's been approved. There's no big things about how it's killed anyone. Keep eating cheese. Oh, and by the way, that nice piece of bread you had with your cheese, there's an enzyme called amylase, which breaks down the starch, gives it a nice crusty brown outside. Guess how that's made? It's a product of a genetically modified organism. Is that right? And wait for it. Wait for it. We're not finished yet. Not finished yet. There are two and a half thousand food products on the market made by random mutagenesis with gamma irradiation and mutagenic chemicals. If you've eaten Calrose rice, guess what? The parent was made by gamma irradiating seeds. The biggest selling grapefruit, the ruby red in the US, guess how they made a red one? Gamma irradiated the heck out of the parents and then crossed them with something else. We eat thousands of products every day made through technology, random mutagenesis and other things, and we think nothing of it. Now, either we're all going to turn around and stop eating cheese, get rid of all these mutated crops and go back to whatever it was before then, or we're not.

SPEAKER_00:

So, yeah. Yeah, I think and that's, you know, the food system is no different to a lot of, you know, a lot of these systems where actually innovation has been, as you say, happening forever. And I think it will just be a constant process of people kind of accepting and getting used to things. Very quickly, Tony, talk me through Gen Alpha, so Generation Alpha, because I know that you think that those people born between 2010, 2024, I think it is, they're really important for the future of the food system. So why do you think that? And what do you learn? What can we all learn from Gen Alpha now about what the future is going to look like?

SPEAKER_01:

Yeah, look, everybody, Matt, talks about Gen Z or Gen Z, if you're American friends, this and that. Look, if you're looking to the long term future of food, 2030, 2040 and beyond, forget Gen Z. Need to look at Gen Alpha. As you said, those born between 2010 and 2024. By the end of this year, there will be 2 billion Gen Alphas on the planet. Approximately 25% of the population of the planet will be Gen Alpha. Now people might say, oh yeah, but you know, the oldest of them is only 14 years old and so what? In the US, 80% of parents of Gen Alphas said that their child had influenced their last purchase. And something like 70% said they bought a product that related to their child's favorite character or game. So they are already influencing a huge amount of purchasing. And at age eight in a smartphone, these Gen Alphas over age, They know at eight years old what previous generations knew at 18 or 28. So they know and they've decided, mummy, daddy, I don't like that company. Look at

the nasty things they do. I won't eat if you buy any of that company's products. Okay, darling, I'll buy the other company's products. I'm not going to have the argument. Right. So you wait till 2030. Oh, yeah. Now the oldest of them around about 20 years old, they've got their own money. They're earning their jobs. I'll start talking about thinking about them. Then forget it. You've lost the entire generation. You just got to start now. You cannot market to children. You can't go and run ads during cartoons and stuff like that. Understand that. But what you can do is just put your values and what you believe in out there all the time consistently. And that will be picked up by Gen Alpha and they will make the decisions about longer term whether they're going to buy your products or not.

SPEAKER_00:

I am now going to start listening a lot more to my nephews and nieces. I need to get them on the show and ask them their views of the future by the sounds of it. And Tony, you mentioned that you need to start now in terms of listening to the likes of Gen Alpha if you want to exist in the future, let's say. For our innovators and start-ups who listen to the show, what advice would you give them now in terms of where the good money is? Where should they focus their efforts and investments? And if they're not focusing in these areas that you think they should, are they too late, do you think, already?

SPEAKER_01:

I think we go back to virtually where we started from, Matt. Arable land and fresh water. If you've got a technology that can get away from what I call the twin tyrannies, then I think you've got a concept, a product, a technology that's got a real use in the future. So I think that's what I would be looking at. And I think that people who want to spend all this money trying to stop the US and Australia and Argentina from eating as much meat are just pouring money down the drain. What we should be doing is looking at technologies that can be used in countries that don't consume large amounts of meat and offer them alternatives, preferably sovereign alternatives in their food, so that they do not need to eat the huge amounts of animal protein that we eat in say countries like Australia and the US. We're number two behind the US in the amount of meat that we eat every year. So, and I think that is one of the selling points for countries is sovereignty, because if you build yourself a great big conventional animal agricultural system, you're going to be buying boatloads of stuff from Russia and Ukraine and elsewhere and trying to ship them in to fertilize your fields and do everything else. So it might not be the good idea you think it is. And let's not forget, food has been used as a weapon of war for thousands and tens of thousands of years. And even if you're not doing it to be nasty, if you're in a situation where I can sell my food somewhere else or I can stop exporting and make sure I'm going to be all right for the next decade. What a country is going to do. That's just the way it's going to be. So looking at technologies that don't require us to use these huge amounts of resources, whether that be arable land, freshwater, fertilizer inputs and things like that, the better. And some of these technologies use

