

# Barefoot Innovation Podcast with Congressman Bill Foster, Member of Congress, House of Representatives

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Jo Ann Barefoot: We have a fantastic show today. I am thrilled to have back on the show, Congressman Bill Foster, who represents the 11th Congressional District in Illinois. And we've had you on the show before, it was fantastic. So I'm thrilled to be able to sit back down with you. Welcome.

Rep. Bill Foste...: Well, thank you. Happy to be here.

Jo Ann Barefoot: I had the chance to see you speak recently at an Aspen event and thought I really needed to get you back on the show. You've got so many interesting things to say. I'd like to start, you have a very unusual background, I think, among members of Congress. A lot of our listeners know I used to work for the Senate. I'd like to start by just asking you to tell us about yourself and your background.

Rep. Bill Foste...: Well, I started out in theater stage lighting. When I was 19, my little brother and I started a company that now manufactures the majority of all theater stage lighting equipment in the US. But we had the bright idea of using the newly invented microprocessor to control theatrical stage lights. And so-

Jo Ann Barefoot: Wow, what year was that?

Rep. Bill Foste...: 1974, and so this was something that was a tiny operation. We started out in our basement with \$500 from my parents, and then actually, dad kicked us out of the basement because we were making too big a mess. So we went up to my bedroom. And then when we got our first order, we moved to a little tiny metal shed in a cornfield, and now it's a great big metal building in the cornfields and it's got about 1,300 employees. And as of the first of this year, this business that I started almost 50 years ago now, has become completely employee owned.

Jo Ann Barefoot: Really?

Rep. Bill Foste...: It's a really-

Jo Ann Barefoot: Congratulations.

Rep. Bill Foste...: Yeah, they're dealing with the turnover of generations in a business, it's always the biggest challenge. And the idea of an ESOP as they're called, Employing Stock Ownership Plans, it really seemed to fit the culture of the company and I wish them well. I actually had my partners buy me out 15 years ago when I

entered politics, because I did not want to be casting votes that affected my net worth, which it turns out is a problem in Congress. And so I was able to avoid that.

But then after, from starting that company running it for about most of a decade, I returned to my first love, which is physics, and I got a PhD from Harvard in high-energy particle physics. And have spent most of my career smashing protons and antiprotons together to make particles that have not been around since the Big Bang. Actually, just a couple of years ago I got a Lifetime Achievement Award for the particle accelerator work that I did at Fermi National Lab.

Jo Ann Barefoot: Oh my goodness, congratulations.

Rep. Bill Foste...: Actually, if you're ever flying into O'Hare from the west, if you look downward, you can see these two giant rings out in the prairies. Inside one of those two rings is a machine that I invented and led the teams that built the magnets for it.

Jo Ann Barefoot: That's fascinating.

Rep. Bill Foste...: And so after, the question I always get at this point is, "Okay, bill, so you have a pretty interesting career in science and then business. So, why on God's green earth did you get to politics?" My quick answer to that is I felt prey to the family's recessive gene for adult onset political activism. Then this is something that runs in my family. My dad was a scientist who left science and became a civil rights lawyer. Dad actually wrote a lot of the enforcement language behind the Civil Rights Act of 1964, one of the biggest steps forward for human rights in our country's history.

Jo Ann Barefoot: Wow. So you ran for Congress.

Rep. Bill Foste...: Yep, and so I ran for Congress after being represented by Dennis Hastert for 22 years, and becoming less and less happy with the way he was representing my voice in Congress. And so I thought, before I just give up in disgust, I would try to make things better. So I began running against Dennis Hastert in 2007, and then halfway through that campaign he quit, basically to become a lobbyist. This was before he had been caught with various things. And so then that triggered a special election, which I won. So I won the special election in March of 2008, representing a very historically Republican district, and it was not an easy district for a Democrat to represent.

But then I got put on financial services committee in March of 2008, right before the roof was falling in. And so I was very involved in both the emergency response to the financial crisis, then the legislative response, the Dodd-Frank Wall Street Reform Act, that I'm very proud to say has prevented banking crises since then, which is quite remarkable when you think about it. I guess my goal in that, the whole business, is to die before we have another banking crisis, and

then I will have done my work out there. But this, the whole business with financial services has become more and more technological. At this point, after 15 years in this business, now I am the lead Democrat on the subcommittee with oversight over all banking and monetary policy, which is, well, it turns out both of those are very technical and very different.

The interest rate increases that everyone talks about in the news every day, and a lot of that is determined by these big computer models that the Federal Reserve runs to model our economy. And during the financial crisis when we were designing stimulus and the stimulus package for that, we hired in, we brought in all the experts to testify, if we make this kind of stimulus, here's what my computer model says it will do. And so at one point I just asked him, "Could I please see the code for your computer model?" They were sort of startled to get that question for a member of Congress.

