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**Mike Berners-Lee:** This idea of an offset, which is you pay money for someone else to remove the carbon, but when you look hard at that offset concept, actually, it's a bogus concept, it doesn't stack up.

**Mike Barry:** The Science Based Targets initiative has rightly come out and said to be credible in terms of net zero by 2040. You need to be off reducing at least 90 or 95% of today's footprint, not offsetting 10, 20, 30, 40%.

**Mike Berners-Lee:** The role of meat in our lives has fundamentally changed over the last few decades. And so, meat acquired all this status and sense of value around it, because it was the means by which we could live longer now. That's so not the case anymore. And, if anything, the opposite is the case.

**John:** Well, hello, and welcome to Building Better Business, the podcast that explores how business can shape our world for the better, and how we can all play our part. In this episode, we're here to talk about the food industry, and how it's tackling the issue of climate change, primarily focusing on the reduction of carbon dioxide emissions. By way of introduction, according to the UK Met Office assessment in May 2022, there's a 50-50 chance that global temperatures will overshoot what's been called the safe limit of 1.5 degrees, which I think most of us have heard about, in the next five years, so before 2027. And I think the recent reports are really saying that the UK will fail to meet net zero, and I think within that, agriculture and food is a huge driver of carbon emissions, and probably representing in the UK about 12%. So this is [00:02:00] urgent and important and a real focus. Today, I am delighted and excited to have two incredible guests. First of all, I’ve got Mike Barry here, who's the Former Director of Sustainable Business at M&S, and who led on Plan A, and now runs his own consultancy, Mike Barry Eco. Welcome, Mike.

**Mike Barry:** Thank you.

**John:** And then to make my job even more difficult, I have another Mike as well, so I’d like to introduce Mike Berners-Lee, who is an academic professor, a researcher, consultant, a writer, amongst many things, I suspect, and has written such wonderful books as There Is No Planet B, and How Bad Are Bananas, The Carbon Footprint of Everything. So welcome, Mike Berners-Lee.

**Mike Berners-Lee:** Thank you.

**John:** Great, well, wonderful to have you both here, and to have your expertise. In terms of what we'd like to cover, I think it'd be great to start in a kind of general way, understanding the kind of overall position, trying to make people understand some of the jargon, get rid of some of that, and look at some of the agreements and where we stand in terms of the progress that's been made, and then, get into agriculture, the main issues that we're facing, some of the solutions, and then, tackle things like offsetting versus reducing. And also, I think if we can get to the point where we're looking at, emissions in terms of the ones that are directly within that company's control, and then also indirect, because there's quite significant differences, but yet, clearly, the job here is to reduce carbon at great pace and with great substance. Mike Barry, by way of introduction, where are we in terms of the agreements who've been making about this internationally, and what we're looking to achieve?

**Mike Barry:** We're now at this sort of paradigm shift, where, for many years, individual food businesses and other businesses have been focused on making themselves somewhat less bad each year, 2% less energy, 3% less plastic, 4% more human rights, all this [00:04:00] good stuff, but it's been swamped by staggering pace of our consumption, rising population across the world, and therefore impact on the planet. And I’m always struck by the pathway that the mobility industry, the car industry has been on this, 10 years ago, five years ago, they were laughing at the thought of Tesla speeding past them that people would ever adopt EVs, and look where we are now, Tesla worth [inaudible 00:04:23] put together. The same thing is going to happen to the food industry, partly because it's uniquely polluting, a third of all greenhouse gas emissions, 40% of calories produced on the planet don't reach a human mouth, even when 800 million people go to bed every night starving [inaudible 00:04:40].

But there's another twist to what's happening with the food sector, it is uniquely vulnerable to the problem it causes. So what we've got is an industry that pollutes and is being impacted by rising heat, by wildfires, by flood, by drought. And again, we've seen it this summer as we've struggled to sort of respond to the pressures placed upon the global food system by the conflict in the Ukraine, cutting us off from important bread baskets. As we look across the planet, what's been happening is we've seen suppressed yields in Europe, in China, in India, in North America, wherever we look, rising population, more mouths to feed, more challenge geopolitically, but it's much harder to actually get the food because of the more extreme weather that we're causing.

