So welcome to elevate a podcast series by the HCL Microsoft ecosystem unit exploring the intersection of innovation and technology.

Hello, welcome. Good morning. Good afternoon. Good evening. I'm Andy Packham, chief architect here at the Microsoft business unit at HCL Technologies. And another in our series of Elevate talking about technology, innovation, and the really exciting things that we're seeing happen across the view ecosystem. Really excited today. I'm joined by Matt, Zanna for Microsoft. I've been I've curry from HCl. Can you just go ahead and introduce yourself? Tell us a bit about your role?

Sure thing, Eddie, thanks. I'm really happy to be here, Matt Zanna. I lead our Azure quantum team's efforts around outreach, and drive early incubation and enablement work for solution partners. I come from an engineering background. I've been with Microsoft for about 10 years. And I've been on the quantum team for about three. And I'm super passionate about quantum as a as a technology in emerging space and really passionate about enabling new technologies. So pretty much fortunate to be in my perfect role.

Matt, thank you for that. And yeah, I mean, we're talking about quanta, we're talking about how that changes, not from a technology but also from a kind of thinking process. So we're also really joined by Avinash from HCL had been asked you want to quickly talk a little bit about your role.

Sure, sure, Andy. Hello, everyone. My name is Benna curry. I've been with HCl for past 10 years now. And throughout the tenure, I've been fortunate to have roles which are exploratory in nature. And I've been involved in a lot of technology exploration, things that we have sort of ventured into and proven strengths. And unfortunately, a part of team and that I'm trying to build, which will have the future of technologies, like quantum computing, is, is there with us. So I'm building a team, which will have the development of our future skill sets and future capabilities for financial technologies. And I'm fortunate to be a part of this discussion, and looking forward to it.

So I've been I've Thank you. And yeah, we're really talking about future today. So So let's kick off. Matt, just tell us a little about about the key trends, what's happening in quantum computing. And where do you see it going? Sure,

I think I think when you look at who's who's using the current systems that are available today, a lot of the usage is predominantly research based, right? So this is about exploring the art of the possible on these exciting release systems. And we're also at the, at the the end of decades of research, right? That, of course, continues, but we have a lot of research, as a community, not just as Microsoft, under our belts, that have helped us draw pretty well understood boundary conditions on the types of problems, spaces like Computational Chemistry, material science, that we'll likely see benefit from quantum computing in the future, when systems continue to improve and address some of the scalability issues that exists today. And they're really systems. And I think this research is going on, you see, both through academic and coalition work, as well as through emerging tech teams within enterprises. Right. So these are these are teams of folks that are chartered with trying to figure out what technologies will be able to play a role in benefiting their line of business in the future. And quantum is, of course, a conversation for those teams. Alongside that, that type of work, there's also just a lot of general learning and exploration happening, which is fantastic to see. Right? It's, it's really, I think, helping people understand what is possible, what new technologies and capabilities they need to learn, and how they can extend and expand their current skill sets into the into that realm. Alongside the actual usage, you know, I think

we're we're right in the center of understanding that it takes a long time to develop ecosystems around these capabilities, right? When you look at the new skills, discoveries, innovation that needs to happen, it's really important to look at in advance the full stack, looking beyond just the exciting early systems we can access today. And thinking about application, thinking about all other aspects of bringing a full capabilities to market. And of course, the cloud is a great enabler here, right when you think about it, anyone today can open an app As your account, create a quantum workspace and run their first quantum job on actual hardware for free, right, which is just it's hard to wrap your head around that it's that accessible of the technology today, for anyone wanting to explore and start that journey.

Not thanks. If we're still in that exploratory phase, we're still kind of investigating, why is it that companies should be investing now in this technology?

Yeah, that's a great, that's a great point. And I think the the heart of the matter is, this is this is something that is not measured in weeks and months, right, this journey is measured in years, right. So we're dealing with a lot of new capabilities, a new way of thinking to your earlier point, right? For how to how to sort of see problems and be able to take advantage of quantum capabilities to help solve those problems. So that's, that's just a work that takes a long time to to do and make progress on. So it's a great time to start on that exploration cycle for quantum computing. And also, there are incremental benefits that can be realized today, by applying things like quantum inspired technologies, on classical compute, right taking, taking a look at optimization problems, for example, and applying quantum principles to how those may be addressed and attacked. And actually running those problems on classical compute is a great way to expose teams to the thinking and also see some immediate benefit today. So we're really looking forward to people getting getting going and participating in the growing Azure quantum ecosystem. And the work we're doing with with HCl to help help on that effect is, it's really exciting to see.