But then after appropriate nondisclosure agreements, I was shown the formulas and code behind the models. And I was absolutely startled to find that at the core of these models, these big models which are called aggregate supply and demand model, it's a modified version of something called the Cobb-Douglas Production Function, which is, comes from one of the most cited members... oh, sorry, cited publications in all of economics. And the Douglas in the Cobb-Douglas production function is Senator Paul Douglas of Illinois, who was a Senator back in the 1950s, and I guess, early '60s. And my mother worked for Senator Paul Douglas on Capitol Hill, and that's where my parents met.

Jo Ann Barefoot: Oh my goodness.

Rep. Bill Foste...: So we have somewhere here a picture of me with Senator Paul Douglas. No, sorry, not me, my parents with Senators Paul Douglas.

Jo Ann Barefoot: Wow.

Rep. Bill Foste...: Back in 1952.

Jo Ann Barefoot: I have a theory and it's based on absolutely nothing and may be wrong, that to the extent that the Fed is successfully creating the so-called soft landing, it might be because the data has been getting better and better and more plentiful as time goes on. And if so, it might bode well.

Rep. Bill Foste...: That's right.

Jo Ann Barefoot: Let's hope.

Rep. Bill Foste...: And there's a big... A lot of times to an engineer when they listen to these arguments about interest rate policy and so on, they're talking about engineering control theory. All the, they have very fancy economist names for all these things. They're basically, you have a lagged feedback loop. And so this is

sort of standard engineering theory, which the economists have sort of partly discovered. But I think there's a lot of, if I ever decide to go back to academics, I may try to teach a course to economists about engineering control theory, because so much of what they think about is second nature to-

Jo Ann Barefoot: I love that. I'm completely convinced that progress in our fast high-tech world is coming from people breaking the silos down and gathering information from across different fields and so on. So, this is a perfect lead-in to where I wanted to take the conversation. You're one of the most technologically focused members of Congress. I think the last time we talked, you said you were the only nuclear physicist in Congress, still are probably.

Rep. Bill Foste...: That's right. I don't want to over claim, but I think I'm the only member of Congress who's designed and built a 100,000 ampere superconducting power transmission line.

Jo Ann Barefoot: It seems like a good theory.

Rep. Bill Foste...: Maybe there are others, I just haven't discovered any yet.

Jo Ann Barefoot: Haven't found out yet. So, you are involved in leadership on artificial intelligence, on FinTech, all across the board on the technological activities.

And so I'd like to start broadly by asking you where you feel we are from a policy standpoint on the big issues that are facing our society, our economy. We know that many other countries and other parts of the world have been more proactive than the United States have in legislating and regulating in areas like data and privacy, artificial intelligence, crypto assets, and blockchains and so on. What do you think we need to be doing and what do you think, are we doing all right or what needs to happen differently?

Rep. Bill Foste...: Well, we're certainly doing all right in the competitive aspect of it. I mean, the greatest machine learning people still want to come to the United States. They may be willing to hang out in London for a little while, but after that they pretty much want to come here. And that's just because of the dynamism of the venture capital industry.

There was a lot to worry about that model, that many of the cross investments of the big tax firms have me worried. It smells to me a lot like the interlocking directorates, that we're a big part of the bad things that happened in the 1930s in the United States. So we have to make sure that there's real competition going on, not in these.

But there's no question that AI is the big issue for the coming decade and maybe for longer than that. And so then what can Congress really do? Especially because the technology is moving so rapidly. In banking regulation, we understand the risks. And so that's possible to set up the banking regulation

system that we have set up that seems to be working pretty well. And that only works because we can quantify the risks that bank is undertaking by looking at a couple dozen numbers for a bank. And so you just send in the regulator, you'd send in the auditors, make sure that the numbers aren't being, they're not being fraudulent. And then as long as that test passed, then you just compare the thresholds and you can find out if the bank is likely to blow off or not. And that's because the risks are understood. For AI, the risks are not understood and there is no analogous set of inspections we can make to understand. And that is something that's getting more and more difficult.

In the last session of Congress, I was chairing the task force on AI in financial services. Now on this session of Congress, speaker Johnson has set up an AI task force throughout, a bipartisan task force throughout all of Congress, I'm serving on that. But the sort of AI's that we were talking about a few years ago, there are things like, you're going to analyze the credit history of someone. You put someone's entire credit history into a big neural net and it flows through the neural net and outcomes an answer that yes, we're going to give you a loan, or no, or yes, but with this interest rate premium, whatever. And those sort of things are things you can test for bias and all the other things for evil behavior, because you just put 20,000 synthesized credit histories and then you look and see if it's systematically discriminated against people, in illegitimate ways.