And the final point about the food system here that we need to be mindful of, it is uniquely difficult to decarbonise. So if I were to decarbonise the global coal industry, within reason, I reach out to 10 global car companies, and drive change through them within reason. I want to change the world food system, of course, it's dominated by a series of huge multinationals, and we'll come back to that a little bit later. But 600 million small holders, many of them subsistence farmers supporting themselves, some of them feeding into that global food system, to get them to shift on something that everybody consumes every day of their life – MI5 just said that no modern society is more than four square meals away from insurrection. [00:06:00] It is that much that we live on, sort of, the cliff edge of the food system collapsing.

So that incidentally is where we're at. And right now, emissions are going up, and it's not just carbon emissions, I’m not going to focus on that, biodiversity loss, forest loss, overuse of water throughout the food system, it's got a bleak scorecard, and it's got a bleak pathway at this moment in time. But in summary, John, I think we're not in a great place with the food system right now.

**John:** Mike Berners. Lee, what would your perspective be building on Mike's thoughts?

**Mike Berners-Lee:** I think I might possibly be able to be slightly more optimistic, in one respect that if you look at the human response to the climate change agenda as a whole, I mean, it's utterly pitiful. If you look at the carbon dioxide curve from fossil fuel, you can't really see any clear evidence in that at all, that humans have noticed that climate change is an issue. You can see a big dent for a pandemic from which we've bounced back. You can see oil crises and financial crashes, and the history of that curve. But you can't really see any clear evidence that we've noticed climate change, which tells us not that it's impossible, but it tells us we need so completely to raise our game and begin to have a system change that we haven't even really started yet.

So if you look at the carbon curve, it looks pretty daunting, and the question, you know, to ask the question, like, how is all the world's fossil fuel, nearly all the world's fossil fuel has to stay in the ground, which means that's the Chinese fossil fuel, the Russian fossil fuel – it's an incredibly daunting challenge, requiring of some sort of global understandings and arrangements that we've seen, you know, we can't even stop being at war with each other at the moment. So all that looks incredibly, incredibly difficult.

If you look at the food system, it also looks incredibly difficult, and as Mike Barry says, it's a huge part of the climate problem. It's also an even [00:08:00] bigger part of the biodiversity challenge, which is just as important as climate change, even though we don't talk about it too much. And just by the way, whilst dealing with it, we've got to make sure that everybody is fed, which we're not very good at, at the moment, and that's looking more and more difficult as the population goes up, and as Mike said, as the fertility of our land gets threatened by climate change, and by the fact that we've been chucking so much pesticide and fertiliser on it that we've been trashing it, so hugely challenging.

On the plus side, I think, in some ways, it's easier to make some of the changes we need to make. So for all the complexities in the food system, I actually think the dietary change that would make an enormous difference looks a lot easier to do to me than leaving the fossil fuel in the ground. I think, if you look at the UK, I think we're getting to the point where it's becoming accepted, more and more people are taking it on, restaurants are changing, even shops are starting to make plant based diets more accessible, the media is catching on to it, the quality of that offering is starting to be tastier and healthier and more available. So I kind of feel as though the momentum for some of the changes that we need looks more possible, and then, there are huge challenges around how to support the farming communities in order to be able to do the agriculture that they increasingly want to do actually. So I sort of feel as though it feels a little bit less daunting than the fossil fuel, let's put it that way.

**John:** I mean, in my world, I agree with [inaudible 00:09:39] if you look at the last 10 years in grocery, the acceleration in plant based has just accelerated wonderfully, hasn't it? As a person who's been in food and drink all my life, you look at grocery stores, and it's quite remarkable the amount of space, you know, it's quite light, but also, as you say, the products are better marketed, they're better quality. And [00:10:00] so, there is definitely some optimism and some shift there.

**Mike Berners-Lee:** If you're a fossil fuel energy company, then it's clearly a very big shift in your business model to go and do what has to be done for sustainability. If you're a restaurant chain, you're a supermarket chain, it's actually a much smaller kind of shift, I think it's a much fundamentally less challenging transition that you have to make. I think of the farming end of the debate, it's more challenging.

