Patrick Moorhead: Arvin, it is great to see you. I just want to thank you for opening up this year's Six Five Summit 2022. It was awesome to see you last month at IBM Think 2022 in real life.

Arvin Krishna: Patrick, Daniel, it's great to be here, and wasn't it great to be in person at Think after such a long hiatus?

Daniel Newman: It was. It had been several years, and just having the chance to see so many people, having these conversations. For you and I, Pat, we have a lot of clients that we're on the road for, and it's been a bit of a retraining of the muscle to get back out as much as we are.

Having said that, every time you get home, you're just like, "Gosh, it was really nice to be in person. I can only do so many of these video meetings."

Patrick Moorhead: Well, what I really appreciated too, was the size of your event and the ability for people, real people, to talk to other real people. I ran into you, I ran into your executive staff. I ran into your clients. I'm glad we're back to hopefully the new normal.

Arvin Krishna: Look, I think serendipity leads to creativity, of course, collaboration. The serendipity you get from in person events is just wonderful, and energizing.

Daniel Newman: Yeah. I think everybody was along for it. Here we are. We're talking about endless innovation at this week's Six Five Summit, Arvin. Having you here to set the tone is so important. Even since we started this event and created the plan for 2022, the market conditions have changed so much. We started planning for this about last summer. By last fall, tech was on its absolute high.

You'd listen to every pundit on the planet saying, "You can't go wrong, buy tech." Now, at this time of year, we're hearing the complete opposite. The market's kind of grown cold. The sentiment is down. You made some great points during your keynote at Think, and I'd love for you to give a little bit of your perspective on the macro environment. We got inflation high. We got interest rates high. We got somewhat of a negative sentiment towards tech, but I think tech is deflationary. I think it's going to roar on. What are your thoughts on this?

Arvin Krishna: Look, Daniel. I'll maybe begin by stepping back and looking at almost a century, and then zoom in on the last few years.

Daniel Newman: Perfect.

Arvin Krishna: If I go back all the way to 1950, why do I pick that year? That is about the beginning of the semiconductor industry. Look, semiconductors, then software is kind of the tech industry. If you draw a graph of semiconductor productivity, so think of that as how many transistors does a dollar buy you, and you draw global GDP, the curves look almost identical. What does that tell you?

Unless you believe in sheer randomness, that tells you that really, the productivity is being driven by technology. As an engineer, I step back and say, "You see curves like that? That's not a coincidence, not over 70 years." Then I begin to zoom in on the near. I think the two technologies that are really

driving this, there's a few more, but two that I think are fundamental: hybrid cloud and artificial intelligence.

Everybody wants to use multiple public clouds. People still are going to use on-prem. People are going to worry about sovereignty. People want flexibility of deployment, and they want speed, and they want value. Speed, can I do something in a week that used to take me a month or a year? Value, can I get a lot more than I would get from just one public cloud or one on-premise server? That's hybrid cloud in a nutshell.

We generate two and a half quintillion bites of data every day. For the nerds out there, that's two and a half with 18 zeros after it. I say that, by the way, with respect, because I think of myself as one. We know of no other technology that can digest and process that much data about AI. You take the long arc of technology leading to GDP and productivity, and then in on how I think both hybrid cloud and AI are going to drive the productivity we need.

You'll use the term deflationary. Both of you did. Productivity is really how you get the deflationary side, when you don't have enough people. At least from the economics classes I took, and I was an engineering major, so mine was a little bit of economics. They always talk, economists talk about what causes labor productivity. It's pretty clear to me, it's technology more than anything else.

Patrick Moorhead: I love that big view, and I tend to agree. It's funny, sometimes people say that you don't have to have any history for tech, but at times like this, having some experience. I started my first job in 1990, I'll say that on camera. I've seen a lot of these ebbs and flows and while and I do think it's up to people who've experienced it to not only educate their employees, but really educate broad markets. I really appreciate that point of view.