But the AI's that we're talking about now are AI's that learn from their experience. So-called stateful AI's, and those are simply, the search space for bad behavior is too large to possibly ever do. It's sort of the situation's analogous to you teaching your child and you teach your child perfectly and you raise them perfectly, and then you send them off to school. And there is no guarantee they're not going to pick up evil behaviors from what they learn at school. And it's one of the reasons why in our society we do not hold parents responsible for the actions of their children, unless they do something stupid like give them an AR-15 for their birthday. But absent outrageous behavior, we pretty much hold parents harmless, simply because we know you cannot guarantee that. But for the big AI firms, we are going to have to hold them responsible for the actions of the AI's that they unleash on the public. And so that's a tough discussion that I don't know the answer to, and that's a big part.

And if I, now there's one specific thing that I think is important for us to get right in Congress. Well, first off, there's a lot of useless things that Congress talks about doing. The Republican Co-Chair of the AI task force, Jay Obernolte, has a saying that many of these blue ribbon panels and so on, on reports on AI, are a little more than a cluster of buzzwords flying in tight formation, which I have to say, it hits it on that.

Jo Ann Barefoot:

Oh, dear.

Rep. Bill Foste...:

And so, but there are specific things that Congress could do that'll help. I think at the top of my list is to provide a secure digital ID for people who want one.

Jo Ann Barefoot: I was going to ask you about this, yeah. Go ahead.

Rep. Bill Foste...: Because this is something everyone is creeped out by deepfakes, right? And everyone says, "Oh my gosh, this is terrible." And their first reaction, we have to come up with some magic software that's going to tell the difference between a deepfake and a real thing. My guess is that that's a losing battle, that things are getting so good so fast that we're not going to win that one in the long run. And so the next thing you can do, the next best thing you can do is to provide citizens who want with a means of proving they are who they say they are, and not a robot, not a deepfake impersonation. And the tool at hand for that is a so-called secure digital ID. And these are things, for example, these are electronic passports, these are mobile ID, digital driver's licenses sometimes. And the way they work is they combine sort of three things.

First, a government issued credential like a passport, like a Real ID compliant driver's license that says the government recognizes you as a single, legally traceable person. Then you combine them with the trusted electronics on your cell phone that do two things. The electronics in your cell phone can first off identify that cell phone as a unique device in the world, like a security dog, is a unique device.

And the second thing, it's, cell phones are getting really good at recognizing their owners. So they can give you an assurance that your phone hasn't been stolen, that it's really in your possession. And so everyone's familiar probably with the cell phone's ability to scan your face as you power them up, but they're doing all sorts of really sort of scary and creepy things to recognize their owner. Well, one of my favorites is that to use the infrared camera on your cell phone to image your veins and arteries on your hand or some other body part, and then this gives you a tremendous amount of information. The branching patterns and all your veins and arteries, pretty much make you unique in the world. It's sort of like your retinal, your retinal, but people are less creeped out with getting a photograph of their hand and a photograph of their eyeball. Anyway, so this provides you with a means of uniquely identifying, proving you are who you say you are to your cell phone. Okay?

And then the next thing that the cell phone could do is then prove you are who you say you are in an online environment, because there's a huge difference between the offline and the online use case. If you think about TSA's job, it's pretty easy because you show at the airport, you say, "Here's my passport or driver's license or whatever," then you can present that electronically on your cell phone. And then they look at it, they verify it's correct, and then they look at you and you say, "Yep, you're that person." That's easy.

But now if you are presenting yourself with an internet connection, if an internet connection comes in and says, "This internet connection claims it's Bill Foster." How do you know it's Bill Foster? And then the best you can do is to say, "First off, I'm going to interrogate the trusted electronics on my cell phone to make sure that that is the cell phone that's registered with Bill Foster's digital identity.

Secondly, I'm going to ask the cell phone, are you confident that Bill Foster, that you are in the position of Bill Foster and someone hasn't stolen this?" And so you have to trust the electronics in there. And then the third thing is that you just have to do the cryptographic assurances that this is a validly issued license.