**Mike Barry:** Mike, just build upon that, because, again, as a shopkeeper, or as a restaurant, in a sense, you don't care what you sell, provided someone's coming into your shop or your restaurant to buy food from you, whether it's vegan, vegetarian, or meat based, within reason, you don't care. But I also think there is the immediacy of the food system, the immediacy of it, you know, you buy a new car once every five or 10 years, you buy food every single day, and we live in such noisy world that the ability of people to pick up the signals, the need for change, I think is just suppressed. So very simple statistics, about 5% of us vegetarian in the UK, 2% vegan, 3% pescatarian, so not eating red meat or lamb based meat, 15% of us are flexitarian. So roughly 25% of the British population are in some kind of pathway to reduce a high carbon meat based diet alone, 75% are not. And I think the easy lifting has been done, I think the next 25% will be harder again, and then 50% beyond that, harder again. So I think good thoughts, and I agree with you on the fossil fuel models, but again, food is so diffuse, I mean, most of the oil system is pushed at you. Again, it's like car industry, you need to regulate 10-20 BP, Shell, Saudi Aramco, good luck with that one – they're the people you need to control for that. I think the food system, because of the dietary choice part of it, is going to get more complicated. [00:12:00]

**Mike Berners-Lee:** I think that's very interesting, because I think, I agree with the effects you're describing, but I hope, and I like to think, they're also counterbalanced by some other effects, which is the kind of normality of a plant based diet now. So everybody, most of us, most of the time, like to be like everybody else, and it does feel weird. You feel it's awkward to be in a restaurant where there's nothing planned based on the menu and asking for it. And if 25% of us are finding it normal, then it's no longer weird to ask for that thing. And so, I like to think that that momentum is ready to build.

**Mike Barry:** I think I would agree with that Mike, if we have 20 or 30 years to steadily drive shift through society and the way we consume. We know we've got less than 10 years. If by 2030, generally, across the planet, we're not on a very significantly different lower carbon trajectory from today, we're going to burn. You and I know that we're heading for at least 2.9 degrees C of heating. There's been another study out this morning looking at 9300 companies across the planet and how committed they are to climate action. And even taken from that subset of the global economy, which is the relative leaders we are [inaudible 00:13:15] heading to 2.9 degrees. So I think we need to find ways to accelerate the steady uptake of different diet, and find a way to positively, not force people, but positively get there much quicker.

**John:** Moving on a little bit, a lot of people talk about net zero, so what does net zero mean, how are we doing with it, and is it is it enough anyway, I mean, is it the right place to get to?

**Mike Berners-Lee:** Net zero means that the carbon emissions are equal to the carbon removals, so that the net amount of carbon or greenhouse gas [inaudible 00:13:50] is zero. And at the global level, it's a useful term, and roughly speaking, if we can get to that zero, then that's the point at which we can start [00:14:00] bringing the carbon in the atmosphere down again. At the national level, it still has some use, I think, for the UK, makes a sensible target, especially, if we could include into that target the carbon that's embodied in our trade, because we get a lot of our manufacturing, and our food production overseas and imported into the UK, and we should include that in our target, but still a useful concept. At the company level, it's actually a less useful concept in many ways, because the circumstances of every business are so completely different.

So if you're a farm, you probably can't get it to zero, but you may have a whole chunk of land that you're able to sequester carbon with, so it may be very easy to be net zero, so it's not so useful a concept. If you're a steel manufacturer, and we're still going to need some steel in the sustainable world, less than we use now, but some, and you'll never get that to zero, and unless you have this idea of an offset, which is you pay money for someone else to remove the carbon, but when you look hard at that offset concept, actually, it's a bogus concept, it doesn't stack up.

