

IonQ 2026 Investor Day
September 8, 2026, New York Stock Exchange, New York

Emcee:

Ladies and gentlemen, please take your seats. Our program will begin. Thank you.

Inder Singh (Chief Financial Officer and Chief Operating Officer, IonQ):

I'll let everybody sit down here for a moment. Come on in folks. Wow. What a turnout. Amazing. Thank you all. We appreciate your interest. We appreciate your attending the session today. We appreciate, if you're investors, your trust in what we're trying to execute here as a company. And if you're an analyst, we appreciate you following us as well.

My name is Inder Singh. I joined Niccolo, our CEO in the journey of making IonQ not only the pacesetter of the industry that he's made it, but also the only platform company in our space. My job today is to show this slide, which is a legal slide, there'll be a test, but also really to show you the agenda.

We have an exciting day planned, really afternoon planned for you. It's in two parts. On the left-hand side, you'll hear from a number of the leaders of the company about how we're doing and how we're executing, what our plans are, what our priorities are. And how we plan to keep on innovating in each of these areas, whether it's in computing, in the security area, and a number of things, frankly, that three years ago people thought they're like three decades away. And here we are, it's real.

And when we say quantum is now, we mean it. You have customers that will be joining on the right-hand side as you see a number of panels to tell you what they're focused on, how they're using either the security solution from us or the computing solution from us or imaging from space using AI. Amazing things are actually happening.

I moved from the board into the company a year ago, actually this month, and the first Analyst Day was one week after I joined. This is the second Analyst Day. We have so much more to tell.

Let me tell you that members of our board are also here in this row. Kindly raise your hand and we're thrilled to have them. It shows you the engagement of the company. It shows the engagement of the board and the importance that we place on making sure that every one of our constituencies, customers, investors, partners, board are all involved. And so I'm not going to give a long speech here.

Essentially, all I want to do is tell you, we think we have a lot of excitement to hear about. There'll be opportunities for networking at the end of the day. Your tags have a certain color on them. It will determine which of the two rooms you'll be going to. And some of you may be actually going to help ring the bell as well. I've done that a number of times. I may or may not join you in that endeavor. Some analysts have asked me to do some Q&A with them instead. So welcome. Thank you. If you have questions, of course, we'll have a Q&A. Please make sure that you watch a video to start.

[Video] Speaker 1:

Everyone from Washington to Wall Street is racing towards quantum.

[Video] Speaker 2:

Where does America stand in the race for quantum advantage?

[Video] Speaker 3:

It's already here.

[Video] Speaker 4:

Computing, medicine and security that were once thought impossible.

[Video] Voiceover:

Everyone's talking about quantum. We're building it. IonQ leads quantum computing, networking, sensing and security. Now with SkyWater Technology's merchant supplier capability, we're taking the next step. Research breakthroughs are only part of the equation. You have to manufacture them rapidly, scale them, package them and deploy them. That's what the IonQ and SkyWater end-to-end quantum supply chain delivers.

Trusted US manufacturing, faster innovation, a stronger foundation for long-term national security and economic competition. The recent US executive orders made one thing clear. The world needs a competitive quantum ecosystem. The future of quantum won't build itself. We're here to do our part. SkyWater and IonQ, ushering in the next frontier of quantum innovation.

Niccolo de Masi (Chairman & CEO):

Give us a round of applause at least. It took us seven months to get that deal closed and it is hugely historic and I'm excited about the fact that we are not only the largest quantum company in history, but we're the first one that is vertically integrated. And so I'm going to start my bit of this presentation talking about the phases of IonQ's growth. I'd be remiss however before doing so if I don't thank everyone that's worked so hard to make today possible.

Whether or not you're in our IR function or comms function or events team or product marketing team, this is slated to be easily our most exciting corporate event to date. It's our biggest one. And if you're watching at home, it's a packed house where we had to turn people away in all seriousness. And so next year, if you get a seat, you can probably scalp it and make a fortune out front the NYSE.

We have a hugely distinguished and eclectic and frankly powerful group in the audience today. And I'm really honored by everybody who traveled today. We have not only distinguished university professors, and we'll hear from some of them later on, we have our founder in the audience, but we also have our friends from overseas who've traveled quite some ways to make it here.

We have founders of public companies whose market caps are larger than ours at the moment. We have a hereditary prince from Europe. We also have a former ambassador and a former governor. And of course, we are honored that Senator Alessio Butti is here with us and we'll be hearing some more from him later this afternoon.

So let's talk about the era that IonQ is announcing as having entered today. You've heard me in prior events talk about the fact that we built the world's first and biggest quantum platform over the last couple of years, and you can see how our revenue has grown on an annual basis approximately.

This year, even before SkyWater closed, we were on track to do the better part of \$300 million of quantum platform revenue. And SkyWater's merger with us marks the beginning of a historic era for IonQ and for our industry. Not only are we investing in driving merchant supply to accelerate the US industry and our allies, but we're also speeding up our own roadmap because of this vertical integration.

We are focused as a company on these four areas in our platform, computing, security, sensing, and of course also our foundry, which is a new part of the family. You're going to hear a lot about our foundry capabilities this afternoon from my colleagues, not just Mihir Bhaskar, but Tom Sonderman who runs SkyWater to this day. And you're going to hear about application progress, not just from ourselves, but from our customers. We have done what we said we were going to do in the last year and we've continued to deliver not just technical milestones, but commercial milestones that unlock applications that are hugely exciting.

Now, this page, I have to be honest, it's my favorite one. And I am hugely proud of the fact that over the last two years, we have worked as a team to scale our company and deliver a quantum platform that has a unique depth, breadth and scale advantage not seen anywhere else in the industry.

Before SkyWater, we did about twice the revenue of the whole rest of the sector that's public in Q2. And we're obviously not stopping here. Inder's going to talk a bit later about our guidance uplift for the day. And you can see that IonQ will continue to outperform quarter on quarter as we have done since our IPO. A lot of work goes into revenue, and I don't want to underplay this because we're an industry that's always pioneering, always delivering technical milestones, but that's just the beginning of it, right?

To have revenue, you've got to have a technical milestone that's hit, a product that works, a customer that buys it, and of course, machines that are delivered that do useful things. We've been doing that longer than anyone in our sector. We continue to do it and we're doing it, of course, at an accelerating rate.

For those of you who haven't seen it, this is a big news day for us. We put out six press releases. Now, during the course of the day, you're going to hear about each one of them. Some of the things I'm proudest on is not just the fact that we've quintupled our revenue year-on-year and not just the fact that we launched the world's first fault-tolerant architecture that's shovel-ready our Walking Cat paper in April. And not just that we're in three DARPA programs, HARQ, It's About Time, and of course QBI, but we've done exciting things on the interconnect and the networking front also. And we'll touch on that just like we'll touch on what we're doing with error corrections fidelity when Dr. Ballance speaks just after me.

Now, I'm going to talk for a second about our security organization and then move on to computing. We've been passionate believers in the need for quantum security for years now, and we have the largest security practice. My colleague, Jordan Shapiro, will talk a bit later about this, but things are accelerating here and not just accelerating because of the industry as a whole, they're accelerating because of course what IonQ has done and announced this morning.

I said this a year ago, Q-Day is coming and it's coming sooner than people think and it's coming inside the planning horizon of a CISO, whether or not you are in a government position, federal position or an enterprise one. Classical AI is accelerating this trend and playing into it. So some of you might have seen that Anthropic's had a lab leak, OpenAI's had a lab leak, and Claude is going to town on some of the recommended PQC algorithms that are out there. This is not going to slow down as a theme. So if you are a CISO and you're watching today, you got to get ahead of this.

IonQ offers defense in depth. We offer hardware and software solutions. We think this is going to be a race that accelerates and one that demands evermore investment to stay ahead of because the combination of what quantum computers in the wrong hands and classical LLMs in the wrong hands can do is only going to make this trickier, frankly. So please call us. As we always say, you want a safe-cracker to be the one who builds your safe. We've delivered this morning some news on the safe-breaking front, if you will. You want to be working with us on the safe-making front, and we offer unique defense-in-depth advantages for that.