And so you put all those things together and you have a pretty solid way of proving you are who you say you are in an online environment. And so this is, I think, and this is what our government needs. The things that have been pushing politically in favor of the adoption of digital driver's licenses or secure digital ID generally, is the huge amount of fraud in our society. There were estimates during COVID that between 60 and \$120 billion were stolen from the federal taxpayers by things like fraudulent unemployment insurance claims. And a lot of this money unfortunately, appears to have gone to North Korean and Chinese hackers. And so confronted with numbers like that, there's a scream from the general public and from all members of Congress says, "We have to find a way to stop this." And it's only a secure digital ID that really solves it. The countries that had a secure digital ID did not have this problem with massive amounts of COVID identity fraud.

And so it's the deep fakes are forcing the adoption, the huge amount of fraud in our country are forcing it. And then the sort of shift in public opinion. Traditionally, whenever you propose anything that sort of smells like a national ID card, that you have sort of the ACLU jumping down your throat from the left, and then you have what I call the Red Dawn people jumping down your throat from the right. And these are the right-wing libertarians. And both of those groups for very different reasons have sort of stood back on this issue. And the ACLU actually, about a little more than a year ago, put out a very thoughtful report on digital driver's licenses, and they basically came to the conclusion that the real-life threat to privacy today is much larger from having someone impersonate you online, than, oh my God, here's this big database.

Because in reality, I think we all realize that there are these big databases about us that know everything about us, and we know that under some circumstances the government can get their hands on those databases. And we have to do our best to make sure that that only happens through legitimate operations. But that's the reality. So this is, so the shift on the left then has come from just the realization that you're better off having a secure digital ID. That if you read the closing sentences in the ACLU report, they say, "If this is done right, it will be good for privacy and good for equity as well," because the biggest beneficiaries are going to be those without the ability to prove they are who they say they are. They can't just whip out their gold credit card and check into a hotel. They don't have that credential.

And then on the libertarian right, it's very interesting. It's a regular thing to see people on the floor of the US House from the Republican Party, demanding that we have a national registry of who's allowed to vote in which precinct. And then a way to prove that you are when you show up there, that you're not a fraudster. Well, they've kind of invented the national ID card with this demand, in order to

prevent Joe Biden from stealing the election again or whatever fantasy they're pursuing these days.

And so this is, for a bunch of forces are converging. And interesting, the EU has adopted exactly this. All of the technology for this is inside everyone's cell phone today. That technology was developed by NIST, the National Institute of Standards of Technology back in the Obama Administration. And that has now been adopted by the International Standards Organization, and that is what the EU is adopting. Within a year or two, every citizen of the EU will have the ability to prove they are who they say they are online, using a modern cell phone in the EU identity credential.

And so I think this will be a very... Well among the EU, it will be, I think, a unifying thing. If you boot up your cell phone and you say, "Okay, I've got to go prove I am for some security purposes," and you boot it up and you say, "Yes, you are an EU citizen." And I think that that could be unifying in America as well, that you're not just a citizen of Mississippi, you're a citizen of the United States. And so I think this could be really valuable. And it will require a very high level of cooperation between different governments.

A simple example of that would be the Witness Protection Program. If you think about, what is a Witness Protection Program? It's basically government-sponsored identity fraud. Right? And so you'll have a situation where there's someone's on vacation in France and the French government will say, "Wait, wait, it looks like we have some identity fraud going on." And the US will get a phone call and you'll say, "Shh, that person, that's a retired Russian spy," or, "That is a woman who's got an order of protection against an abusive spouse." That is, it may look like identity fraud, but it is government-sponsored identity fraud for witness protection or similar.

And so the level of trust you need between governments has to be very high. And for that reason, I think the identity scheme that we'll have to come to will be one that's shared among the free democracies of the world. And that also could be a unifying thing, where you realize that, okay, I accept that someone who's got their driver's license in Bavaria can be trusted in the United States and vice versa, maybe not so much in North Korea. And so this will be, I think, something where when people understand the connection between digital identity and national identity and privacy.

Now, one of my frustrations in this business is that the United States has not adopted a privacy bill. Most civilized countries of the world, certainly most advanced countries, you have a privacy bill, and we have not. And I believe that's very much connected to the fact that we don't have a digital identity. When you look at the nuts and bolts, you actually can't really have a privacy bill that works unless you have a secure digital identity.

For example, under most of these privacy bills, one of your fundamental rights is to be able to go to a company and say, "Show me the information that you're



holding on me." And so then to which the next question will be, "Okay, who the hell are you? And how do we know that you're not some hacker trying to steal that information?" The only answer to that is to say, "All right, get out your cell phone and present your secure digital identity. Prove you are who you say you are, and then we will tell you the information we're holding on you." And it simply won't work without that.