So any targets that a company has around working towards net zero, need to be verily split into two parts, the first thing is they need to be cutting their carbon on a steep trajectory that is in line with what the site says needs to be happening, which means high water [inaudible 00:15:35]. And then, if after that, they decide they want to fund some good causes that manage land properly to do some things that are great for biodiversity, and in the course of it, remove some carbon as well, that's a great thing to be able to do, but you can't trade one against the government. And actually, if you're going to donate some money to a low carbon cause, then [00:16:00] you might ask the question, actually, what's the highest leverage thing I could do to bring about the low carbon world with my financial donation, and that might point you towards something like funding legal action on something like Earth legal action on climate change, or something that might strike now, misinformation in the media or something like that. So actually, your options might be wider again than just planting trees.

**John:** Offsetting is no substitute for actually reducing, but unfortunately, it is being used in that fashion, isn't it?

**Mike Berners-Lee:** Yeah. And actually, there's some evidence that says that just the concept of offsetting plants, the idea in people's head that somehow it's okay to have had the emissions in the first place, and I think it's why the airlines are so keen so often so keen on the concept because they know that it will encourage more people to fly. So it's actually actively unhealthy.

**John:** Mike Barry?

**Mike Barry:** I work for a relatively small food business M&S, very small business on a global scale. It sold several billion individual items, to tens of millions of customers through several thousand shops, from several hundred food factories involving big supply by many tens of thousands of farmers and raw material suppliers. Tesco is six times bigger than that, and in essence of the food volumes, Walmart is probably 15 to 20 times bigger. You do the math, it's complex. You've also got the additional problem in foods of [inaudible 00:17:23] talk about later Scope 1, 2, 3 emissions. We all know that 80 or 90% of the footprint of the food system comes from what's called Scope 3, that's farmers, the forests, the fields, the fisheries behind the scenes that produce your goods.

Now, nation states, modern nation states are standing up to net zero of 2050 goals. That's what the UK has got. Good. The entire UK economy, 66 million people, and everything we do in that has got net zero by 2050. Many food companies are now signing up to net zero 2040, the British Retail Consortium, Zero Carbon Forum, Hof Hospitality, the National Farmers Union, the Food and Drink Federation on behalf of the food manufacturers, [00:18:00] good. 2040 is 17 years away. The Science Based Targets initiative has rightly come out and said to be credible in terms of net zero by 2040. You need to be off reducing at least 90 or 95% of today's footprint, not offsetting 10, 20, 30, 40%, maybe 5%, maybe 10% at most.

So every single one of those farmers, raw material sources, food factories, shops, the consumers, and the consumption of food has to change radically in 17 years. And I think too many food companies certainly don't have to [inaudible 00:18:34] we're going to offset the way out of this problem, offset could be 20, 30, 40% of what we do, and [inaudible 00:18:40] it just doesn't stack up in terms of sort of keeping within planetary boundaries. I know I’ve lived within that system, I know that typically margins within the REIT sector, 2 or 3% profit margins, hospitality the same, John you know how challenging it is. To contemplate a radical upheaval of a system that lives just in time, right on the very edge of profitability against Ukraine, Brexit, pandemics and everything else that's happened, to contemplate a radical change in that right now is really hard, but that's what we need. And offsetting can only be a tiny, tiny, tiny part of that journey.

**John:** Your conversation is making me move into Scopes 1, 2, and 3, because I think the differences and the importance of them is pretty paramount to this discussion, isn't it? And so, for the listeners, if we can just define Scope 1, 2, and 3, and, I mean, crudely speaking, give a feel for the percentage of business in those areas, so who would like to just give everybody a feel for Scope 1, Scope 2, Scope 3 definition?

**Mike Berners-Lee:** Scope 1 emissions is the emissions that arise directly out of your business, including through the exhaust pipes of any vehicles that you own. Scope 2 is the emissions that arise directly through the generation of the electricity that you use, and Scope 3 is [00:20:00] everything else in your value chain, and you can divide Scope 3 into upstream and downstream. So downstream is a sort of everything that happens to your goods and services after you've sold them, and that's methodologically, very complex and muddy for most businesses. But Scope 3 upstream, that's everything in your supply chains, goods and services, everything we spend money on is essential to have an understanding of the carbon that's in that. It absolutely is your responsibility. And for the vast majority of businesses, it's absolutely where nearly the vast majority of the carbon is. So 80 to 90%, that's kind of typical of most businesses. And going back a decade was very common, you know, most businesses were saying, oh yes, our supply chains are just too hard for us to influence. We can't possibly deal with that. And now, thank goodness, we've kind of, that battle has been won, and it's pretty well understood that your supply chain emissions absolutely do lie within your influence, and are your responsibility to sort out.