Moving now to our computing business. It's been a big year. You can just see how many systems we have deployed on premise. You can see how many hours of uptime and computing that we've delivered through the cloud and how many customers we now have around the world. And this is a map that we are delivering to servicing customers on, and of course doing better every generation to deliver customer satisfaction. That's now a big part of the lexicon, just like manufacturing upgradability and accessibility is. We've been on the cloud since 2020, Amazon, Google, Microsoft. We are generally the biggest cloud partners in the quantum space and we expect this business to remain exciting, high margin, growing quickly.

Now, Chris is going to talk a lot more about our roadmap and hopefully you all had a chance to walk by our models out front, actually not models or actual chips out front of our generations of systems. What makes IonQ different is that we've been running for over five years in the cloud. We've been shipping systems for over five years and our machines turned on in 2017. And so we have real applications in production today. We have more of them rolling out continually. And we of course were the first company to publish a complete fault-tolerant, shovel-ready blueprint in April, which we're building upon today.

My colleague, Mihir, is going to talk in a few minutes about progress that we've made also in the networking space. And we think not just about the next two or three quarters, next two or three years at IonQ, we talk about the next five years, seven years. And we see a huge opportunity for not just our machines to become more powerful in their own right, but an opportunity for us to deliver data center scale quantum computers. And we're doing this through progress in our photonic interconnect and progress through our quantum networking, quantum memory business that we acquired with Lightsynq last year.

This quantum application roadmap we rolled out last June, and I'm excited to announce that we continue to march right along. We are unlocking all the applications that we said we would last year. And you've seen these announcements, whether it's computational engineering, whether it's logistics, whether or not it's image change detection, whether it's in the pharmaceutical space, we continue marching right up the curve year after year. And we believe we're just scratching the tip of the iceberg

here. There will be far more applications than we can think of in advance as our machines roll out, and far more exciting applications we hope will be created by people building businesses and doing research with our machines at arm's length.

Special call out for our life sciences colleagues. This is something near and dear to our heart at IonQ. We care about oncology. We care about predictive medicine. We care about personalized medicine, and we'll be talking a little bit more about that later on today. But obviously in terms of what quantum computers are great at, modeling quantum mechanical things like materials and pharma is something that is a superpower of ours.

In April, we rolled out our Walking Cat architecture and we're proud of the fact that it was shovel-ready and done down to a level of detail the world had never seen before. This morning, we announced that an IonQ system with about 20,000 physical qubits could recover a 256-bit elliptic curve key. We didn't approximate. We've done this down to a level of detail that is historic. We've done it in a responsible way in partnership with our nation's government. And we've done it because we want to show people that the blocking and tackling, belt and braces approach we've taken for 30 years now since our company was founded continues to deliver results that are real, on schedule, and with huge implications for sectors like chemistry, material science, and of course the life sciences.

I don't know about you guys, but for most of my time in the quantum computing space, I remember a lecture of mine when I was in university and I read Chris Monroe's paper in '95, '94, the first Quantum Logic Gate, and physicists tend to talk about superpowers. We talk about the superpowers that quantum computing can deliver. Those superpowers are beginning to roll out and IonQ has a super team and they've done super work with our super ions this year.

And so without further ado, I'm going to close on our final announcement from this morning, which is that we've rolled out our new quantum computing platform line of products, which we've aptly named Superion Systems and the Superion line. And we believe that that's appropriate because they are going to be the world's most powerful machines pretty much every generation. I think they will be more powerful per unit dollar, per unit energy consumption, per unit space, probably in some cases by orders of magnitude than you'll find anywhere else in the world.

It's a system that is upgradable, a system that's accessible to the cloud and through sovereign systems. And best of all, it's a system that's all been accelerated and all gone onto the SkyWater chips that we now vertically integrate with and our friend Tom Sonderman runs. So I'm going to show you this quick little video on Superion and I'm going to hand this off to Dr. Chris Ballance to tell you a bit more about it.

We are here to make these machines mass market. So we're focused on building our ecosystem, expanding our ecosystem and delivering these machines at an access point, price point, power consumption point, manufacturable space consumption point that hopefully every company, every government in the world can invest in because of the fact that we do what we say we're going to do at IonQ. And we tell you the next generation of systems will roll out and we'll go from 256 to 10K to 20K, 200K. We will do that and we have done it for the last 30 years. We've done it for the last 10 years as a private company and we're doing the last five or six years as a public company. So put your hands

together for Dr. Chris Ballance, who's now going to tell us a lot more about this roadmap. Thank you for your time.

Chris Ballance (President, Quantum Computing, IonQ):

Good afternoon and welcome to the 2026 IonQ Investor Day. We've got some incredibly exciting announcements to share with you today. You've heard from Niccolo about the Superion platform. I'm going to tell you how we came up with this, the core technologies inside of it. How this is changing the way we innovate in quantum computing, and how this platform is going to scale from hundreds to thousands to millions of qubits.

IonQ was founded to put quantum computers into the hands of users. And over the last 10 years, we've executed on that mission, over five generations of quantum computers. And this has taught us a tremendous amount. We've learned how to work alongside customers to tailor solutions to generate real-world value. We've learned about operational excellence and the good pain it's taken to build out these quantum computers, build out the supply chain, manufacturing and operational teams required to get quantum computers online and on the cloud.

There's now not an hour goes by without a job running or queued on the IonQ quantum computer fleet, and we've deployed quantum computers around the world. This has taught us a tremendous amount. These are hard won lessons, unique insights that can't be learned any other way. And it's also taught us the challenges we still need to overcome to get to large-scale, fault-tolerant quantum computers.

One, we need to radically simplify the platform. If we want to build out systems with orders of magnitude more qubits and deploy orders of magnitude more of them, which we definitely do, we need to radically simplify the platform. At the same time, we need to learn faster. We need to go from learning every product cycles of years to product cycles of months.

And thirdly, we need to demonstrate scale. We need to build platforms which generation after generation build on each other to allow us to tackle problems that can't be tackled any other way. These are daunting challenges and these are the challenges that the Superion platform is designed to tackle.

First, radical simplification. Only the simple scales. We need to make our platform as manufacturable, as deployable as possible to get out to the true scale we want, both the number of systems deployed and the number of qubits in those systems. Natural qubits, ions and atoms, have historically been controlled with lasers. This is a great technology for the zero to one phase, getting the first hardware built in the lab. It's challenging to mass manufacture.

In the Superion platform, we replace these lasers for qubit control with electronics built into the chip, electronic qubit control. This allows us to take out this whole middle layer of laser control, directly connecting our classical control electronics to our quantum chip and allows us to build out these quantum chips in standard semiconductor ways. It also makes our systems more reliable. By stripping out this complexity, we can manufacture these things at scale and eventually we can drive up the reliability and the deployability.

But this electronic qubit control alone is not enough. In the same way as there's a tremendous amount of technology that goes from a single LED to an LED pixel array, a TV display, there's a tremendous

amount of technology we've developed to go from single unit cells to unit cell arrays. This technology we called quantum multiplexed I/O. We built out an incredible unique patent portfolio IP around how we do this.

What this is allowing us to do is to take these unit cells of electronic qubit control. These unit cells have achieved over four 9s on the critical performance metric, two-qubit gate fidelity, and take these into scaled out arrays of qubits. This is one of the core technologies behind Superion and is what allows us to control dense arrays of qubits at scale.

And I'm pleased to say this is the picture of the first Superion 256 chip. We're already producing these devices at scale at SkyWater by the wafer. And in parallel with doing that, we're building these devices into packaged quantum processors just like this that sit at the core of our Superion 256 quantum computers. In parallel, we've been building out the physical footprint of these systems, the infrastructure that these quantum processors plug into. These are designed to be data center deployable, to be mass manufacturable.

Over the last year, we've gone from these basic technology demonstrations, implementing this electronic qubit control with incredibly high fidelity, designing prototype chips that de-risk different aspects of fab, different aspects of the technology, building the first prototype systems, the first prototype chips. Today, I'm pleased to announce that we now have ion qubits in these first prototype systems.

Over the coming months, as we prepare to enter into production, we are doing a tremendous amount of work to put these and make these things real. I'm proud to say that we expect to have the first systems starting deployments on customer sites in early 2027.