Cool, thank you for that. And enough. For my perspective, we're really at this inflection point. Now we've we spent forever kind of thinking about how to make things predictable and linear. And now with AI, ml and quantum, we're seeing a shift to a different way of thinking, how are you thinking about this? This beacon for computing revolution?

Yeah, so I mean, if you ask me a lot of work that we've done with the with the technologies like aI before, and if the question is around, can be can be leveraged that works? If the answer is yes, definitely. But the aspects which Matt brought forward, not for everything, so, you know, what we do as part of the exploration of this technology, the key things that, that we are learning and and people are also realizing is, what do we need to put on quantum computers? It is, it is a technology, which is, let's say not for general purpose technology at the moment. So we need to be really cautious about what we put in support for in terms of, you know, AI in models that that we have there, it is a complementing

technology, there are things and models that were, let's say, from the prediction perspective, certain better predictions, when you want to do it, it is possible to do it in classical computers, but it takes a lot of time. So we need to be cautious of what do we want to protect, and in what time, for example, portfolio optimization for financial services, right? You have a time period where you need to have your protections in place before the market opens next day. So there's a clear value advantage. And that you, you might want to use quantum computing to leverage those scenarios and have a better result. So the point that I'm trying to make is we need we can use those models. But we need to see in what situation that they fit. And another scenario where these two technologies are sort of complementing is consider model that you're building on neural networks. Now, training on those models on humongous amount of data set is really difficult. Now, if you look at quantum as a core technology and compare it the standard way to the Cupid, a storage capacity of a cube, it is much higher. So you don't need human this terabytes of data sets in storage space to train your model. So you will have a small cubits set of qubits that you can now use and you could have a better efficiency while you're trying to train them. But I hope that helps. So these technologies are complementing but it is scenario driven. What should we take and which which scenario or a use case needs an interface between classical and the contract?

That's great. And I think Matt mentioned it about the cloud. In cost, and you mentioned it about large data set. How do you see the cloud as your cloud acting as the bridge the enabler for, for Quantum? What's the HCl view on how the cloud sort of enables wider scale adoption,

like to say, you know, the the entire world is in the exploration stage where people who are exploiting the technology, this cloud is essentially a bridge for people to have access to quantum computer, if any, you want to try something, it's now I mean, thank God, this isn't in place. Because otherwise, it will be so difficult, you know, we been trying to work with lots of partners who have fantastic hardware. But the problem is, I can't bring that in, in my lab in a specific geography because there are so many export compliances, and so much of regulation in place, because of cloud. Now, if the hardware is accessible, through cloud, I can do a lot of exploration, it is easy for me to build upon use case, and to the current, you know, state, within HCl, when I'm trying to upskill people and sort of ask them to unlearn what they've learned so far, it is easier for me to give them that that perspective, and give them that hands on experience to to build their first hello world code on the Microsoft platform, and then actually see how how how the quantum is processing that program and responding to it. It allows us flexibility to test the existing application that we have, how can we interface it? How can we do something like in, you know, an API integration with some? So I can't imagine, you know, any exploration or early build activity happening without cloud? And?

Yeah, I've been able to play the great, I think this is this is the pivot, isn't it that, you know, suddenly cost and, and I hadn't even thought about that whole complexity of import export regulations, and like, it suddenly makes this available. In your introduction, you talked about how you and your role is about

building and growing this ecosystem and exploration? Can you just tell us a little bit about the partnership that you've been building with Microsoft?

Yeah, really thankful that you brought this point up, you know, Microsoft has been an excellent partner to help us embark the journey. I if I'm not wrong, we started around, sort of eight months to one year back the discussion. And this really kicked off, sort of two years back when we started venturing into the exploration spirit for quantum computing. And Microsoft has always been very helpful in terms of people like Matt, and there's so many people who have come forward to help us sort of adopt and build talent for the future talent for for the upcoming needs of our customers. And for us to understand. And, along with Microsoft, when we started this, and, and I had such fantastic response from our he lied webinars, first, first time when I launched a program, it's called Quantum champions program, I got 800 responses, people who are who are interested in learning the technology and, and the the ongoing sessions that we have had along with Microsoft, the content that was brought forward. And the ease of understanding that was brought forward and the the expertise that was brought forward was really impressive. And we've managed to have, I can, I can, I can say that we now have content champions in HCL who are ready to to help our customers who would want to start their content journey or, or essentially, you know, build a project for them and help them with their early POCs. I've got consultants who can who can who can now work with, with customers who can help them identify which use case to go after and with Microsoft support and every day we are we are building we are growing on this relationship and we are exploring more and more capabilities and we are exploring potential to how we can address the market together. So very happy to partner with Microsoft apple, and like to continue this journey ahead.