**Mike Barry:** It takes us back to 2007 when we launched Plan A M&S 15 years ago. We faced exactly this challenge, no one was talking about something called Scope 3, but we just recognised that that was where our main emissions were. But we did some basic heat mapping to say, look, 80 or 90% of our food footprint is up in that supply chain, but it can't be about everything. We didn't have the capacity there to deal with that. So we recognise predominately about meat, about food waste, about refrigeration, it's about forestry, four things that if you crack you take 70 OR 80% out of that complex Scope 3 footprint. So we learned about prioritisation. The second thing I would say is in the old paradigm, this world when I talked about which is about being a little less bad, you'd send off an email somewhat [inaudible 00:21:52] in this Ukraine thing, sort it out, not pop around and audit you in a couple of years' time to see if you've done anything about it. [00:22:00] Or while you're at it, cut your costs.

Now, the future is you cannot transform that value chain in the way that I was talking about a moment ago, 90% decarbonisation compared to today, by sending a snotty email. You have to put an arm around the shoulder of your suppliers, food factories, food processors, right back to the raw material producers, smallholders and farmers, and actively support them on their journey. So the food companies that come out the other end of this great transformation, the ones that recognise that this is no longer about shouting at your supply chain to jump higher, it's about supporting them on this journey. It's almost creating this capacity building extension capability in there. And the final point about Scope 3 is you literally, however good you are at correcting that university of transformation, you will not do it on your own, Tesco will need to collaborate with [inaudible 00:22:50] collaborate with M&S, Coke would need to collaborate with Pepsi. If everybody's asking for different things in different ways [inaudible 00:22:56].

And then, the final thing is obviously the policy system, I mean, we live in this atomised, leave it to the marketplace system. I'm a great supporter of the innovation the flows from capitalism, but there are some problems that will not be solved, unless the market works with policy system. And we've seen it with the old system of the UK environmental and management system, that's the replacement for the Common Agricultural Policy post Brexit. And we're doing the [inaudible 00:23:21] we're going to do a big thing, no we're not, yes we are. Farmer's confused, the food system's confused, everybody's suffering in the current climate, we have to join up and have a 10, 15, 20-year vision of how we're going to transform the food system in partnership – farmers, food factories, retailers and brands, and policy makers, that's the only way to change [inaudible 00:23:40].

**John:** Listening to the conversation, I think there's two things that struck me. One is at one end of the supply chain, and the other is at the other, which certainly for us at a Cafédirect, we're very much, you know, our job is to improve the livelihoods of smallholder farmers and the livelihoods and the environment in which they operate, the landscapes in which they operate. And as I think [00:24:00] Mike Berners-Lee said at the outset, you're talking about millions of families who are not getting a fair income and not being helped to change behaviour in general terms. And also, I think, are getting hit with the outcomes of this situation much more aggressively. We try to bring that into our home, we have farmers on the board, we work very closely on a number of aspects in terms of diversifying income, so that you've got different ways of running your business rather than just mono-cropping and all the kind of good things you can do. Where do you see the actions with smallholder farmers, how do we tackle this very diverse, almost underrepresented, well, definitely underrepresented community that has such a significant impact?

**Mike Barry:** I love what you do, because you're one of the few businesses that fused together ambition for the planet with ambition for people. Most net zero plans I see from big corporates coming out now, good, the words are there written on paper, net zero by 2040, 90% reduction in emission Scope 1, 2, 3, good, needs to be done, but the ambition is there. For people, all I see is compliance here, no kids in my factories, no sort of child labor out there in the coffee field, it's really basics. There's no sense of destiny to say we want to achieve something equivalent to net zero but for people and communities. And again, just playing the political card for a moment, we will not take societies, electorates with us on this journey towards net zero, unless they can see the benefits for them, their families, their communities, as well as the Antarctic in 20 or 30 years' time.