Over the last year, we've made some big strategic bets. We want to take the innovation cycles that are typical in the industry of years, and we're striving to turn these into months. We think this needs to happen to hit the pace of innovation we want to achieve. We've made big operational changes to how we run the company, how we structure, how we develop our technology, how we run our teams to allow us to achieve this. And this is paying off.

Over the last six months, we've built more ion-trap chips, ion-trap quantum processors than we have in the history of the company to date. The numbers speak for themselves. We're learning faster, we're iterating faster, and we're doing this over multiple generations in parallel. You're going to hear more details about this from Tom Sonderman next.

To get out to true scale to millions of qubits deployed around millions of data centers, we need to build out a core platform that allows us to hit this scale, that allows us to tackle applications that can't be tackled any other way, and where each generation of the system teaches us about the next.

The Superion 256 is the foundation of the Superion family and contains the core technology that gets us all the way out to scale. In parallel with this, over the last six months, we published our Walking Cat quantum error correction architecture. This is the most detailed full stack quantum computing architecture out there, and this carries on our theme of radical simplification. This paper shows from the

hardware level to the quantum error correction level, to the compiler and application level across the full stack, how we can significantly simplify everything involved in our quantum computers.

For example, going from using multiple different types of quantum error correction code to one unified code, simplifying our architecture, simplifying our compute fabric, allowing us to scale faster. This Walking Cat architecture and the compute fabric we show in the 256 system takes us to our 10,000 qubit system. The big addition to this is integrated cryogenic CMOS to implement our quantum multiplexed I/O. We already have the de-risking of this CMOS built right now in SkyWater and you can see some of the first wafers over in the display case.

To get to the next scaling node, we tile two dies together in 2.5D integration, and we carry on to hundreds of thousands of qubits by tiling out to more dies and by increasing the density of qubits on each die. This scaling pathway takes us from hundreds of qubits through thousands to millions and millions of qubits. This is the Superion product family. It's simple, it's scalable, it's mass manufacturable, and we're building this in our sovereign fab today.

At IonQ, we work across the full stack of quantum computing. This gives us value that's well worth more than the sum of its parts. We work from silicon all the way through to solutions, and we're world-class innovators at every level of the stack. We've talked about the quantum processors. We've talked about the Walking Cat architecture. In parallel with all of this, in the last six months, we've demonstrated customized quantum error correction codes running on real hardware with breakeven performance.

At the same time as this, we're innovating across the classical software layers too. In the last couple of weeks, we put out the first mega quantum operation real-time decoding stack tailored for our 10,000 qubit device, showing we can run this using efficient classical computation in parallel with our quantum hardware. And the same time as doing all of this, we're working across the quantum solution stack. You're going to hear more about this from Chad in half an hour or so, where we've demonstrated time to solution speed-ups on pure play quantum algorithms. We've demonstrated speed-ups of hybrid quantum computing stacks, tailoring quantum processors, GPUs, and CPUs working together to be better than each part individually.

Working across this full stack gives us a virtuous cycle of innovation. It allows us to learn from every different stage. It allows us to see around corners. We can tailor our quantum solutions to our hardware. At the same time, we can tailor our hardware and our software to see around the corner because we know what's going to come in the next generation of quantum solutions. This gives us a virtuous flywheel of innovation that we can only get through working across the entire quantum compute stack.

There's no better example of this than the result we've made public today. For the last 30 years, Shor's algorithm has been the benchmark for scaled fault-tolerant quantum computing. People have spent careers optimizing, understanding, finding the nuances in how you approach these problems. Today, we've made public the first full end-to-end compilation of Shor's algorithm. This is not an estimate. We know exactly how many qubits we need for this. We know exactly the software we need to run this. We have the full model implemented down to every single physical operation we need to play on the device.

In doing this, we've learned a tremendous amount. We've made improvements across the stack. For example, over a 30X improvement in our core error correction modules like CCZ factories. A result like this shows the IonQ full stack innovation flywheel playing out. Working at the level such as this where we've made significant innovations across the stack shows on the benchmark problem like Shor's has been so well studied, shows that we can make innovations across the entire stack of fault-tolerant quantum computing. This shows the IonQ machine in action, the organizational machine we've built. This shows the big strategic bets we've made over the last year paying off. This is the IonQ innovation flywheel in action. Thank you. I'm now going to pass over to Tom Sonderman to tell you all about what we're doing at SkyWater.

Tom Sonderman (Chief Executive Officer, SkyWater Technology):

Thank you, Chris. Good afternoon everyone. It's an exciting time to be in the quantum industry and certainly an exciting time to be at SkyWater. Our industry has a long history of working with brilliant physicists like Chris and turning their ideas into reality. And one thing that has happened recently with the partnership between SkyWater and IonQ is we've moved out of the physics demonstration realm to now manufacturing at scale in a highly developed operation that will allow us to not only deliver the speed required to get the cycles of learning necessary to drive the roadmap that Chris just showed, but also the scale.

Today, we have thousands, literally thousands of quantum wafers running in our fab. A third of those are tied to IonQ. What that means is we're designing for manufacturability. When it's time to run at scale, we will be ready.

Now, the challenge in our industry has always been, how do you get from the lab to the fab? And SkyWater was literally created to solve this problem. We came up with this concept called a technology foundry and a business model called technology as a service that allows us to create the bridge over what's known as the valley of death, where lots of great technologies start out in the lab, but they just never make it to the fab. And that's because in a lab you have ultimate degrees of freedom. You can experiment, try many different aspects in terms of what you want to accomplish. In a fab, it's a little bit more restricted. So SkyWater was literally created to solve that problem.

Instead of mimicking other foundries, today there's really only one conventional foundry, that's TSMC, and the specialty foundries, which were foundries that basically couldn't keep up with TSMC, so they chose to make other products. But again, products that required a lot of standardization.

We took the opposite approach. We embraced customization. We embraced the idea that innovators needed an environment where they could have their ideas not only created in a volume environment, but also run at scale. So today, with the speed, accuracy, and agility that we bring together, coupled with front end manufacturing and advanced packaging, we now have a capability that doesn't exist anywhere in the world and we've been doing it for over 10 years.

Today, SkyWater is the, capital T-H-E, the only quantum foundry. There are others that are talking about it, but recognize that what we put in place has been part of a strategy to not only create the environment, but create the security that protects those innovations. Because our focus around quantum isn't just as a commercial business, but also it's tied to national security. Quantum is sovereign

infrastructure and it's absolutely critical that SkyWater, IonQ and the Quantum Foundry model that we've created protects the IP for our customers. And more importantly protects our national security for things tied to the defense of our country.

Now, as Chris said, we have delivered exceptional performance since we began our partnership. And it's all about, again, speed and scale. The speed in terms of the cycles of learning that we deliver, how fast we do them, but also the scale. Those thousands of wafers allow you to do things in parallel. It allows you to do rapid learning. And what that will continue to do is move the projections that Chris has provided to the left. That is our goal, to continue to move the roadmap to the left. And we believe that we are well on our way to doing that.

So in the end, it's all about speed, agility, and expertise. SkyWater has created something unique in our business model. And again, I'll point out our first customer as part of our technology as a service was a quantum company. So we literally have decades, a decade-plus of experience doing this type of fabrication. And when we couple that with our advanced packaging solutions, the ability to scale in a post Moore's law realm is right in front of us. We have the capabilities in the front end, in Minnesota, the capabilities in Florida. And as Chris has alluded to, it's all about scaling and tiling, which is heterogeneous integration. So we are ready to execute.

The other thing is that SkyWater is a quantum foundry. We have nine, as of the announcement today with Qolab, nine different quantum customers that are all working in SkyWater. So we aren't just driving IonQ's roadmap. We're literally creating an industry, a quantum foundry industry that will be foundational through the rest of this decade and beyond. So when you think about SkyWater, you think about IonQ, just remember that all roads for quantum lead through SkyWater. With that, I'll turn it over to Jordan for the next portion of our presentation.

Jordan Shapiro (President and General Manager, Quantum Platform, IonQ):

Good afternoon. Thank you, Tom. On behalf of all of IonQ, I know we are so thrilled to have you and the SkyWater team joining our ranks. The advancements you heard today from Chris and from Tom in our quantum computing side have implications not just for quantum computing, but also for quantum security. And today, we are seeing the convergence of two trends. The first is that the analysis of how many qubits you need to reach Q-Day or the day when a quantum computer will pose a threat to our critical infrastructure is coming down precipitously. Today, we announced 19,397 qubits as our requirement at IonQ. And it's this advantage of quantum hardware and quantum software working together that are bringing that Q-Day threat closer than ever before.