solar energy. And guess where the largest amount of solar energy is on the planet? Sub-Saharan Africa. So a lot of these technologies that come under what they call power to X. So you take power and you use it to make something else. You can use power to make food using microorganisms. So you can use that solar energy and use that to make food. So you've got that power to X concept and that gives you sovereignty as well. So I made that and then I can flavor that and use that to make my food products for my population. And I don't need to rely on the genetics of my breeding stock from overseas. I don't need a huge feeds industry. I don't need a huge amounts of all these sorts of other inputs. I mean, culturally, people in sub-Saharan Africa and elsewhere want to eat meat. Fine. But how much do you need to eat? And when you look at it from a macro perspective, how much do you think you should be eating? compared to what you can do otherwise with more advanced technologies. And the example I use is telecommunications in Kenya in 2002. In 2002, they badly needed to upgrade their telecommunications. So what do you think they did? Do you think they went, look, Matt, well, tell you what, you go out and buy, I want 100,000 trenching machines, 200 million kilometers of copper wire, and get me, start building some exchanges, and we're gonna have a domestic handset manufacturing industry. In only 100 years time, we'll have those fancy mobile phone things. No. Brought in telecommunications companies, cell towers, cheap secondhand smartphones. And they literally leapfrogged 100 years, literally, not figuratively, 100 years of telecommunications in a decade. Why would you want to go and have all the same problems of 400, over 400 dead zones around the world from runoff from nutrients? Why would you want that? Why would you want to be importing huge amounts and be at the mercy of all these other things that go on around the globe? Why would you want to do that? Why wouldn't you take another technology that leapfrogs you into the future and potentially is far more efficient and far better for the planet and for your country than otherwise?

SPEAKER_00:

I love it, which, you know, people listening should be thinking about leapfrog technologies that limit resource use, particularly around arable land and water and things and tech that secures food sovereignty in a nutshell, is seemingly what you're saying, which, OK, hopefully someone's going to take that and do something amazing with it. I would love that to happen. Tony, thank you for all of the insights. I mean, to your future, shall we say, can I ask you what personally gets you excited about the future of the food industry? And are you, and I think I know where this is going, but are you optimistic about the future of food?

SPEAKER_01:

To start, I am a techno optimist, not politically and socially, but from a problem solving point of view. I believe there is no problem on the planet that cannot be solved through the proper application of technology. And I believe that the ingenuity of the human mind is unbounded. Cut with AI, who knows what's going to happen. We've seen amazing results of the synergy between AI and humans. Yes, there are dangers and downsides like any technology, but I think that we can

solve the problems of the planet through technology. And as you can probably tell, I love technology. I mean, I've always loved technology. I build my own computer from a box of parts in front of the TV, so I get exactly what I want. And I love all these things. And I think it's just endlessly fascinating opportunities for food technology going into the future. And anyone who's in that space, I think you've got a fantastic future in that. And where it's going to be driven, though, is, as we've seen, the rise of startups. They're the ones who seem to have been able to bring the ideas together with the agility and the dedication to make things happen compared to larger companies. Some of the larger companies are trying very, very hard to be as innovative as they can be, but it's still not nearly as fast and agile as some of these smaller companies. And I think that's where the real opportunities are going to be in the future. And I mean, that's why I keep track of all these things. I mean, As I said to you at the start, Matt, your problem is shutting me up. I could go on for another hour about all the other technologies that have flown through my mind since we've been talking. So there is just so many things going on, which makes it endlessly fascinating. That's why I love what I do. I love being a food futurist. I love the consulting side of things, the deep dives into technologies and things that are happening. I love the speaking side of things, communicating these things to industry conferences, to corporate conferences. to say, look, here's some ideas, here's a framework, how you can understand what it means. Because there's lots and lots of data. Some of it's being turned into information, but not a lot of it's being analysed as of what it actually means. And that is the key.