So I would challenge any big business to make their net zero plant far more human centric in the way that you've just outlined, and put people at the heart of it, and people who are motivated, don't just comply with the letter of the law, we go beyond it to find solutions that you and your [inaudible 00:26:00] in London can never find out, people in the coffee plantations now to grow coffee, not you. But you need to take it from being [inaudible 00:26:09] compliance issue for them to something that said this is about better outcomes, better coffee, better tasting coffee, better margins, better results for your workers, and for you as well.

**John:** Very much we're in it together, and we're leading ourselves through it together, aren't we? In hot beverages, a large amount of the carbon is very much at that end of the supply chain.

**Mike Berners-Lee:** It's a bit, I mean, people often latch on to the bits of the emissions that they can most easily imagine. So the energy that's being used on your machine, or at your cooker, or the transport miles because you can visualise them so easily, actually, the big deal is almost is usually going on in the field itself. But I mean, I think in terms of how we get the change, we've got to tackle this from all angles at once, so I think there absolutely is a consumer angle to this through simple dietary choices and so on. That's part of it. There are within industry, there is a whole side to making that consumer decision easier, make it appetising, suggesting it, normalising it on all of that, and supporting the supply chain as well. There's undoubtedly a kind of government in the UK for sure. There's undoubtedly a government support angle to it that has to be put in place. And I think in some ways, and I don't have the same level of contact that Mike has had or experienced, or either of you two have, of international small producers, especially. But certainly, I know in the UK, they are – individual farmers are some of the, in a way, they're some of the most powerless groups in this. I’m sure, it's the same overseas. [00:28:00] But there are so many farmers in the UK who absolutely want to do the right thing by the land for sustainable diets, and for a sustainable food system, and we just need to give them the opportunity to do that. And there's two things they need, first of all, the science of what is actually the right thing to do, is not yet bottomed out, it's very hard for a farmer to know, whether they should have cows on their field, or just re-wild it, or whether they could be growing a human edible crop or what. And if so, how, what kind of rotation to do, how do you do without so much fertiliser – all those questions are still very hard to map down. And then, once you've done it, it needs to be possible to have a business model to do the right thing, and that absolutely needs some funding support.

**Mike Barry:** The other challenge about farming and the whole food system is location dependent within reason, swapping a diesel car to an electric car will have the same benefit globally, albeit, we know there's different grid averages, eventually, they'll sort of align. Every farm is unique, if its soil is unique, and telling tens of thousands of British farmers to say you must all adopt the same approach for all your farms is actually wrong. And we need a much more sophisticated approach not just in government circles, but in business circles, to recognise that diversity of practice to deliver the same outcome, much lower carbon farming, much less impact farming today.

**Mike Berners-Lee:** We're just starting to work with a local farmer here in Cumbria, and within that one farming estate, there are at least five categories of land, all of which need a bespoke unique analysis on what is the right thing to do. And some of it is around, there's one bit of land that's around this kind of wild-land, and it's around is it, should they have any livestock on it at all, or should it just be a restored peat bog. There's another piece of land that has a rotation of human edible crops, and can that [00:30:00] rotation be changed to do away with the fertiliser. Then there's salt-marshes. I mean, there are at least five really nutty problems just for one farm.

**John:** That brings to life the point that Mike's making, it's not a homogenous one solution, apply it to them all kind of situation. We touched on consumers, and I remember being at a sustainability conference, I think it was about seven or eight years ago, where a leading restaurant chain was saying, well, we don't offer plant based because our consumers don't want it, and consumer is king. And we were along with a number of other people, and I remember a very young student from a university, very much passionately going, well, you have a responsibility to lead consumers. What is the right position for a company, and what sort of approach that a consumer can take? That's two questions in one.