At the same time, we're seeing another trend, which is that governments are pulling in their migration requirements for companies and organizations and leaders worldwide to be much sooner than originally expected. Most recently in June, the US executive order pulled in the migration timeline for the US from 2035 to 2030. The result is that leaders today need to transition to quantum security now. And if they're not transitioning now, they're already too late.

There's already risk today with what we call harvest now, decrypt later, where adversaries are collecting encrypted data with the hope of decrypting that at a future date with quantum computers. So today, we

already have exposure, but we also have the looming threat of Q-Day that is coming sooner and sooner. So today truly is the time to transition.

The good news is that IonQ is providing that full stack quantum security platform, or as Niccolo called it, we're the safe breakers and the safe makers. How do we do this today? Well, we offer customers Quantum Security Posture Management or QSPM, which gives them visibility into their full infrastructure to determine where they are vulnerable to potential quantum attacks.

Then we offer a CNSA 2.0 and NIST compliance solution that allows you to continue to update your infrastructure to be quantum secure, whether that be using PQC or post-quantum cryptography and injecting that throughout your infrastructure or doing quantum key distribution, a physical solution that can span your entire network, but especially where it matters the most. And that uses the same core underlying quantum physics, quantum mechanics to protect your data sets from potential eavesdropping. We then help you to orchestrate and manage those keys and evolve your solution architecture over time to what will be a changing standard of quantum security.

We are not just building this technology, but deploying it today with customers. I'm so proud to announce today that we have signed a major agreement with Congruity360 for the enterprise rollout of quantum security in the US. To our knowledge, this is the largest deal of its kind in the United States, bringing quantum security to leading enterprises. But it's not just enterprises. It's leading healthcare systems, financial institutions, government organizations, and telcos.

Take, for example, Singtel and SK Broadband where we've rolled out our quantum security solutions. This makes IonQ not just the most robust platform, but also the most deployed platform when it comes to commercializing quantum security and providing a solution to the looming threat of Q-Day and HNDL.

All of this is just one example of IonQ's quantum platform at work. And it truly is a platform of different quantum technologies that converge to provide solutions that otherwise you would never have available. In the case of quantum security, we understand the threats better than our competitors because we also have quantum computing as part of our business. Meanwhile, in the case of quantum computing, we offer the solution to the problem that we are also creating with having larger and more powerful quantum computers. And so this is a true example of IonQ's quantum platform coming together, and you see this across the company in different areas as our technologies converge.

Take, for example, what we're doing in quantum networking. We previously announced that we were the first company in an enterprise setting to interconnect two different quantum computers together, two IonQ trapped ion systems with our partners at Air Force Research Lab or AFRL. We then have announced that we are providing AFRL with a quantum network for entanglement distribution that allows us to experiment with different modalities of quantum computers on the same network and different quantum devices that can be connected together.

Now, we are working on the next step, which is to take our networks, which are fiber-based today, and leverage IonQ's optical communication technology to get off the fiber. In other words, to operate in free space. That's interesting because it unlocks the capability of quantum connections that are airborne and, in the future, space-based. This is just one way in which we're leveraging IonQ's quantum platform to expand our quantum computing technology.

But we're also seeing this happen the other way around. We're using our quantum computers to advance technology throughout the company. Today, for the first time, I'm able to share that we are using our quantum computers with our remote sensing part of the organization as well.

IonQ captures on a daily basis data from across the globe, synthetic aperture radar data or SAR data. And when we look at those images, we can use classical conventions to try to understand what's happening in the data, but we can also use quantum computers to do an even better job of that.

Today, you're seeing what is the first example to our knowledge of a hybrid quantum classical workflow with SAR data where we're taking IonQ's quantum computer, we're putting it in the loop and we're processing data from our SAR platform. You'll see in the orange circle here, an image of Miramar Air Base where there's a structure changing between the first two images. The ground truth represents the actual change between the two images, the insight that you're looking for as an analyst.

The last three images represent different models that are trying to assess that data. The first is run on an IonQ quantum computer, and you can tell it's the best because it identifies the structural change. It looks closest to the ground truth image and it doesn't have all the noise and the fuzziness of the classical models. This model is working better than classical and it enables us to have a level of insight that no other SAR platform has today. Meanwhile, we're the only quantum computing company that has this great level of access to SAR data to run our quantum computers on.

Every day, we're looking at what technology is next for IonQ's quantum platform and what continues to distinguish ourselves as a company. Take, for example, the quantum sensing technology that we brought to IonQ. We produce, for example, the world's most accurate commercial clocks at IonQ. These are quantum optical clocks. We also produce time transfer devices, atomic gravimeters that can measure the specific gravity at any point on the earth, gyroscopes that measure inertial movement. And so we have a precise level of sensing that uses the same underlying quantum physics to build new devices and new capabilities, especially in the field of Positioning, Navigation, and Timing or PNT that is relevant in many enterprise and defense use cases. This technology is not just available at IonQ, it's world leading.

Our quantum clocks are a thousand times more accurate than the classical equivalent, best-in-class classical equivalent, and they lead the entire field in NIST's ensemble of clocks in that they're the best performing clocks that NIST has available today in this form factor. We are seeing the deployment of this technology as well. It's not just in a lab somewhere. We're able to deploy our quantum sensors at sea, in space on the X-37B space plane, on land, in the air, et cetera. And so we're truly deploying our technology everywhere.

Don't just take it from IonQ, you're seeing this from our partners across the entire quantum platform. Our US government customers are validating our technologies, whether they be our quantum computing platform with DARPA QBI, our quantum sensors, most recently the \$58 million agreement for the It's About Time program, but also our networks and our space technology, recent contract with NRO as well on the space side. What this validates is that IonQ is not only leading in each individual technology, which we are, but also that these technologies are converging, are coming together to offer

unique solutions that only IonQ can deliver. That is the power of a platform that is stronger together. Thank you.

Inder Singh (Chief Financial Officer and Chief Operating Officer, IonQ):

Thank you very, very much, Jordan. I spent several years of my career being a Wall Street analyst, and I remember the things that I used to look at. I used to look at the company's technology. Does it have a roadmap? Does it have the investment dollars? Does it have staying power? Does it have positioning? But also, I used to look at the management team. Do I believe, do I trust they can execute? Do they have a track record of execution? And I hope what you saw here today was a management team that has that.

When I joined Niccolo in this mission to help make this platform company into the pacesetter that he's made it, I take no credit for that, and also how much more we can accomplish here together as a team, he's pulled together an amazing team. And I'm hoping that through the day, the rest of the day, you'll see more and more of that. And I think the investor confidence that you will see will inspire you as well.

When I joined the board of this company and some of the board members are here, we used to be a one product company. We were in quantum computing. It's a wonderful market. It's not my TAM number, but \$148 billion TAM according to third parties. So every other quantum company that you are looking at virtually, every other quantum company is in that TAM. It's an attractive TAM. We are already the pacesetter.

You've heard from Chris Ballance earlier about how we continue to innovate. He talked about the 256Q chip and the 10K chip and it doesn't stop there. So we're happy to be in that market. We are the pacesetter in that market. We don't intend to stop. We spent a billion dollars roughly on Oxford Ionics and another two billion almost on SkyWater. So we've put in more than many governments have put into quantum to actually make it happen and make it real.

I'm thrilled to say also though, we are in many other TAMs, and I think you heard that from the speakers today. In quantum networking, which Jordan just talked about, we had a wonderful customer in Air Force Research Laboratory. They benefited from us in terms of what we created for them, and then we learned from them, as he said, how to network two machines together, either next to each other or at distance.

We also realized that as a responsible company, if we are creating machines that are so powerful that they go beyond what humanity has ever seen before ... And by the way, when I joined, I never thought we'd be here this fast, but if you're creating machines that can, as you heard, break encryption, you have to be responsible. You have to actually make sure that you're also providing security.

So Niccolo and his vision of creating the mission of the company and the vision for the company as he saw it when he became CEO beginning of last year, decided it was important to have quantum cybersecurity. Very different game than any cybersecurity you've seen so far. Protecting against a quantum computer.