I'd like to zoom in a little bit on your clients. I would say IBM has some of the closest relationships that I've seen with the largest enterprises out there. Last month at Think 2022, I think you had hundreds of customers that were there as well. What are they saying are their biggest challenges out there?

Arvin Krishna: Yeah. Pat, look, we had about 600 of our clients over there, and probably a good 100 of them spoke on stage, talking about their problems, and how they're working with us. I think the whole audience here is going to understand. We have supply chain issues, not just driven by wars and pandemics. There's actually fundamentally supply chain shortages. Then we have inflation. We have demographic shifts, because we don't have enough people. It's not just inflation. We have geopolitical instability.

You put all these together, and you say, "How do I address these?" Other than technology, is there another answer? I sometimes go a little bit tongue in cheek and I say, "Look, a lot of the lower inflation, you can almost say deflation over the last 30 years, was driven by countries like China and India joining the global economy. Between those two, you had 500 million workers enter the workforce. That helped drive productivity." Okay. I am not sure there's a hidden country with a billion people somewhere out there.

Patrick Moorhead: In the ocean.

Arvin Krishna: Somewhere, like an Atlantis. If that's not there, we got to use technology to go do it. By the way, you then bring in cyber, and how are you going to solve cyber without using artificial intelligence and cloud techniques? All of these, so supply chain, security, I think, you got to leverage technology. The only way to get around demographics and inflation is by using automation and technology for productivity.

Cyber, it's by using AI to comb through all the threats to find the real ones. You focus your energy there. You go across these sets, and that's why I'm so excited about technology.

Daniel Newman: Yeah. It's interesting because even security, we don't really think about its inflationary impact. It's like insurance. When there's enough risk created, all of a sudden, everything gets more expensive, what you have to spend to be secure prices rise it. The way we get inflation comes from so many different places, Arvin.

Arvin Krishna: Yeah. Just think about it. We did the technology for the Masters: a four day sporting event. 40 million attacks happened in those four days. Now, even if you put all the normal monitoring, you would say 1% of them, so 400,000 would go through. You didn't need like 2000 security analysts just to go handle that. Instead, we had like 10, because you used technology. That is the getting away, or getting rid of the inflation, just to make a simple point.

Daniel Newman: I didn't know where that many people who didn't like golf already.

Patrick Moorhead: It sometimes really does blow my mind, though, the amount of black hat and cyber crime and risk out there. I saw on stage. I think they were throwing some of the numbers out there. The volumes. It just ...

Arvin Krishna: That's where the value is. It used to be in physical land, you fought wars, you went to money, people robbed banks, you went to IP, people began to steal. Where's your value today? It says lying inside the cyber infrastructure.

Patrick Moorhead: Yeah.

Arvin Krishna: That's where you're going to get criminals and nations coming after you.

Daniel Newman: Absolutely. You said something that, you mentioned the island of a billion people in the middle of the ocean. That doesn't actually exist, but you weren't to address the shortage, companies are under a lot of pressure. This is another thing causing rising wages. It's getting competitive, bidding wars for talent. Of course, you talk about the automation, but you still need great people. IBM's heritage is built on great executives, great leaders, great engineers, developers that have built.

How do you participate in this? How should companies, enterprises, your clients be thinking about fighting for the best talent and dealing with this really, really tight labor market?

Arvin Krishna: Look, one is about fighting for talent and recruiting people. Everybody's focused on that, right? The great resignation, then how do I recruit? Only one in four people accept. Let's begin with what I call re-recruitment. How do you make sure that you actually don't lose your greatest talent first? A lot of that lies around giving them learning abilities, as well as retraining people. I'll take a really high tech area. We are investing in quantum computing. Okay.

Where am I going to go find quantum computing people? It's only been a field for like five years. Instead, we find we can take our mathematicians, we can take our physicists, we can take our electrical engineers, and retrain them. By the way, a lot of them are capable of retraining themselves, if given just a little bit of time, a few weeks, a few months, and the appropriate material and mentoring.