**Mike Barry:** So let's talk basics here, 70% of people in virtually every marketplace in the world are saying they somewhat are very concerned about the climate crisis or want something to happen about it significantly. But they predominantly look at big business and big government, should make it easy for them. Because again, I work at retailer in M&S. M&S sells about 6 or 7000 food lines, I’m guessing Tesco's 30, 40, 50,000s. Somebody else might sell 100, 200,000. If I have to look at a label on every product in a 10-minute shop, while I’m worrying about the kids, and I’m worrying about the cost of food that I am putting in a basket, we're going to get nowhere. We need to shift to a different paradigm. So two thoughts, one is that we need to remove bad choices as business and government. So we have to be much bolder, saying there are certain products that are just disproportionately impactful, and have no significant pathway to decarbonisation. We need to remove them from the marketplace.

The second thing we need to do is, and I've sort of [inaudible 00:31:54] that Tescos are doing here. Tescos turn round to all its suppliers, all these products and said you need to decarbonise, [00:32:00] and to be on our shelves in the future, we need to see significant progress in what you're doing. I, as the consumer stepping into the Tesco store, don't need to look at all these different labels, because I know that Tescos have taken away the bad choices automatically. And then, every single other Tesco supplier is on a pathway to be in a much better place. Good.

The third part of it then you need to inspire. So Tescos and a lot of other retailers are doing much more now to encourage people to try plant based, trying lots of different techniques to do it. Their [inaudible 00:32:28] invested significant sums of money to bring the cost down of plant based, being the same as meat based. And Tescos [inaudible 00:32:35] got Better Basket, where it encourages people each month in trial store to look at certain number of exciting new products that are better for their health, and better for planetary health as well. Good.

So there are lots of different ways in that permit, starting from removing the bad choice for suppliers on the pathway to decarbonise, bringing, surfacing new ways of consuming food to the surface as well. And then, you've got this point about labelling. I know Mike will have a view on this, at the moment. There's been lots of trials going on, not just in the UK, but across mainland Europe as well, looking at different ways of communicating environmental and more specific carbon impacts of food. And I’ve just said, I don't think slapping a label on every single product is going to help, but I think with modern technology, and I keep coming back to this, you can start to build a digital platform that said I can go on to my favourite food ordering website, and there are many, so I won't pick anybody out in particular, and I can [inaudible 00:33:31] do not show me products that contain [inaudible 00:33:35] so I’m worried about deforestation, or single use plastic because I hate the fact it becomes waste, or don't show me high carbon products. So anything that's got a red on one of your labels, I think just have 6 or 7000 bad products removed from my eye line, and I choose from many tens of thousands of other food products, good products. I’m not looking at labels myself. I’m using this digital tool to screen away [00:34:00] the bad things. So I think we've got to reimagine how we make decisions about food in partnership with consumer, using new tools to do it.

**Mike Berners-Lee:** Yeah, I really liked that idea of being able to select to screen out all screenings in certain types of food, I think that's powerful. I think any labelling on the product itself needs to be kept simple for sure. I do think that the food industry at retail and at manufacturing is a point of, you know, it has a real point of influence. So a few years ago, I used to be getting sort of told this storyline from food retail that, oh, well, we just have to give customers what they want, we have to follow the market. That's such a dereliction of responsibility there. Supermarkets are masters of suggestion and choice editing, and they know exactly how to persuade, to make a customer twice as likely to buy one thing as to another. And so, there’s huge leverage opportunity here, I mean, just making sure that the main meal protein choices contain a really good choice, make sure that the first thing you encounter is plant based, make sure it's absolutely delicious and appetising, and so on. All that is so doomed, and we're working with a restaurant chain at the moment that is, you know, it's going crazy doing that kind of stuff. And it's a business opportunity, what's not to like about making your plant based options [inaudible 00:35:32]. And in food manufacturing as well, interestingly, we've worked with two ice cream manufacturers that had quite similar business models, one of them couldn't bear the thought of ice cream without dairy in it, they just thought that's how ice cream has to be. The other really got their head around it. They're going like a house on fire, and their plant based ice cream turns out to be fantastic. So I think there's lots of opportunity there.