That is so cool. And it is especially something around quantum it is all about part machine. It's how we can bring together that cloud available technology. And then the skills and it's a completely new skill set. Matt, how do you see this with as your quantum? How do you see this sort of what's the roadmap? How do we work together to become kind of the partners of choice?

Yeah, first off, just to thank Ivanoff and his team, it, it's been a great partnership thus far. And I'm, I'm, I'm a messenger here for a lot of great work that others in Microsoft have contributed to this effort, folks like mutual Kumar. So thanks to thanks to everyone that's helping to bring this to reality through to a great partnership. When I when I think about, you know, what we're doing to try to be the partner of choice. There's a few primary objectives around that. So first off is we want to be the platform of choice for quantum computing, right, that means that means a lot of different things. From our perspective, we want to provide access to the most diverse set of quantum systems, right, as everyone's said, this is an early stages, it's really important for the early research going on, to have access to multiple systems, right, so you can test and prove out an algorithm on different systems to see how they, how they interact, and, and adjustments that you may need to make. So providing access to a diverse set of

quantum systems is really important. We also want to make sure that the systems are easy to access, right for for for developers, so enabling the ability to write the code once and deploy it to any one of those targets, right without having to redo or rewrite your code that's really important. Well, it's really important to welcome all all tool sets, right. So folks build skill sets around one tool. So we want to make sure they can use that tool set to interact with with our platform, right not have to use a specific tool set. And we touched on it earlier. But we're passionate about removing barriers around access, right. So being able to provide initial access, for exploration and other activities for free on the platform. So that's the platform of choice. Also, looking more broadly, we really want to be the ecosystem of choice for great partners, like like HCl, right? So helping enable HCL so that you can help clients on their quantum journey is a priority for us. And we're excited about the work that we're currently doing with HCl, we have some projects that are currently being assessed to work jointly on together through our solution Partner Program and the Azure quantum network. And just again, to underline it's been, it's been fantastic to see the progress HCL has made, building out that team of quantum champions through the East IP Academy, and really excited to put all those champions to work on cool projects in the future.

Matt, thanks for that. And yeah, we truly appreciate the partnership and how that's, that's driving value for what's really important for all of our joint customers. So I'm just going to, I'm just going to step over the next question, because I think we're, we're kind of a little bit over time, and just go straight into the conclusion, if that's alright, with everyone. So as we wrap up this podcast, this has been a fascinating conversation for me, really, to see how we're at this inflection point. And how the cloud has enabled a technology that would be really, really hard to acquire, and how that HCl working with Microsoft in terms of that is able to add that skill set, which is equally these days really, really hard to acquire. So great example of how an ecosystem can work together to solve what is a really broad problem. Because I'm Matt, as we kind of wrap up just any closing comments for you. And that was really exciting you about this.

Sure. And thanks again, for this opportunity. It's been it's been great to share some thoughts and help share some of the early successes that HCl has had, building up the capability and ecosystem. I'm just really excited about what the future holds, right. It's amazing when you look back and see the incredible amount of progress that's happened across the quantum computing community. And we're really still in these pioneering days, it's just super exciting to, to watch the advancements that continue to come at a rapid pace. And to start to see what the future look like looks like to be able to understand the types of problems that we'll be able to apply this great technology to the type of progress that can be made today to for folks starting their journey and starting to get skilled and understand the art of the possible. So that's what that's what makes me jump out of bed to go to work every day. And it's great to work with partners like HCl on that path together.

Go Thank you. Thank you. So I've been asked what gets you jumping out of bed and what's really

cool i It's same as much. I mean, every day, you know, there's a new new challenge. And as I said, you know, fortunately, we have Microsoft along with us. And I'm really looking forward for, you know, opportunities where we have, you know, working together towards or joint customers. We've built, we building POCs. Together, I'm trying to have an experience zones created where, where customers are joint customers, and come and see the work that we have jointly jointly done together, and kick off, kick off a project. And there are so many conversations happening. And every day and every day is a learning learning curve for all of us. And that's what is exciting. It's really exciting is the right word that keeps us going, and to learn a new aspects of the established technology every day. And this there is every day, I mean, honestly, every day, there's a new start, there's a new breakthrough, which has happened. It's really exciting. And I'm really looking forward for this technology to evolve. And the innovation getting diffused in the market and really benefiting out of out of the technology and see things which we have never seen in our life before.

Yeah, I think that's all about it, isn't it seeing things that we've never seen before? Nothing could be more exciting about that. So thanks. So I've been really appreciate your time. It's been a great conversation. Appreciate your support both of your support in the in the Microsoft business unit. Thank you very much.

Thank you, Andy, for asking us here. Pleasure. Pleasure. Thank you. Thank you for listening to elevate our podcast series on the intersection of innovation and technology by the HCl Microsoft ecosystem unit. We will be back with our next episode soon.