SPEAKER_00:

Yeah, and I think, Tony, you and I could talk for hours, because actually, I think we have very similar interests. I'm very much a techno-optimist as well. And yeah, I love all this space. And yeah, there's so many things that can be solved. It's just putting it into, as you say, a framework. And Tony, just before we finish, we always try to kind of close the podcast on a bit more of a fun question. And I'm particularly interested in asking you this, given your background. If you had unlimited funding, what technology or research project related to food would you want to invest in? So magic wand, you know, everything that you've seen and you think, actually, I would place my money here because I really think that this is going to solve the most problems. What would that be for you?

SPEAKER_01:

Can I split it into industry and consumer? Can I have two points?

SPEAKER_00:

Absolutely. Go for it.

SPEAKER_01:

But the consumer would definitely be the personalisation piece. How do we put something together that brings all those technologies we talked about together to ensure that people are the healthiest they

can be and extend their health span, not just their lifespan? There's no point living an extra 20 years if you're living it with dementia. You want to basically live a healthy life and in six months find out things are going downhill, drop off a cliff and die. That would be the best way to live and die. So from that point of view, now, if I were looking at it from the industry point of view, I don't know why my favourite technology is plant molecular farming. I just think that has got so much potential. I would be backing some of those plant molecular farming companies and really driving that home, because I think that's got huge potential and it gets away from the problem we've got, which is infrastructure. The problem with food technology at the moment is not the technologies. There's plenty of technologies around. It's the infrastructure to make the product once you've got a viable product doesn't exist. VCs have got this fairly high risk appetite. Banks are up there with almost no risk appetite. There's not much in the middle to help the scale ups. And that's what we really need. So I'd be looking at how do I get them to cross the scale up valley of death by funding some of these companies to get scale up. So they've got scale and infrastructure to make the product. But that's what I like about plant molecular farming. It doesn't need nearly as much. I think you can get far more bang for your buck out of that than say things like precision fermentation and some of the cellular agricultural products, which need enormous amounts of stainless steel tanks. I don't know if there's enough stainless steel in the world to make the number of tanks we need, but we'll find out in the decades to come, Matt.

SPEAKER_00:

I love it. Thank you, Tony. And actually, it's also why I love the job that I do at EIT Food, because you talk about, you know, the ability to kind of scale up and cross the valley of death. That's kind of exactly what we're doing and trying to help startups in that space and cross them with corporates and things like that. So a small plug for EIT Food there. Tony, so thank you very much for that. So just to finish then, so where can listeners go for more information about yourself, your good self and what you do?

SPEAKER_01:

Well, I'll give you a few things. Simply to do, as I said, Google Food Futurist, you'll find me. I've got my website, which is www.FuturistForFood.com. That's F-0-R, FuturistForFood.com. And if you go onto LinkedIn, you'll find me on LinkedIn. There's lots of information around there. I post fairly regularly and I've got my websites. And if you're interested in speaking, www.TonyHunterSpeaker.com.

SPEAKER_00:

So that was Tony Hunter on the show, who is a food futurist. What an amazing conversation and what a lot of great insights that we can all take away there from Tony. So my big takeaways from the show, Tony spoke a lot about food sovereignty, which I find really interesting. So it's related to food security, but it is different. So what Tony really wanted to remind us all is that food sovereignty is about making sure that there is enough food to deliver for your

population, because of course, you know, the world has shown us that food supply chains can be broken. So food sovereignty, incredibly important. And then he spoke about a number of sort of technologies and big plays for the future going forward, sort of 30, 40 years. So he had five technological advances around alternative proteins, cellular agriculture, genomics, microbiome and synthetic biology. And one of the things that I really remember is about he was really passionate about the fact that the microbiome is one of the greatest discoveries and advancements in the health and food space in recent times. And he was obviously a big believer in that that's going to be a big thing for the future. And then when I asked him about, you know, the advice that you'd give startups and innovators, you know, where the big money is, again, Tony was very passionate about making sure that the technology has something to do with making the best use of arable land and water and other resources, because he thinks that's going to be a huge problem going forwards. And then finally, one last thing, which Tony spoke about in the centre of the show, is that we all need to be listening a lot more Degeneration alpha because they are going to be the ones who really define what the future looks like so we need to understand what they want right now Thank you all for listening in. So this has been the Food Fight podcast. As ever, if you'd like to find out more, head over to the EIT Food website at eitfood.eu. Also, please join the conversation via the hashtag EIT Food Fight on our X channel at EIT Food. And if you haven't already, please hit the follow button so you never miss an episode. That's it for now, everyone. See you next time.