Daniel Newman: Nikhil, welcome to the 2022 Six Five Summit. Back again. We're so excited to have you here.

Nikhil Krishnan: Thank you, Daniel. Thanks for having me.

Daniel Newman: Yeah, absolutely. A lot has happened in a year. We've sort of almost found our way out of this crazy multi-year pandemic. I'd say almost because as soon as I say that, something will go awry, where mobility is up, the economy is sort of in a shift. I don't want to say bad, but it's a little eerie what's going on there when you got all these different external factors.

                   But AI, something that you're very focused on, is a hot topic. Companies that are looking to find ways to streamline, automate, improve the utilization of data to drive customer experience, secure their environment, so many different things. AI is at the epicenter of it, and that, my friend, is something that you spend a lot of your time focusing on. So I want to start there.

                   The world is saying everyone needs to implement AI as part of their digital transformation, but it's not really just, "implement AI." There's a lot to it. So let's start off with this big question about what are some of the common misperceptions that you're finding are getting in the way from companies being able to want to do AI and actually do AI.

Nikhil Krishnan: Absolutely. Daniel, and thanks for the tee up. Actually, before I jump into that, on your point on the overall macro-uncertainties. We live in a really uncertain world, and if anything, this uncertainty drives additional adoption of algorithms and AI. It makes it real for people that they actually need these technologies, whether it's to navigate a supply crisis, a grain crisis, a shipping crisis, this is where the future of technology really... it's brought to light and that AI S curve, if you will, I think is accelerating, given everything that's going on in the world.

Daniel Newman: I love that you jumped in there because I keep saying tech is deflationary and especially this particular tech, so...

Nikhil Krishnan: Absolutely.

Daniel Newman: All right. So cueing you back up, though. Talk to me about misconceptions.

Nikhil Krishnan: So misconceptions, I think the first and the probably the biggest misconception is that AI is about algorithms, and I see that almost everywhere where people are talking about, "Hey, what's your algorithm, list of algorithms? What's your library of algorithms? Do you have algorithms that you can actually apply?" AI is really not about algorithms. For the enterprises, it's really about solving business problems. And that might mean one or more algorithms. Some might be AI, some might be more traditional algorithms working together, but actually deployed in production and unlocking economic value.

So that's the biggest misconception I feel is that the understanding of AI is really focused on, "Hey, do you have models? Do you have algorithms?" Data scientists actually are really good at building models, and most companies that are in Fortune 500, the largest companies in the world, they have teams of exceptionally talented data scientists that have built great models. The challenges that companies have around AI, and many of them don't even know this, but it's really taking those models and embedding them in business applications to unlock economic value.

Daniel Newman: Yeah, I've been following your business for a long time, and I think one of the things you've tried to do at C3 has been about the democratization of AI. It's been about making it simple and digestible, whether I'm watching some of the commercials on CNBC or other channels. I mean, it really is sort of like take the mystery because you use the word algorithm, but algorithm creates a little bit of mystery, right? If you look at so much of the hype about what's wrong with social media, well, the problem is there's no transparency.

I mean, the controversial figure that is Elon Musk, one of the things he kept saying is, "Let's take the transparency out of it, right? Let's make it evident for people who understand data to see how this is happening." I think that's a big part of what you're trying to do on the industrial side is make it more transparent and make it simpler to implement. Talk a little bit about that and how businesses can kind of prioritize to figure out the real initial use cases.

Nikhil Krishnan: Well, I think there are a few different major dimensions that we talk to clients about, we talk to customers about. One is of business value. So first, you got to look at where there is actually value for your business. It could be top line, it could be bottom line, operational value, supply chain value in this world that we operate in today. But where are the pockets of opportunity that it actually makes sense to apply algorithms to unlock business value? Because it's not really a bottom up endeavor. I think this is where a lot of businesses get confused is they said, "Okay, I'll just hire 100 data scientists, and they'll go out and solve my problems for me." It's rather the reverse. The business needs to prioritize what are the use cases for those data scientists to actually work on and be proactive?

The second is data, and people often, again, misinterpret the data problem as well because they think data is about organizing the enterprise's entire data. Well, it's really not about that. It's about thinking about what data do I need to solve the problem that I'm out to tackle, and then how do I wrap my arms around that? How do I make that? How do I model those data sets, and how do I feed those data sets on an ongoing basis so that I get ongoing predictions?

And then, the third really is about change management. So once you've got your algorithm, you've got your application, you have your data sets wired, well, what is it actually that is going to unlock that change management so that the value actually accrues to the business, so that the operational decisions are actually made. In many cases, it might be changing incentive structures or the right kind of training to the right individual or removing skepticism, and you brought this up, Daniel, but explaining the machine learning results to the operator who actually has to make that decision, turn that knob, expedite that supply, or deprioritize a shipment. They

want to be comfortable that the decision they're actually being asked to make actually makes sense and is accredited to the top line or bottom line.