We got into sensing. Certain government customers value the fact that you have sensing that doesn't get jammed. You've all heard about GPS getting jammed. You've all heard about how planes are walked

off and land in the wrong place, bad things happen. That technology has become available broadly and is being used in conflicts more and more. So having things that are very accurate and precise, as you just heard, but also that cannot be jammed, we wanted to bring that to the table too.

And then as I look at kind of the most important part that we just announced recently, which is making it all secure, manufacturing it in a way where the quantum products we create and over time we'll do more and more with SkyWater, but computing to begin with, make it secure from design to engineering, to manufacturing, to delivery to the customer. They need to be able to trust it.

And that's what a trusted fab brings for us. That's why it's worth having Tom and his entire team who've done this over years and years and have done it well and know how to scale, help us build the most powerful devices in every one of these categories.

I haven't put a TAM up there for SkyWater. It's new. It's a huge TAM. And you heard Tom describe it, the only quantum foundry at scale in the world. In the world. And so we're glad we use it. We're glad that others in the industry are using it as well.

We don't talk about it much, but we sell our components to other quantum computing companies that depend on us already to help them make what they're trying to make. In addition, we also manufacture some of what they need in the SkyWater quantum foundry. So we intend to keep doing that. The adversary for us is not another company. It's a nation state probably or more nation states, protecting against what quantum can do both good and bad.

As I think about the track record, remember I said a real important part is, does the team execute? Do they say something and then do it? Do they beat what they said they would do? And this company has a track record of doing that. I joined when it had two million in revenue and one machine and 30 people and a dream. And over the years that you see here through 2024, you can see the results for yourselves. It's not big numbers yet, but it's actually demonstrating customers are buying what this company is creating.

Last year, when Niccolo became CEO, we accelerated that. Yes, we acquired some companies, they brought some revenue, but as we've said every earnings call, we keep investing in the computing as well and make sure that stays our fastest growing engine. And we're thrilled that it is still driving a lot of our growth and we're thrilled that we have actually a portfolio of things that we can sell to a customer.

And now, we have SkyWater. This morning, we issued guidance for what we think SkyWater will add to our P&L for the rest of this year. It's a stub year. We got approval on July 31st, a couple days before earnings. And so we were thrilled and it happened in the timeline we said it would happen. We were thrilled to have that. We did not provide guidance at that time on our earnings call because it was just too recent. Today, we gave you some more color on it and I'll share some additional color now.

The point is end-to-end quantum everything. Think of this company as the one-stop shop for quantum, not just computing. Yes, computing, of course. But when we talk to customers, sometimes they start with, "I need your security first." And more and more I'm hearing that. More and more Niccolo is hearing that. More and more Chad in the back is hearing that. And you'll hear from some customers that

talk about that too, but we have a strategy to land and expand. So it doesn't matter where the discussion starts. It's a question of how many of your products they use.

When we think about quantum computing, I think of two things. One is the computing power. I came from ARM. ARM makes efficient processors and computers. We are increasing from the Aria to the Superion and 10K. Our qubit system count 400 times. 400 times. This is not taking it out to the two million machine one day, right? That's further out. I told my team, "No, no, no, no. Stop. Let's go with a couple of years of actuals of what we've done." You can see those there. Three years of machines that we've put into the market and two that are about to come into the market.

And on the right-hand side, equally important. We can deliver the lowest cost per qubit. So the most amount of compute power at the lowest power. Anyone remember Moore's law? This is Quantum Moore's law. We also have machines that don't require a grid. It's not on the chart. It plugs into the wall, so you don't have to buy a nuclear power reactor to run the machine.

We are privileged and proud now to have SkyWater and IonQ come together as one company called IonQ. Welcome to Tom and the entire team. Some of you are in the back there. Thrilled to have you here. This team now can go end to end secure, trusted fab, and SkyWater is the only trusted fab of scale in the United States. Others will follow. There have been announcements. Others will do it too, because others have said they'll get it done by 2029, perhaps, maybe a year early. I don't know. But I think where we are and our goal is just to keep running faster and faster and faster and have the capital to do that, we think we continue to pace-set the market, as I said at the beginning.

We will give you color below those two categories. We will provide you on the left-hand side, as you can see, what we're doing in quantum hardware and in quantum services. What's on the left in quantum hardware is the computers we sell on-premises to a customer, and we're selling more and more of those. I'm seeing those happen in hybrid deployments, an AI factory with a QPU next to it.

On the right is quantum services. What's in there? The applications, the things that run on the quantum computer is in there, as well as QCaaS. So if someone doesn't want a machine, they just want to have cloud access to the machine, we do that too. And that's actually going faster than the computing business even, and is even more profitable than many of the things we do. I'm thrilled to have that business. I'm thrilled to see the growth that's happening in that business.

To the right, we'll provide some color on SkyWater going forward. In that two buckets that you see there, CMOS semiconductor foundry, think of what SkyWater used to call its Texas Foundry. That is principally the Texas Foundry. And the Quantum Foundry & Advanced Technologies is where we manufacture our quantum computing devices and the chips that you saw that are around the room there, as well as some of the most advanced things that only SkyWater can do for government customers over time that are cleared to work on secret projects, things that you don't have a clearance you're not like to know, things that go boom and other things I'm not going to get into.

This gives you a sense of the things that are in there. I'm not going to break out this level of granularity on our earnings calls, but I want you to have a slide that shows you where's your computer, where's your QCaaS, and on the right, where's the quantum foundry, where's the advanced packaging that SkyWater used to talk about?

I'm simplifying the number of categories that SkyWater had to a few. Just as on the left, I've given you color in terms of how we're doing internationally, commercially, et cetera, et cetera. We might do that on the SkyWater side. It's early days still, but the point is to have a limited number of things that you all can follow that makes sense to you and you can hold us accountable for.

It's also important for us to demonstrate what happens when you take the consensus numbers for SkyWater, which is on the left, the \$608 million. That is the consensus that existed on July 30th, the day before the closing. And then on our second quarter earnings call, for those of you who listened, I said of their revenue, 120 million comes from us. You see that on that left-hand chart.

The bar in the middle is the results that SkyWater already reported for the first quarter and the second quarter, and frankly, an estimate for July still. They did not report their third quarter clearly. So 368 from the 608 is what they've delivered by our estimation. These are unaudited results, so take them with that appropriate caveat.

On the right therefore is what's left. So for the five months that we will have owned them this year, they'll have delivered \$240 million of revenue to us, of which by the way, 70 million is from us, right? So I have to eliminate that at the corporate level. I think you all understand that.

But the bridge was important for you to see that, again, they're not guided for the year, so I use street consensus, results delivered, what we'll see in our P&L. When I take that 240 and then I add it to the guidance we've already given you for IonQ previously, the 280 to 290 million range, which we reaffirmed this morning. And as you know, this color we gave under that around organic growth and other things like that, when we had our Q2 call, you can refer back to the Q2 transcript. I'm not reaffirming all the granular details, of course, but in the press release this morning, we affirmed the 280 to 290 plus the 240 from SkyWater that I just showed you, minus the 70 million elimination of revenue because we now own them, gives you the 450 to 460 million range.

Wanted to make sure that you had that granularity a month into basically our having gone through it. There are still some purchase price types of adjustments we'll be doing, some noise level things, but as I look at the business and I look at this, this gives us a solid foundation for all of the things we have to do in our strategy and the financials that both SkyWater's delivering in terms of revenue and we're delivering legacy, I don't want to call it legacy, it's actually the future. IonQ is pretty amazing, both sides of it, and we're happy to have them as part of the fold.

Over time, we will focus on other things like EBITDA and we'll give you more color on EBITDA. One month in, I can't give you that level of color when we report earnings and the auditors have gone through all the numbers. We'll be sharing more on EBITDA for you.

We will continue to invest. Why? Because we are the pacesetter in quantum. We are the pacesetter. The industry is moving. We're happy they're moving. We need the industry to emerge. One company does not an industry make, so we want the others to also succeed in their endeavors. They're still in that first 10 I was talking about, remember? We're the only one roof provider. Some have called it Amazon of this. I like to think of it as Cisco of Quantum. I worked at Cisco. It's like put the things together that work together.