And actually, if you look at the bill that they just pulled down in the Energy and Commerce Committee, which they couldn't get the votes for it, a big flaw in that bill if you just read the text, is they did not have any concept of what the identity regime was going to be that would actually make that work. And so that's why for several years now, my office has been trying to get the government at least, to use a secure digital identity because that will save the taxpayer billions of dollars a year, tens of billions of dollars a year and make everyone feel more secure about their dealings with the government. So that's high on my list.

There's another thing that's AI related. Yes, go ahead. Sure.

Jo Ann Barefoot: Oh, I don't want you to lose your thought.

Rep. Bill Foste...: Yeah, no, go ahead.

Jo Ann Barefoot: So as you say, the digital ID issue has been stuck for a long, long time. You mentioned NIST has been working out.

Rep. Bill Foste...: It came very close. We came within one member of Congress, of getting at least the government part of digital ID moving in the last session of Congress.

Jo Ann Barefoot: Yeah, so the progress is... So we're getting closer?

Rep. Bill Foste...: We're getting closer.

Jo Ann Barefoot: And you sound optimistic that-

Rep. Bill Foste...: Well, you have to be optimistic to take my job at all.

Jo Ann Barefoot: I hear you.

Rep. Bill Foste...: Okay?

Jo Ann Barefoot: So, and one of the frames that I bring to this is that for a long time, digital identity was being framed particularly as a financial inclusion issue, more so outside the US than inside the US, but really, both. And it seems like it's getting a second stream of momentum because as you say, of the fraud issue really rising to the top. And now more people are interested and concerned about it. Can you envision what the pathway is? So many players have to be involved, even just within the US, and as you said, it really ultimately has to be within all the

democracies and globally working. Who needs to do what first? Who should own the... Is it NIST that can drive the sort of layer of standards that's needed?

Rep. Bill Foste...: Yeah, well, NIST traditionally defines standards. They do not enforce standards. And that's very, they defined all the standards for driver's licenses, but they do not issue them.

And so I think the first thing we have to do on that front is to get all the states to issue Real ID compliant digital driver's licenses. The Real ID regime is really, it functions with a distributed set of biometrics. Your biometrics are held by each state individually, which somehow people are comfortable with, I guess. I guess they're just really confident in the cyber security of North Dakota, but okay, whatever. That's what we're comfortable with. And then there are regimes, agreements between the states and the AAMVA they're called, it's the Motor Vehicle License Issuer Association. So that for Real ID compliant driver's licenses, if you try to get one license in New Jersey and another one in Illinois, you'll probably be caught doing that. So at that point, you've got something that is really a pretty solid, unique identifier for each citizen.

And then what's missing then is to adopt the NIST standards for information exchange to present this in a privacy preserving way. And the NIST standards have a number of very good and privacy preserving features in them. For example, if you're a, classic example, if you want to just buy alcohol, you have to prove you're over 21 and a citizen of the state. So you can take out your digital electronic driver's license and then select, prove that I'm over 18 or 21 or whatever the law is, and prove that I reside in the state and don't tell them anything else.

Jo Ann Barefoot: Exactly, yeah.

Rep. Bill Foste...: And so then that, you can provide the minimum information necessary. This will also be very important for doing things like keeping kids off inappropriate websites. In fact, one of the first applications of this in Louisiana was to try to make it, they passed a law that says you can't have pornographic websites in Louisiana unless you present a digital driver's license showing you're over 18. And of course, all the kids just went and got a VPN and pretended they were from Utah. So this generated a huge spike in the number of downloads of VPNs soon as this law went live, but so there are technical things that have to be worked out. But for many applications, it's going to be really, a magic bullet.

Now, the tech firms have understood this, that they'll log in with Google or log in with Facebook, and that uses the capabilities of your cell phone if you ask it to identify its owner, so on. But people are really, they're uncomfortable with the idea that the future of identity is going to be logged in with Google, because Google has shown they're not completely trustworthy with their claims about privacy preserving things. And this is, and so people are in the end going to be more comfortable with saying that. Look, one of the essential functions of government is to maintain a list of its members. I mean, sometimes I'm struck by

the fact that the US government is the only club that I know, or the United States is the only club that I know that does not have a list of its members. And so this-

Jo Ann Barefoot: Interesting, yeah.

Rep. Bill Foste...: And we have to get through on the democratic side particularly, we have to get through the problems with undocumented people on this, because if we're not careful here, if this becomes a necessity of life, then it's going to be very hard to be an undocumented person here.

Jo Ann Barefoot: But I agree with everything you're saying and one of the use cases that people point to is the ability to deal with refugees, for example. In so many parts of the world, people are detaining refugees because they aren't sure who they are and whether they're a terrorist or something like that. And with the Real ID system, you'd be tell whether the person is who they say they are.