I'll take the other side of the equation. Maybe not, I'll call it sort of the PhD level, master's, graduate school level work. I think we are obsessed with degrees. We don't need to be. It's about skills. You can take veterans and train them to become cyber security analysts. You can take people with two year degrees, and they can become great implementers of Sales Force, or one of the public clouds. To me, if you focus on skills, not degrees, and begin to get people the right skills, we can do good.

By the way, I always think that social good and business profit go together. We are doing clearly the business profit by getting the skills that we need, but you can also do social good by going into communities who may not really be quite willing to go through a four year education, and give them the skills to now get into a middle class wage. You combine these, and we've also made a commitment, this is not just for the United States. We want to go skill 30 million people globally. We're going to go do that with curricula, with online training, with giving people help, and sort of bring them into this modern IT life.

Daniel Newman: There's a fundamental change there, Pat. When I heard him say degrees, IBM, you're one of those companies that probably historically really seen as looking for that top education, the top degrees. This is a fundamental change.

Arvin Krishna: We did an evaluation, all of our job openings in the United States, we found that 50% of them could be for skills, not degrees. Whereas if you go and look, the automatic, I'll call it the habit, it's not really malicious. It's just a habit. It would've been 80% would've said we needed a four year degree of some type. Only 50% of them needed it. The others could easily be skills.

Now, we've got to learn that muscle. We've got to instantiate it. We've got to go do it again and again. We've got to get managers who have four year degrees comfortable with hiring people who are not. The human side of this is going to be much harder than the technology side.

Patrick Moorhead: I know this isn't the analyst editorial show, but I have to tell you, I absolutely love that view. It's a mature view, given the circumstances. IBM though does have a very rich history of educating people. I've been related with the company and around the company for over 30 years. As we were walking in, walking through, I'll call it your hall of history.

One of the biggest things that I saw there in addition to some really cool tech history was also the fact that you were one of the first companies, we didn't call it ESG then, but doing ESG.

Daniel Newman: EI.

Patrick Moorhead: No, exactly, which I took a couple pictures of it. I was like, "Hey, I didn't know this about IBM. This is really cool."

Arvin Krishna: Look, you're going to give me a chance to get on my soapbox, but I'll be concise. We do not believe in lobbying, actually paying people to do things. We will not actually pay money for a particular candidate.

Patrick Moorhead: Yeah.

Arvin Krishna: We will take policy positions, but we also believe we should take them ourselves, as opposed to just shout about them on a media and on a stage. 1935, I think equal work for equal pay, which was about Watson senior paying, and he meant women. Let's just be clear. He didn't really mean everything. He meant women. 1945, first black executive in IBM.

Patrick Moorhead: Saw the picture. Yes.

Arvin Krishna: 1995, benefits for same sex couples, not asking about marriage to be legalized. Okay. These are just three quick examples. 1971, our first environmental policy letter. 1971, not 2010. These are all examples of, we lean in, we are not out to go market them. We just did these because it's actually great for the business.

Patrick Moorhead: Right. Right. By the way, I think I need to write an article about IBM doing this before it was cool. Remind me, Daniel.

Daniel Newman: Okay.

Patrick Moorhead: Let's drill down into sustainability. At part of the Think program, you really, I think, took sustainability to a different type of level, and in the spirit of the approach and strategy that you just talked about, that historically IBM took. Can you put some more details around that?

Arvin Krishna: Absolutely. Look, I think that ... I don't want to get into the politics of climate change, but let's acknowledge that there is a risk. That's an easier phrase to make. Well, we don't really want to take that risk. We'd like to try to do good things about it. I think there's a lot of business good that can be gotten while being much better on the environment. I'll take two quick examples.

We are going to do a lot around what we call environmental intelligence. We also bought a company called Envizi, who does a lot of data integration that gives an enterprise a view of what's happening. One of the Envizi examples, they went out to somebody who had a few hundred branch offices. They said, "Okay, can we figure out, are we good about using electricity, air conditioning, heating?"