We are also addressing multiple markets. Important for you to remember. As you think about us, you can pigeonhole us into a one product company, but you'll be missing a big chunk of actually what we're delivering. The value to customers sometimes can be security and security can open the door to a conversation that leads to compute use cases. Not everybody will buy sensing, mind you. That's a national security customer probably, but we're catering for everyone.

We are also, and I put it here, in products that some of which have really attractive margins. And our goal as a company and Niccolo and I as leaders is to ensure that over time we drive margins, EBITDA margins higher. Gross margins, some of you asked me about and gross margin sometimes doesn't always capture that. So we talk about revenue and EBITDA margin because that captures R&D and a bunch of other things. We spend more on R&D probably than most of our peers. I won't say combined, but most of our peers.

We're also delivering quantum solutions, and you heard that a little bit from Jordan as well. Over the last couple of quarters in earnings calls, both Niccolo and I have talked to you about we don't just sell products, we actually make products work together and sell a solution. A Vector Atomic clock on a space platform is one of the solutions.

Using quantum computing to improve the imaging from a SAR satellite is another one, and there are many more. So the proof points of the strategy that we had are now starting to flow in announcements. And the companies that I've followed over the years and worked at over the years, turn those into revenues and customers over time.

We do have the strongest balance sheet. Our intent is to keep the balance sheet, the strongest balance sheet required for success. Not too strong, certainly not too weak. I told you, we spend more on quantum computing alone than entire governments do. Think about our entire portfolio, we'll be investing in all of that. So Niccolo and I and the leadership team and the board will make sure that we have the ability to fund our innovation for many years to come. I want to make sure that we have cashflow available to us to be able to invest for multiple years so we don't have to worry about that. That's how you make long-term strategy come alive and deliver short-term results.

And with our partners at SkyWater, we now have the only trusted fab and the only quantum fab in the world. Others are following our strategy and they will follow us. We won't stop running. We're going to be the pacesetter. We have been the pacesetter and the management team that you have and you saw here are very focused on that. In each category, everything that they talked about, they intend to keep investing, failing fast if it's not working, like having SkyWater allows us to do multiple prototypes at one time. Others can't do that. So we find out which one works and which one doesn't much more quickly.

So a number of things come together under this platform. I'm not going to say that it's all easy. Lots of execution is required. Technology innovation at the frontier of technology is not easy. But if you are asking yourself what comes after AI, quantum comes after AI. If you're thinking, "Can quantum work with AI?" We're making it happen today in hybrid solutions.

Niccolo said this at the beginning, the thing that was out in the 2030s or beyond in people's minds is here. Almost as close to your nose, not quite, almost. So we will keep investing to make sure this works. I remember studying quantum mechanics in engineering school and I'm not sure I understood

everything and I was in good company. Even Einstein said he couldn't understand everything. It's okay. I don't understand how time space curvature happens, but gravity exists. Elon Musk has built a rocket to overcome gravity. We're building machines that use quantum mechanics and you don't have to be a quantum physicist to invest in a quantum company.

We wanted to have some Q&A. I probably went a few minutes over, but if my colleagues can join me, that would be great.

Now, if we run out of time during the bell ringing ceremony, if you still have questions, I'll be available to answer detailed questions as well.

Niccolo de Masi (Chairman & CEO):

All right. Okay. I think this is the first victim.

John McPeake (Rosenblatt Securities):

Thank you.

Tom Sonderman (Chief Executive Officer, SkyWater Technology):

Oh, we have chairs.

John McPeake (Rosenblatt Securities):

Should I let you guys sit down or should I just shoot?

Niccolo de Masi (Chairman & CEO):

Charge.

John McPeake (Rosenblatt Securities):

John McPeake at Rosenblatt Securities. Thanks for doing this guys. At what number of physical qubits does photonic quantum interconnect become important in your roadmap?

Chris Ballance (President, Quantum Computing, IonQ):

I will take that.

Niccolo de Masi (Chairman & CEO):

Thanks, Chris.

Chris Ballance (President, Quantum Computing, IonQ):

So in our core compute roadmap, we can scale out well beyond millions of qubits. This is looking on a five-year view. So right now, we don't believe we need photonic interconnects in the near term for that. The customers that like photonic interconnects are typically not the customers who just want one big computer. They're doing things more than just that. They're connecting quantum computers with quantum networks. They're trying to work out how they position themselves so they can build out a

fleet of quantum computers and then work out how to expand this onto other problems. Right now, on the core compute roadmap, we don't need photonic networking. It's a tremendously valuable thing to sell alongside our core quantum compute products.

Nehal Chokshi (Northland Capital Markets):

All right, thank you here. Nehal Chokshi from Northland Capital Markets. Probably for Thomas, maybe for Chris, but the reduction in cycle time from eight months to two months is absolutely astounding. I would love to get more insight on how you guys have achieved that. And I'm thinking one element may be which lithography node IonQ is working SkyWater with and what range of lithography nodes does SkyWater work with as well?

Chris Ballance (President, Quantum Computing, IonQ):

So perhaps I will start to tell you what I've seen of SkyWater, and then Thomas can say how he actually makes this happen. So to me, a lot of this is the culture, how the business works. Semiconductors historically are low margin, incredibly high volume. I myself have spent a lot of time talking to foundries trying to explain that actually if they make fewer parts but make a lot more money on them, you can multiply the numbers together and actually get a good value. That's a really difficult thing to get into the DNA of a fab.

What I saw, and I'll get technical briefly, back tail end of last year makes an example of this. We had two different foundries we were working with at the time, a major industrial foundry and SkyWater. The major industrial foundry was pushing out the delivery timelines for some hardware by a couple of months, six months out, since they had challenges with supply chain, getting in particular chemicals to put in particular machines to deposit particular layers.

SkyWater had the same challenge. We spoke to the SkyWater team on a Tuesday and they said, "Our supplier is quoting us a month. That's nonsense." In fact, they didn't say nonsense, they used a slightly fruitier word, but their passion was clear. By two days after that, by the Thursday, they'd found out a supplier in Korea had one in stock and worked out how to horse trade to swap us out. And by Sunday, this was installed in a machine yielding results from us. Our other partner at the time was still giving us a two-month slip on a six-month timeline.

So to me, this is just an indicator of the cultural differences at play, the amount of hustle and the appreciation that innovation cycles and learning speeds really are the critical thing when you're trying to innovate at the frontier of technology like this.

Tom Sonderman (Chief Executive Officer, SkyWater Technology):

Well said, Chris. I'll just add, and I think it's a very astute question. We do this on 90 nanometer technology. You hear others talk about, "Oh, you need 28 and below," and some people even talking about two nanometer. That's ridiculous. The kinds of fabrication that we're doing in a 200 millimeter fab, very mature environment is very nicely adaptable to the kinds of innovations that Chris has. So I think the cost per qubit you will see from SkyWater and IonQ continue to be industry leading.

Inder Singh (Chief Financial Officer and Chief Operating Officer, IonQ):

And Chris and I, when we did the Oxford acquisition will remember this, but there are other foundries that were trying to be quantum foundries also. And we talked to one of them, I won't name them. And they couldn't move fast enough. They didn't quite understand what we needed. They didn't have a learning curve on quantum, hadn't done quantum before. They were blown away by the volume numbers we were talking about into the future years, and they needed permission from the mothership and they just moved too slowly. So one is like rapid prototyping and getting things done in months. The other is no one else can really match it right now.

Nehal Chokshi (Northland Capital Markets):

Great. Thank you.

Gary Mobley (StoneX Group):

Great. Right here. Not sure if my mic's on yet. Can you hear me okay?

Niccolo de Masi (Chairman & CEO):

We can hear you.

Gary Mobley (StoneX Group):

All right. Gary Mobley with StoneX. Thanks for hosting this event. It's very helpful. I had a couple questions for Tom if I can. So I think you mentioned in your presentation you have nine quantum compute companies. I presume one of them is IonQ. So from those other eight, what have the conversations been like with respect to their comfort in dealing with you as a foundry partner to making sure that you won't essentially handicap their roadmap? And how much of a time lead do you think you have vis-a-vis IBM Anderson or GlobalFoundries' QTS before they hit their milestones and become a real alternative to SkyWater? Thank you.