Rep. Bill Foste...: Yeah. Well, actually, the federal government, the Biden Administration has done a tremendous job with implementing this CBP One, which is the Border Patrol app. So if you're an asylum seeker, before you cross the border into the United States, you are encouraged to download this app, put all of your information in it, and then register for an appointment to go across one of the legal crossings and a legally agreed-upon time. And this more than anything is pointed to as the reason that the border crossings are down. They're actually lower today. The number of illegal border crossings today is lower than it was in the last four months of the Trump Administration. And the large part of that is because they have an app that does this, and also, they collect biometrics. When you register for asylum, they collect biometrics and they say, "Okay," among other questions they ask, Have you ever tried, been caught sneaking in illegally?" And if they catch you, then you go to the back of the line for your asylum claim.

And that's made it easier because if you're an asylum seeker or an immigrant, you do not have the right to a lawyer because you aren't under the constitution. And so that legally that's easier to do. But just because they have done a pretty high-quality implementation of that, of the CBP One app as it's called, it's getting the border under control.

Just since we've been talking about AI, I want to point out [inaudible 00:34:19] one thing. The American Immigration Lawyers Association is partnering with an AI startup to make an AI immigration advisor.

Jo Ann Barefoot: Really? Oh my gosh, I'd not heard that.

Rep. Bill Foste...: Isn't that [inaudible 00:34:33]? I just watched your face light up.

Jo Ann Barefoot: Oh, I love that.

Rep. Bill Foste...: When you realized the implications of that, because you don't have a right to a lawyer. But I mean, one of the great things about AI is that it's actually going to be a real economic leveler.

Jo Ann Barefoot: I agree.

Rep. Bill Foste...: There's a horror scenario that it's an ancient science fiction plot where there's one person who owns the robot factory and nobody can compete in any job with a robot's built by the robots in this factory. And then all wealth in the country funnels to that one person, and then the economy stops. Okay, but it doesn't have to be that way and there can be some really good news. This is, I think, related to this incredible fact that if you're a billionaire, you cannot get a better iPhone, which is incredible and true, or you cannot get a better Wikipedia.

Back when I was a kid, it was a big... If you were, your parents are wealthy, they would buy you an Encyclopedia Britannica. If you were not so rich, you got World Book. And if you had not so much money, then you'd go to the library. All right? And now, every one of us has our pocket, the best encyclopedia that's ever been. Right? So in the future, soon we are all going to have in our pockets the best legal team that's ever been assembled. A legal team that's read every court decision, ever. They'll know all of the arguments that won and lost, every one of those court cases. And so if you ever get in a legal fight with a billionaire, the billionaire is not going to be able to hire a better team of lawyer than you already have for free in your pocket. And so it's that sort of thing that will actually level the playing field, in a lot of ways.

Jo Ann Barefoot: I could not agree more. Before we move on from digital ID, and I'm going to do a time check because I know we're going to run out time with lots of more things to talk about.

You use the term, magic bullet, and I've been using the term like, skeleton key. Digital ID can solve problems in fraud and money laundering. It can solve problems in financial inclusion and counter-intuitively, for a lot of people it can solve the problems with privacy. People feel it's a threat to privacy, but as you have said so interestingly and eloquently, it really is the solution. And tell me if this is right, if you localize the sensitive information in the phone, then it's protected in a way that... I think people envision that a system like this means their data's getting sent to Washington to some big computer where everybody-

Rep. Bill Foste...: Well, a simple example of that, some phones have a fingerprint reader. And so when you put your fingerprint on there, the detailed information of your fingerprint never leaves the chip underneath the sensor.

Jo Ann Barefoot: There you go.

Rep. Bill Foste...: That what they do is that they just store a summary of the loops and whorls, some digitize encrypted version of that. And then even if you're eavesdropping on the communication between the thumbprint reader chip and the computer chip in your phone, you can eavesdrop on that and have no idea what the actual fingerprint is. And that's sort of thing is more difficult with the camera, you have a camera instead of a fingerprint reader, but it can be done. And-

Jo Ann Barefoot: Yeah, not architecture.

Rep. Bill Foste...: That general thought pattern is better. Now you still need the ability to back up your data, and so that has to be in some encrypted, encrypted cloud backup. And that will work for a lot of the purposes, sort of in the dream world that I guess all of us now inhabit thinking about what it'll be like. You check into a hotel, all right, and your cell phone's AI will communicate and say, "Bill Foster likes the temperature at 72 degrees and he likes the lights to be dimmed at 10:30 at night so he starts getting sleepy." All this sort of stuff happens automatically. And your cell phone's AI is negotiating with the hotel's AI, and the hotel has a license that says you will delete that information about Bill Foster under 24 hours, and then there will be inspector AIs that will go on audit.