Daniel Newman: Yeah, you hit on a lot of really important things there. I especially like the part about all the data, the right data, consolidating it down to the data that's most usable to help you get to outcomes. I think one of the things I continue to hear in the conversations I'm having out there is really how do you explain or expedite time to value, meaning, "Okay, we're going to make big investments in infrastructure or ML or data projects. Fine. But, that's an IT thing." And so if you want this to become a business thing, right, you want it to become something that's board level-driven, governance-driven in organizations, we need to implement. How do you take the conceptual value that AI can bring to a business and shorten that time to value?

Nikhil Krishnan: Yeah, we think a lot about time to value in weeks or months, not order of months to years, and really, from a business standpoint, you're absolutely right, Daniel. Businesses need to see the ROI on their efforts. By the way, that might mean starting small. You don't have to solve the problem for the entire business. Let's start for one factory or one sub-business unit and solve a problem for them. But the key is whatever problem we're solving, it should have substantial ROI that once that problem is actually solved in, let's say, two, three, four, five, six weeks, the business actually can operate that and unlock economic value at scale.

So, when we really try to think about how to scope efforts, how to scope value for our customers and our prospects, we think about what's the smallest scale of project that would unlock economic value that we can actually deliver in a fast way, and, of course, our software provides a lot of acceleration to the delivery of this, but we're talking about production operations of machine learning techniques in applications in a matter of eight weeks, say, to actually unlock economic value.

Daniel Newman: That's really remarkable. I think most companies probably historically, from lift and shift projects, new implementations, know that, oftentimes, it can take months, years to really start to unlock value of IT investments. And by the way, some of those are still core investments that need to be made, so I'm not necessarily saying every investment, but when you look at where we started this conversation with the economy, with the uncertainty, one of the things that technology can do is bring certainty. I talked about how it could be deflationary in the sense of adding automation, processes, data, taking extra costs out of the loop through tech, and then obviously, getting better insights to help you make decisions that are all about predictability.

But at the same time, you mentioned the data, the science, the models and, of course, one of the things I think, at least as I've been sort of tracking the company, is you guys really pride yourself on the trillions of data points and the billions of running the data that's running and constant insights that are coming from what you're building in your customers. But when you kind of try to standardize models somewhat, that can be seen as problematic as well.

So you're working with some of the world's largest banks, oil and gas, in healthcare. Their cases are all unique. So how do you deal with that, the uniqueness that they're looking for, but still

stay within the construct you mentioned that is all about getting things out fast and getting more rapid time to value?

Nikhil Krishnan: A great question. There's a lot of mystery and mystique around algorithms and around AIML, most use cases that we encounter. So for example, for what we're trying to do, we're not trying to build the next language model that's going to replace GPT3. That's not really the objective of what would unlock value for us or for most of our customers. We're really practitioners of AI. I call it kind of applied AI and applications.

And for those kind of use cases, whether it's fraud in banking or it's anti-money laundering or it's credit risk scoring or credit approval or treasury services, those applications, you can actually have an application with pre-built data wiring, data integration wiring to standardized formats in the application that can then be pre-wired to the machine learning features that are most commonly observed to the actual scaffolding of the algorithm to the user interface and the workflow results that the business needs. That, to us, is an application.

That pre-wiring, though, is fully extensible, so you think about it as scaffolding, and we're providing the scaffolding of an app, of a prebuilt application that could accelerate a journey of a bank. But that scaffolding is entirely extensible and the bank can add their own secret sauce. Let's say they don't like step three of our algorithm. They can literally take step three out, replace it with their own step three of that algorithm's pipeline or extend that algorithm or modify that algorithm, retrain the algorithm against their own data or repurpose the algorithm entirely for a different business problem. And all of that is automatically registered, track versioned, managed, maintained in our software stack with the referential integrity of those object models, if you will, guaranteed in our type system.

So that's really the concept that we use to accelerate from a business standpoint is we want to prebuild all the core plumbing that's just painful to build and you don't want to build again and again, but freeing our customers up to add in their secret sauce their, if you will, magic into their pipelines, algorithms, applications to unlock business value.

Daniel Newman: So you sort of teed me up, which is awesome because usually my job is to tee you up, but you mentioned, "painful to build," and I think that's been a big part of the C3 narrative as I've seen it as sort of... and by the way, not just C3, but it's kind of part of this whole AI narrative is what can we buy off the shelf? What must we build? Of course, there are always the engineers and geeks. They want to build everything. And then there's obviously the business end is like, "No, if we can buy something that works, right, let's buy it."

So you kind of mentioned... so it's almost a continuum of buy to build. It's not really a buy or build. It's kind of a continuum, it sounds like. In the more complex enterprise, you're kind of navigating that decision on the regular, but it sounds like you guys are sort of taking this approach like buy and implement what is off the shelf as much as possible, and then there are, of course, standards across industries, and that's kind of how you've approached it in certain industries or certain standards. And then for your respective business, you can layer on top of

the platform, you can build. So with your experience sort of based on what I just said, how do you sort of make recommendations on that continuum?