Tom Sonderman (Chief Executive Officer, SkyWater Technology):

Yeah. So the whole quantum foundry model is really based on the foundry model, which is you manufacture parts for other companies and protecting IP is foundational to that. So the way we treat any customer is we compartmentalize the information, we do not cross-contaminate. And all of our customers, Qolab, Alan's in the audience here, should be 100% confident that their roadmap will not be impeded by the needs of IonQ.

The ability for us to move fast with IonQ, who is our largest quantum company, allows those capabilities to be populated out across our other Quantum customers. So it's very much what's the rising tide lifts all boats. We are creating a quantum industry. We're going to move very fast with IonQ, but all of our customers should have confidence that they're going to be able to take advantage of the capabilities we put in place.

Regarding the competition, you never talk about the competition, but I will because, frankly, it's a little bit ... It's marketing hype, frankly. The ability to have a quantum foundry was exactly why SkyWater was

created because the other foundry models really weren't creating the innovation capability that many of the companies we wanted to work with were talking about.

So Anderon is out there, they bought HRL, but again, IBM sold their microelectronics business to GlobalFoundries back in 2015. So if they want to get back into it, so be it. GlobalFoundries, who I used to work at, but they have capabilities, but they are not an innovation engine. They are a scaled specialty foundry. They love standardization. We embrace customization. So it's just a different model. We're going to run ... So TSMC started the semiconductor foundry business. They're still the leader. We started the quantum foundry business and we will be the leader. No questions asked. So we're going to run very fast and I hope they can stay in step.

Niccolo de Masi (Chairman & CEO):

Okay. Whoever's got the microphone goes next.

Audience:

Okay, thank you. So I have two simple questions. I have no doubts of scale up and the fabrications, but I'm just wondering if you guys have scaled out roadmap for the photonic interconnect phase three and four.

From my understanding, photonic interconnect phase four is really, really complicated to make it. And also, the other thing, so as we have the fabrications and shorter cycles, I believe you need to have capabilities of both manufacturing capabilities. So do you have any plan or kind of the capabilities perspective?

Tom Sonderman (Chief Executive Officer, SkyWater Technology):

You want me to take that? I mean, the capabilities we have between our Minnesota and Florida operations have more than enough capacity to deliver what we believe is required from Chris and his team on the compute side, as well as Jordan and his team on the broader quantum platform side.

So again, these don't require the same scale as like a smartphone or even AI data centers, but they require lots of iterations. Eventually, products will go into volume manufacturing and we will continue to innovate in parallel. When I was at AMD competing against Intel, we were always running three nodes in parallel. You heard today, we're running five devices in parallel.

The ability to move with faster iterations just closes the gap between ideation and commercialization, and it's all about time to market. And I keep going back to that's why we created the technology as a service model to innovate at scale and to create a model where companies could innovate. And it was great to see both Inder and Chris say, "We looked at all the other foundries and we chose SkyWater because it validates the model."

Niccolo de Masi (Chairman & CEO):

There's a section on quantum foundry and networking actually when we're done here, so you'll get more today shortly.

Inder Singh (Chief Financial Officer and Chief Operating Officer, IonQ):

And we intend to keep investing, obviously, in the quantum foundry. Yeah, Mihir will talk about it a lot more, but from a capital standpoint, we bring capital to the table that SkyWater needs to grow its quantum foundry. Again, I don't think of the others as competitors that are in that foundry. They're part of the industry and the ecosystem that's going to exist in the future. They're already our customers in some ways. And this is about accelerating our roadmap and our learning curve helps, frankly, the other players as well.

Quinn Bolton (Needham & Company):

Quinn Bolton with Needham. One for Chris and then one for Tom. Chris, you mentioned you're starting to load the 256 QPU with ions. I guess, can you talk about when will you have enough data to talk about gate fidelity, median gate fidelity across the 256 qubits in that QPU? How confident are you in hitting the fidelity? You talked about crosstalk being a technology that you've developed, some technology to reduce crosstalk, so maybe expand on that.

And then for Tom, can you just discuss plans for Fab 25? Does that stay sort of in quasi-independent CMOS high volume fab for non-quantum customers, or do you see a time where you might start to run some of the quantum wafers at Fab 25? Thank you.

Chris Ballance (President, Quantum Computing, IonQ):

Okay. There was a lot of questions there, so I will try and answer them in order.

Inder Singh (Chief Financial Officer and Chief Operating Officer, IonQ):

I'll take the last.

Chris Ballance (President, Quantum Computing, IonQ):

The net of this is that a tremendous amount of the work we've been doing over the last 12 months and that SkyWater has been assisting us with is building out lots of very fast-turn prototype devices to de-risk each one of these different elements faster. This is what we call short loops. We want to learn each individual element. We want to decouple them. The way we accelerate our roadmap is by working across many different aspects of the technology in parallel, then integrating more and more of this. And in fact, over to the side here, you can see a lot of the different short loops that de-risk different parts of the technology.

So the result of all of that is that we feel very confident in achieving the ultimate integrated performance on these systems. A lot of the work now we're doing is on that integration and iteration. It's about building out and validating a production scale for these devices. And that's the work that's going on right now as we lead up to production and the start of deployments of the first systems in early '27. I'll hand over to Tom there.

Tom Sonderman (Chief Executive Officer, SkyWater Technology):

So think of Fab 25 as part of our foundry ecosystem and that gives us significant purchasing power, supply chain optimization. In many cases, we synergize between the different sites and it's what Inder showed is our CMOS semiconductor foundry business, which we will continue to move forward.

The complement of having a secure manufacturing facility and advanced packaging facility is important because that allows us to focus on the innovation side and also have a place where customers can migrate out of the Minnesota fab into say a Texas fab. But from a quantum perspective, think of that being Minnesota and Florida. It's very conducive to the types of work that we're doing, but semiconductor manufacturing is an expensive business and having the economies of scale that you get by having a volume facility is a nice balance to that. And again, it's all about lowering the cost per qubit.

Inder Singh (Chief Financial Officer and Chief Operating Officer, IonQ):

And for us, it's great. I mean, we have not had to go into the Texas fab to do quantum, but there's optionality that one gets. When Niccolo and I were looking at the acquisition, this is one of the things that went into the calculus of like, "Do we need to have more than one fab?" Right now, it's being done in Minnesota and Florida may be the next logical area to do the advanced packaging. I think Fab 25, to your question, is like optionality that if you needed to use it for something else you could, of course you'd have to retool it. So far we have not.

Craig Ellis (B. Riley Securities):

All right. Craig Ellis, B. Riley Securities. Thanks so much to all of you for all of the insights today. I want to start with a question for Chris and then jump to one for Jordan. So Chris, as we look out to the end of the decade at your roadmap and we see the scale up to billions of qubits, tiling gets really important. Can you help us understand the technology competencies you'll need to have to execute in that part of the roadmap, where are we today and what do we need to accomplish?

And then Jordan, you wrapped up by stating that in the technology areas you focused on, there's more and more interest across those three areas. Tell us more about how customers are engaging. Are you seeing it across geos? Is it more as a result of executive orders that hit in the US? Just more insight on that would be helpful. Thanks guys.

Chris Ballance (President, Quantum Computing, IonQ):

So the question I heard was on tiling, what are the technologies needed to do that? How do we de-risk that? So first of all, I should say, and this is something I mean as a point of pride, it's not a quantum problem. It's an integration problem. When we look at what we need to do to tile these devices together, it's about die bonding with tight enough tolerances and then designing the transfer, which is an electrostatic phenomena. You're pushing, physically pushing the qubits over the junction, designing the tolerance isn't like that.

Where we're at now, we've done thorough studies of industry standard tolerances and we're comfortably within that. So we're not pushing the limit of any one thing we need to do. The challenge here is a classic technology system integration problem. How do we push up yields? How do we make

the packaging boring? How do we look at the value add steps and order them such that we don't add a lot of value to the hardware before we go into low yield step?

These are classic semiconductor industry problems, and these are the kind of things that SkyWater has put a lot of focus in understanding how to do. So the stuff that worries me on that is not any one technology risk. It's operational excellence. How do we properly understand the risks and how do we execute against it doing enough in parallel to make that boring? Right now, that is not a particularly exciting problem for us. And that again is high praise for me.