Jo Ann Barefoot: Exactly.

Rep. Bill Foste...: The data retention.

Jo Ann Barefoot: Exactly, yeah.

Rep. Bill Foste...: And it's going to be be really good. And it's going to also, but there's going to be grief for a lot of the businesses out there whose business model is to steer people into crappy, overpriced products. Like if you think of buying a used car. Very quickly, all of us will have the equivalent of a really cagey uncle that will tell us all the ins and outs of buying a used car, what to be careful for. We'll go out and if you ask it to negotiate, scan the inventories of all the nearby used car salesmen, and then when the salesman tries to steer you into some crappy overpriced loan, it will say, "Thank you very much. I've just scanned the internet and I'm going to take this automobile loan from the low-price vendor there." But it's going to squeeze the margin out of a lot of consumer facing businesses. And even things like banks that pride their selves on individual customized service, if you're not dealing with a customer but with a customer's AI, then the value proposition is going to change a lot.

Jo Ann Barefoot: So I wanted to ask you about this topic specifically, because we've been doing a lot of thinking about it at AIR. Could we equip everyone with an AI agent that would be their financial protector and guide? And it could do everything from helping you select a product, it could do easy things like paying your bills on time, and whatever.

Rep. Bill Foste...: Or negotiating your used car purchase.

Jo Ann Barefoot: But yeah, negotiating a used car purchase, catching the tricky hidden terms in a loan product. Evaluating the privacy and security controls and the data use controls, protecting yourself from scams also maybe.

Rep. Bill Foste...: Yeah, that's right. Well, a couple of things. That is sort of my goal in this, is that someone, I don't know whether it's Wikipedia or someone provides for very low cost or free AI that's really on your side.

Jo Ann Barefoot: And it would have to be legally obligated to, excuse me for interrupting, but feel like it would need a fiduciary type of duty.

Rep. Bill Foste...: It could.

Jo Ann Barefoot: And couldn't have a secondary agenda that was based on-

Rep. Bill Foste...: Yeah, that's right. That's right.

Jo Ann Barefoot: Somebody else's best interest.

Rep. Bill Foste...: The truth of the matter is that all of us will need an AI between us and the internet, because the internet is so big and our brains are so small that you need to have an AI that will figure out what tiny fraction of all the information out on the internet will capture our attention. And so the problem happens when that AI is not on your side. If that AI is the Google search engine AI, that does not work for the customer, that works for the people who advertise on Google. And then the business model is to steer people into crappy, overpriced products by putting them first on the search list. Okay, and it doesn't mean they're evil, that's the business model. And so then the question is how you ensure that the AI is on your side. And that, yeah, my district director in Illinois tells me I should trademark that term. The AI on your side.

Jo Ann Barefoot: I like it.

Rep. Bill Foste...: Because it's sort of the, that's my goal on this. And it's really tough because people will very quickly really trust these. Are you going to make that the title of this podcast?

Jo Ann Barefoot: Only if you want me to.

Rep. Bill Foste...: Oh, okay, sure. So people will very rapidly learn to trust the AI that they depend on. And so the amount of mischief that can happen if that AI is actually not really on your side and is manipulating you. Very much the way the Facebook AI algorithm, that works for the advertisers in Facebook, to try to keep your attention focused and not so much worry about whether our democracy survives. And so that's a tough thing.

It also, you have to understand, what does it really mean? What are your personal goals here? If you're a financial advisor AI, do you want to advise people so they have a really enjoyable job playing day trading in the stock market? Is that your goal? Because if you ask people, they'll say, "This was great. I had a great afternoon day trading," and/or do you say, "We want you to have the highest probability of being a well off when you're 78 years old?" Okay, what's the goal here? Because they don't give the same answer. And that's going to be a tough one. You have to define from a programming point of view, what's the objective function that you're optimizing?

And it isn't just... One of Warren Buffett's most memorable phrases is that you don't want to defer all your consumption forever. It would be a mistake to defer all of your sex until you're 70, which I thought is a rather... You don't want to save your sex until you're 70. And so trying to understand that trade-off of consumption now or savings. Many financial advisors try to focus people on savings because we under-focus, but that can be a mistake too. And so it's not like there's one best answer here, but you want to make sure that when the person is sort of made his preferences clear, that the AI does their best, its best to make that happen.