And I think I just want to make this one broad point about the finances [00:36:00] in all this, which is that it is fundamentally much, much more efficient to provide new plant based nutrition than to provide animal based nutrition. So it's somewhere along the line, there's an economic opportunity, whoever it gets distributed to, whether it's that, it's the supermarket that ends up increasing its margin, or it's that affordable food, it becomes easier to provide affordable food on people on tight budgets, or whether it's that the margin goes to the food manufacturers, or the farmers themselves, or does it go to the government or whatever, somewhere, somebody has a margin opportunity, because the efficiency improvement is so massive.

**John:** And it's been a fantastic discussion, I think, not only has it helped to bust some of that jargon stuff, but it's been interesting to really get a feel for the scale of the issues and the problems, but also the capacity to make change and make change at quite a systematic level. So thank you both very much. Mike Barry, what are your two or three last thoughts?

**Mike Barry:** I mean, the big point, just there’s lots of reasons why the food industry right now in the middle coming out of the pandemic, Ukraine, cost of living things, will come up to this next year, the year after maybe. And I'd just point back to everything we should learn from the pandemic in Ukraine. In 2014, Putin invades Ukraine, and we all sit there thinking, he’ll stop there, won't he, and we all knew he never would, but we [inaudible 00:37:29] down the road and hoped he wouldn't, and he did. So with the pandemic, 2017, the UK government, there's a national risk assessment, the greatest risk that you just saw [inaudible 00:37:37]. The number one risk by country mile is a pandemic, our response to 2020 was pitfall because we have put that onto a shelf. The same thing is happening now with the food system. We know the food system, it's not – I’m not going to use the word collapse, because that’s very emotive, but it's under desperate strain. We know it and we're avoiding facing into it, as business [00:38:00] leaders, politicians, etc. So that's my first point, the food system is under huge pressure now from the climate crisis that it is contributing to, and is uniquely vulnerable to. My tactical point, and again, I’ve alluded to it briefly, but I’ll bring it together, data digital. I worked for small business, I went grey of hair trying to track and trace these billions of items from tens of thousands of locations, with a pen and paper, spreadsheet and basically an abacus. With big data, with AI, with remote sensing, I can start to do what Mike's talking about, which is go to each individual farmer, and make a decision about each individual field, and give packets of information to consumers that are useful at each individual product thereby. The food businesses that embrace data and digital to do both supply chain management and consumer engagement win.

**John:** Mike Berners-Lee, what are your final thoughts on this?

**Mike Berners-Lee:** I think I just want to emphasise, again, one point that's come up a few times on this podcast, just because it's so massively important. So for all the complexity of the food system, there is one thing that is so important and so clear, which is that, you know, and whether you want to feed the world, or look after our biodiversity, or deal with climate, or support Ukraine and keep Putin in check, or if you care about even animal welfare, or if you care about human disease threats, for any of these perspectives, it's the biggest thing we can do is to reduce the amount of meat and dairy in our diets by a very long way.

**John:** And it's good for our health as well, isn't it? I mean, I think we can all be choiceful. I mean, we can be very choiceful about where we work, and we can be very choiceful about what we do or don’t consume every day. It's easier said than done, isn't it? But the great thing is, and I think one of you said earlier, the choice has improved no end. I mean, [00:40:00] it's now very clear that you can have plant based meat or animal based meat, and you've got that choice.

**Mike Berners-Lee:** The role of meat in our lives has fundamentally changed over the last few decades, so a 100 years ago, for most people in the UK, for example, if you wanted to put one extra thing into your diet to help you live longer and healthier, it'd be meat, because it contained so many of the human essential nutrients that you might be lacking. And so, meat acquired all this status and sense of value around it, because it was the means by which we could live longer now. That's so not the case anymore. And, if anything, the opposite is the case. So the kind of fundamental underlining driver through which meat and dairy became such an attractive thing has gone, it's historic, it's obsolete, and now that's one reason why I think why we're so ready for that transition.

**John:** It's been wonderful to see you again, Mike Barry, as always, and it's really been great to spend some time with you, Mike Berners-Lee. Great to see you. Thank you for your help.