Half of them were just running their air conditioning in full blast in the middle of the night. Not because they were malicious, but you kind of forget to turn it down, or the controller is broken. You put in automation, you could be much better for the environment. You can take down your electric bill by 30%. What could be better? You're saving money and doing good.

Patrick Moorhead: Right. By the way, that was my biggest takeaway. You're the first person who I'd ever heard of, any executive, saying sustainability and saving money. I wrote that one down.

Arvin Krishna: The examples of that go on and on. I think it's really early days, but you can imagine as you're working with energy companies. We talk about reducing the greenhouse gas emissions. 20 to 30% happened before the products are in a tank or a pipeline. Another 20% is kind of wasted along the way. Wow. We can get a 50% reduction if we just get efficient. As an engineer, I start thinking, wait, where else do I have 50% friction?

You can begin to work on those things, but these are big data problems, not necessarily just a big chemical process.

Patrick Moorhead: Right.

Arvin Krishna: You got to approach them from all those lenses, and we can whittle away at them. If I tell you that there's a way to do 10% or 20% reduction in greenhouse gas emissions without having to change the whole distribution infrastructure, I think people should jump at it.

Daniel Newman: I think it's definitely a problem to your point that probably tech should be looked at to solve. Although I hear more from policy makers. I'd like to hear more from tech about it, because frankly, it's going to be everything from the accountability through applications, ERP and resources, all the way down to redesigning and re-engineering, which is all going to be tech led. It is really important. I think everybody can agree, it's an important topic that requires more effort and energy, pun intended.

Patrick Moorhead: Well, and I don't know anybody, regardless of what side of the argument that they're on, who doesn't agree that it's a good thing to get more efficient and use less. I talk to everybody and so do you, but that's something we can all agree on that efficient is better. That's a plus.

Arvin Krishna: That's why I stayed away from the politics. You don't need to be.

Patrick Moorhead: Right, right.

Arvin Krishna: You could be about efficiency, cost saving, and being good to the environment.

Daniel Newman: Yes. We're breaking this here at six, five. There's a new way for people to be decent is by agreeing on things in theory. One of the things at Think that caught my attention, this isn't really just a Think, but it really hit hard there, is a seismic shift in the whole go to market process for IBM. You're changing the way you market. You're doing things that in demand that haven't been done before, the sales motion is changing, how you're using your partners, a lot of things.

Another thing you guys brought to my attention was really this whole act of co-creation. Now I'm hearing about this, and different companies are using sort of different words, but in the end, it is sort of this next era of mass customization of all the technology we have at our disposal, how do we help you build what you need? This seems like a really big thing that you're putting a lot of focus, a lot of investment, and leading the charge. Talk about why this has been such a big pivot.

Arvin Krishna: Yeah. I think first you nailed the concept, Daniel, but then let's talk a little bit about the why, and why it's so interesting. I think in the days of our current information age, walking up to somebody and just telling them what you have and why it's good, they can read that on the web. You're not bringing them any great insight by doing that. If you walk into their environment and say, "What's your problem? Can I help show you how the technology can actually help you solve the problem?"

That's the act of co-creation. They know their problem. It would be completely arrogant to falsely presume we know their problem better than them. They know their problem. They can actually give you insight about, "Yep, that approach is better. That one can fly. This one can work. We know our tech." Working together is the act of creation. That's why you hear us talk about our Let's Create campaign, but then diving right down into it.

For our consulting team, rather than walking and just make pitch after pitch after pitch, we want them to do garages. Five people from us, maybe a couple from the client, sit down together, co-create, sort of borrowing from the tech industry euphemism of a garage, or our client engineering teams. Even if you don't want to take our expertise in our consulting help, let our client engineering teams show you in your environment, how our technology can solve your problems.

To me, it becomes a world of show, don't tell. That I think is really important, because that really makes everybody feel part of the process. People feel part of the answer, and I think you reach a much better outcome a lot quicker. It's back to this themes of speed and expertise, but in the client's environment. That is mass personalization as you're calling it. That's what people want.