Jo Ann Barefoot: So we have less than five minutes left. We're in your office on Capitol Hill, and I know you've got a pressing schedule. I guess I'd like, I was hoping to ask you if you want to comment on it, about the need for the financial regulatory process, which is under your committee's purview to modernize along with all of this. And you were a co-sponsor of the Futures Act, and we did a podcast with Representative Houchin and I know you and she and Congressman Hill sponsored that. And we actually submitted a letter supporting and we thought it was a brilliant idea to ask the regulatory agencies to think about their own preparedness for overseeing this high-tech, fast-changing financial marketplace. That's one area.

But I really just want to open the door as to what else you'd like to touch on. We didn't talk about digital assets and blockchain. We didn't talk, there's a lot of other things. So what's top of mind?

Rep. Bill Foste...: What's top of mind right now is there's this big problem, almost emergency, with the high-end AI chips being smuggled into China. All right, and that's an obvious danger. If you think, there are people I respect who in this business, who in the business of AI, who are saying that AGI is maybe not a year away from them. Okay, and so one of the immediate uses-

Jo Ann Barefoot: So just for this audience, artificial general intelligence.

Rep. Bill Foste...: Yep, and so this is a computer program that can outperform humans at most cognitive tasks. They already have programs that can beat humans at competitive math exams and so on, and it's not slowing down. And so then in the rate of progress, I've been using these coding assistants for a couple of years now, and the rate at which those are getting phenomenally good is impressive.

So I think it's more likely than not, personally, that within a couple years you're going to be able to have an AI that can say, make a superior version of yourself, and it will be able to recode and improve version of itself and test it and deploy it. And so at that point, it's not clear that you're not in a singularity loop Even that, even if you've only solved the AI part of the problem. And so that could happen really quickly.

And so I've become gradually more and more of an AI alarmist, how I've seen the progress here. And so then one of the worries on this is that the moment you have AGI or even very powerful normal AIs, the most important thing to win a war is logistics. Any general will tell you that. And guess what? An AI, an artificial general intelligence is the best logistics. They can look at where every asset that you control and every asset the enemy controls exists. They can play out future scenarios to say, "Where do we have to bomb to cripple our enemy the most?" You do not want that AI in the hands of our adversaries. And the fact that-

Jo Ann Barefoot: And who's smuggling the chips, doing that?

Rep. Bill Foste...: Well, the Wall Street Journal has interesting speculations on it, but there are companies probably for profit, the companies may be subsidized. But you deliver a bunch of chips to Singapore and they say, "Oh, we're going to use them in Singapore or wherever," and then they just sort of disappear. And then I think there was a recent headline in the Wall Street Journal is that it's cheaper to rent AI processor farms in China than it is to rent them in the United States.

Jo Ann Barefoot: Oh, geez.

Rep. Bill Foste...: All of which have, most of which have been smuggled. Anyway, so there's a solution to this, which is simply to make, when each one of these advanced AI chips boots up, it attempts to make contact with a trusted server in a known location. And so it pings the server because if you can ping, if your chip powers up and it can ping a server in Palo Alto with a one millisecond ping time, it knows it is not in China. So you can use this mechanism, it's called distance bounding protocols. There's a Wikipedia article on distance bounding protocols and a very good article that discusses this by the Institute for AI Policy and Strategy. It's called Location Verification for AI Chips, that pretty much goes through what's necessary. So we've drafted legislation to make this mandatory so that these high-end AI modules have to, as part of their secure boot, make sure that they are within a small pinging distance of a trusted server that we know where it is. And if they are not, if they cannot do that, they will just break. They just won't boot.

Jo Ann Barefoot: Self destruct.

Rep. Bill Foste...: No, no, no, not self-destruct. They just won't boot. And then you bring them back into their licensed area. And so by adopting this kind of license regime



where every chip gets is issued periodic licenses, that it says, "You are now licensed to operate in Singapore within a one millisecond ping time of this one trusted server in Singapore. And if you ever go outside of that, cease booting." And so this provides two really important things. It is a guarantee that the device has not been smuggled outside of its licensed area. And it also provides you, if you are an AI alarmist, with an emergency kill switch, that if you find that an AI has taken over a lot, a lot of the world, a lot of the internet, you simply stop issuing digital licenses and they will then shut down. So, that's-

Jo Ann Barefoot: Fascinating.

Rep. Bill Foste...: ... not a necessary part, but to my mind, a desirable feature on this. And so, as I say, we've drafted legislation on that and we're trying to make sure that this is something that can be implemented.

Jo Ann Barefoot: We will reference that in the show notes if there's any material that you can steer us toward, we'd be happy to do that.

Speaker 3: Definitely.

Jo Ann Barefoot: Congressman Bill Foster, I cannot thank you enough. This has been the most interesting and inspiring conversation I've had in a long time. Thank you.

Rep. Bill Foste...: And thank you.