Nikhil Krishnan: It really is a continuum, Daniel, and in one extreme, you could say, "Hey, just give me a C compiler, and I'll take the world by storm. What else do I need? Or I could even probably build my own C compiler," but the reality of the world is software is really about levels of abstraction, especially in the enterprise. And what we've tried to do is find that right level of abstraction where a bulk of the plumbing work, the grunt work of the application is done for our customers. And so they can focus on the science, the nuance, the secret sauce that they want to add to their algorithms or to their workflows in order to unlock differentiated value for themselves.

Now, there is an element of religion in it. There are always the geeks and the folks who want to build more themselves, and we encounter them. But in my experience, that's always tempered by the business reality, right? Someone has to fund that software engineering effort. And when you put the business lens on, is there really an ROI? Why should I roll a polyglot database application in this day and age? It doesn't really make sense. They should use C3 for that.

Now, I think there's one more thing that I would add to that answer, Daniel, which is one of the things we see commonly in the industry is when people go embark on these journeys to build their AI factory, if you will. They often don't think about what happens downstream of that. How does that actually unlock business value for their organizations? So they're so focused on, "Hey, let's develop the algorithm, let's develop the model," they almost assume that that model, then, can be run one off in production somehow. Somehow magically, it'll be wired to data and run one off. It'll be managed in that way and then maybe surfaced in a dashboard or surfaced in an existing application.

And then they get to that point and they're like, "Hey, we can't actually use the model in this way that we thought. We now have to roll an application." So they'll figure out, "Well, what is a database I can roll, and how do I roll data into that database? How do I then attach the algorithm to that?" And then they get into a really messy state, which is where 80% of the projects go out to die.

So what we try to provide is try to meet our customers where they are and say, "Look, if you've got a data lake, that's great. If you've got an AI factory, that's great. Let's help you with that last mile. Let's help you with getting that algorithm in a prebuilt application or an application of your choice, and let's get it in the hands of the user, so the users can actually start to interact and use it."

Daniel Newman: Yeah, that kind of made me laugh for projects go to die. I still remember the old stat about 50% of IT projects failing, and then I look at all the companies and there's very robust solutions being built, and it's not the products. It doesn't tend to be the software and the services that doesn't work, tends to be the cultures of these organizations that can't quite get on board to make it work.

And so, where I love to sort of end this. We got a couple minutes left and really appreciate you being here at the summit, and I kind of always like to get practical. You've kind of given this story, the data, the challenges, the economy, predictability, the opportunity. Give me that customer angle. Talk about a customer who's sort of doing all of the above, who's building, who's also buying, who's implementing, who's having success, I guess I'd say. Kind of bring this all together for the audience.

Nikhil Krishnan: Are you thinking an example, Daniel?

Daniel Newman: I mean, exactly. Give an example of a customer that's kind of doing the buy, the build and that's having some success.

Nikhil Krishnan: I mean, a great example, it's a public example for us. One of our largest customers is Royal Dutch Shell, based out of the Netherlands, but they've really taken an approach to... they're using all of the above, right? They have hundreds of scientists and developers prototyping stuff, using a variety of techniques, citizen data science efforts that then move... some of them move to prototyping efforts, others that are strategic business bets that they know are going to be big. And they really have portfolio efforts and people all around the globe working on these efforts, very close collaborations between the science teams, the application teams, and the business teams.

And one of the things that they've done with our technology set is leveraging our product, our application platform as soon as an artifact and a model or a use case, if you will, is a candidate for production deployment at scale. We're able to port that onto our platform, wire it, and this platform, by the way, is running in their Azure system, in their Azure account, wire it to their data sources and then scale it across all of Shell, which is a $400 billion company, so quite remarkable in terms of the scale of the benefit that they're seeing.

In order to do this, they've established a center of excellence. So they have a Digital Center of Excellence for AI&ML that's based in the Netherlands, based in India, has presence in London. And that Center of Excellence is staffed by C3 personnel. It's staffed by third party personnel, system integrators, and then it's also staffed by Shell personnel. And these folks are collaboratively working on projects, and they're working on the data plumbing that I mentioned. They're working on the algorithms that I talked about and then the applications, but very focused on business problems and tackling the economic value challenge. They're not trying to boil the ocean for Shell. They're saying, "What are the 6,000 projects that individually we need to accomplish, if collectively, we want to unlock $2, 3 billion a year."

So that's really the journey. It's very targeted. It's very strategic. Top down in terms of the value capture and value levers, but bottom up in terms of harnessing innovation.

Daniel Newman: That's a great way to end it. I mean, I kind of simplify it down to kind of these let's keep systems and companies up and running. Let's try to optimize costs and create efficiencies. And then, of course, let's make people more productive. I think if you can look at the technology and they can kind of handle those three, you will have a very good time dealing at both that board

governance level. They're going to buy it. And of course, if it's easy for IT to deploy it, they're going to be happy.

So I think when it comes down to it, those are the pieces we're all trying to put together. AI can solve a lot of the challenges that the world has, but it needs to be thought about for what it really is and, of course, how it's going to continue to evolve, and Nikhil, you did a great job here talking about it. Thank you so much for joining us here at the 2022 Six Five Summit.

Nikhil Krishnan: Super. Thanks, Daniel. Thanks for the questions and for the great discussion.