They don't want the cookie cutter answer. They want the answer that's good for them. Albeit, there is a lot of, I'll call it, standard technology being deployed, because if you're going to have 6,000 engineers make a particular piece of software proof against all hackers, we probably want to use that again and again a few times over.

Patrick Moorhead: I think if I were a client and wanted to do co-creation with you, I would love to get some access to IBM research. A lot of people mix up R and D because we just say R and D, but R is very different from D, and IBM is one of the last companies on the planet, and particularly in the United States, to do the R. What program at IBM Think, we won't drill down into that. One of the questions that I get a lot is how do the innovations and IP that IBM Research produce get into the product lines?

Arvin Krishna: Yeah. Pat, you just kind of walked through the process. The researchers will come up with ideas that they believe could be applied. Now, before you put them into a product, you must go try them out. You would often work with a couple of our, I'll call it early clients. I'll come back and use an example or two from the quantum world, which is really leading into the future.

A couple that have now come into products already, one is on auto AI. AI can help pick your model, so you really make a data scientist's job a lot easier, or around Watson AI ops. You can make problem triage a lot quicker than having 30 people be on a call and tired after 18 hours. Try to do it in a few minutes.

Patrick Moorhead: Yeah.

Arvin Krishna: Using AI. Those are really two quick examples. Another one are the AI circuits on the Z16 processor chip on our Tellem chip. That's another example of research technology, because they were after, "Hey, it's really slow to take it all off processor, do the AI, bring it back. Can we just drop in a few square millimeters of a full AI, but as a circuit right on that thing?" It's 50 billion transistors. Maybe you can spare a few, which is the number of transistors on a modern processor.

Quantum. Look, it's not yet commercial. I want to be clear about that. It's still in early stages, but at a hundred qubits, you can do enough to know whether your quantum approach is going to work or not work. Then we reach a thousand, maybe it'll be commercially advantageous, certainly by 4,000. We work with clients, example, JP Morgan Chase, or Goldman Sachs, or Mitsubishi Chemical, or JSR, or Daimler. They didn't know.

One of them, you can imagine which one, figured out how lithium hydride may be modeled, kind of important, maybe for car batteries in the EV world, and maybe we want more density. Then they know that they have to wait a little bit to get the full commercial advantage. I think that's a really nice way for research to play a role in driving the innovation faster. It's all about in the end, it's about getting it to value faster.

Patrick Moorhead: Yeah. I do think it's important that IBM continues the R, the big R in research, for a lot of reasons. I think we've seen global areas where I think it's reinforced that this is even extra important, whether it's semi conductors, whether it's AI, whether it's quantum computing, or the next thing that your amazing ...

Arvin Krishna: Or having encryption that quantum can't make.

Patrick Moorhead: Right. Right, which is very much there today, which is great.

Daniel Newman: Yeah. There is a tremendous amount to digest here. We've gone from the biggest, Arvin, talking about sort of the whole world, from how we're going to deal with this macro environment to tech's impact on it. I still love, by the way, the line you had about tech being the most protected line item in many budgets.

Companies that want to continue to innovate are going to have to continue to invest. Even as companies might see some contraction, or see some market cap pullback, what's going to get them through is going to be implementing, innovation, automation, AI, moving to the cloud.

Arvin Krishna: How to scale your business without adding people in an inflationary world.

Daniel Newman: Yeah.

Arvin Krishna: Technology is the only answer, which is why it's the most productive line item.

Daniel Newman: It fits a theme of our event so well, because you really are helping us kick off and get the story of endless innovation into the market, which is exactly what we hope our conversation and the 70 plus other speakers that will follow you, Arvin, are going to be sharing with the world.

Patrick Moorhead: Yeah. Really appreciate that. Thank you.

Arvin Krishna: My pleasure to be here. Innovation that matters, one of our values.

Daniel Newman: Arvin Krishna, thank you so much for joining us.

Patrick Moorhead: Thanks.