Jordan Shapiro (President and General Manager, Quantum Platform, IonQ):

So Craig, I would say the story of IonQ is that we are greater than the sum of our parts. And that's really what you're seeing happen on stage today in part through the conversations between Chris and Tom, between SkyWater and IonQ, but also across the platform. And you're right, customers are approaching us and asking not just for one part of the platform, but for integrated solutions. And that is virtually global in every country around the globe and virtually in every area, every industry that we're seeing customers come to us asking about integrated technologies and solutions.

Take for example, just on the global side, we offer an incredibly compelling set of solutions to any sovereign nation that might want everything from advanced PNT to operate in GPS denied environments, increasingly important in today's geopolitical landscape, to the computing power that will change their economy for better in the future.

And so sovereigns are interested, of course, in all forms of technology across quantum, but also in every industry you have enterprises that are coming to us asking for joint solutions. So financial companies, for example, any financial services firm, we're in a financial heart here in New York. We are having conversations about financial applications of quantum computing, and then we're hopping over to the security team to talk to the CISO about quantum security.

Or in oil and gas, we're talking about quantum chemistry solutions and also using PNT for finding new oil wells. And at the same time, working on quantum security as well for critical infrastructure that oil and gas has. So very frequently, we're seeing that IonQ is differentiated from any other company and that we offer the most robust set of quantum technologies in the world and people come to us looking for joint solutions across that stack.

Inder Singh (Chief Financial Officer and Chief Operating Officer, IonQ):

So we probably have time for about one more question.

Craig Ellis (B. Riley Securities):

Thanks guys.

Vijay Rakesh (Mizuho Securities USA):

Vijay at Mizuho. Just a quick question. You had made an acquisition of Nexus Photonics. Just wondering how that fits into the IonQ and SkyWater roadmap. And also for Inder, I guess, how do you look at the

256-qubit systems? What is the pricing on that? And if you can give us some idea on how to look at fiscal '27, I guess, between the core IonQ and the SkyWater side. Thanks.

Niccolo de Masi (Chairman & CEO):

Okay. Let's have Mihir answer the Nexus question because he's the next presenter and he's going to answer a little more of these questions anyway in depth. That was his baby.

Mihir Bhaskar (SVP & General Manager of Quantum Technologies, SkyWater):

All right. Okay. Mic is active. So the Nexus Photonics acquisition is really another one of these one plus one equals 30 stories with SkyWater, right? SkyWater has the ability to manufacture and Nexus brings a proven pedigree, intellectual property capability for design and integration of integrated photonic solutions. So combining them together means we can take in particular photonics solutions, which are required for many modalities of quantum computing, quantum networking, quantum sensing, whether it's ions, atoms, photonics, networks, sensors, and take the complexity of hand-assembled systems and integrate those components on a chip. And I'll have a little bit more to say about that in my presentation as well.

So Nexus really allows us where it has the first impact for us is really in our quantum sensing devices. Already, we're manufacturing more and more of these clocks and inertial navigation sensors. Right now, a lot of these components are discrete. We're packaging them basically at the level that you can package these discrete elements, but they're still wires and things coming out. They're still hand assembled. Taking the most complex parts and putting them on a chip is what Nexus allows us to do.

Jordan Shapiro (President and General Manager, Quantum Platform, IonQ):

We have an example of one such photonic integrated circuit for our sensing unit that's in the showcase over here as well.

Inder Singh (Chief Financial Officer and Chief Operating Officer, IonQ):

So on pricing, obviously I'm not going to go into a lot of detail, Vijay, in terms of pricing, but you can think about it as a candy jar of opportunity for us, right? We are lowering our own cost, starting with the lowest cost to begin with. And over the next few years, we need to make strategic decisions about how much of that margin we want to keep and share with our customers.

At the moment, by the time that Niccolo and I or any of the folks on this floor or around the room get to a customer, it's not a competitive situation most of the time. They've picked their modality already. They're going to choose this or this. It starts to become like a value story. What can you do for me? Use cases. And we forward deploy engineers, forward deploy app developers to go from their cost side of their equation to the revenue side of their equation. When you do that, it stops being a price discussion.

We also meet the customer where they are. If they don't want to buy the computer and the entire computer, we sell them QCaaS if that's what they want. There's things you can do with one that you can't do with the other.

So I know I'm avoiding your question. There is no other company with a 256Q chip out there, period. For sure, there's no one with 10,000. And the number of logical qubits that'll be delivered because of the ion-trap technology, this gives us an inherent advantage. So as we map out our next five years and think about investing for the next five years, absolutely. We're laser focused on ensuring that we deliver total cost of ownership advantage for the customer and then margin expansion for us. Did I successfully dodge that pricing question?

Niccolo de Masi (Chairman & CEO):

All right. So Inder will be around during the bell ringing ceremony and we'll be back for reception right afterwards and I'll be there also. So I thank you all for your questions. I'm sure there's many more to come later on and we'll make sure we answer those. I'd like to move on now to Mihir Bhaskar who's going to talk about our quantum foundry and more on integrated photonics.

Mihir Bhaskar (SVP & General Manager of Quantum Technologies, SkyWater):

Yep. Thank you, Niccolo, and thank you rest of the management team. So while we wait for this to change over, I swear I didn't plant some of those questions in the audience. I am going to talk about what I'm obsessed about right now, which is scaling quantum systems, right?

And we heard about scaling out in the data center, and we also heard about integrated technologies. How do you scale up the chips and move the complexity in today's quantum computers, networks and sensors into integrated circuits that can be manufactured? Those are the two things that I'm going to talk about.

Last year, Dr. Monroe and I took the stage and talked about our photonic interconnects. This has been part of IonQ's story about how we envision building large scale, really data center scale systems. And the reason it's part of the story is because it's how we build large scale, hyperscale technologies today. It's not just a mainframe, it's a network of modular interconnected systems.

And really the elephant in the room when it comes to quantum interconnects is that quantum interconnects are very slow. So to give you a sense, historically, we have benchmarked quantum interconnects in units of hertz, whereas the requirements for actually connecting quantum computers together to enable this vision is kilohertz.

And so today, I'm very, very excited and very proud of the team to announce that we have met the milestone of building a photonic-based quantum interconnect that is above a kilohertz. And so this isn't just an incremental advance, this is really a step change, right? This means we can now connect quantum systems together fast enough to sustain distributed computation. So we can actually think about addressing the scale out problem and building not just technologies in the R&D lab, but technologies that will actually enable quantum data centers.

The second reason this is exciting is we didn't just reach this result by turning some knobs and making incremental advances. We actually took a fundamentally new approach, which we talked about last year, through the acquisition and integration of Lightsynq's technology, which is a quantum memory. We took our quantum computing system, our trapped ions, and we connected it to this quantum memory in order to really use a new architecture, a heterogeneous architecture, a device optimized for

computing, and a device optimized for networking working together to create a system that's better than the sum of its individual parts.

And this is really special for me. It may take a moment to sink in for everyone else. I mean, many of you are sitting on your laptops. We take this for granted every single day. We have technologies that are designed for certain things, CPUs, GPUs, and networking cards, all talking together, all working together. But when we think about designing quantum systems to date, we have not yet until this moment successfully combined two different types of systems and gotten improved performance.

So this really marks maturity in being able to create heterogeneous technologies. It's why we're proud to be a DARPA HARQ performer. It's exactly the subject of the HARQ program. And we think this milestone applies not just to trapped ion systems, we're excited to truly build heterogeneous systems and think this will be the leading interconnect solution for all modalities. So trapped ions, trapped atoms, superconductors, and more.

So that's about scaling out, but there's also a lot that you've seen today about scaling up on chip. And I'm very, very excited to be stepping into a role working directly with Tom Sonderman at SkyWater where we announced today that we are launching the industry's first dedicated quantum foundry platforms. And so while others have talked about a quantum foundry, Tom told you about how SkyWater has been actually delivering wafers for over a decade. You can see some of those wafers both here on the screen and also in the gallery.

But what we're launching here goes far beyond that. These are scalable and reproducible platforms that create an open ecosystem for quantum computing companies, whether they're building atom, ion, superconducting photonic or spin-based processors, they need semiconductor solutions that are tailored to and designed for quantum signals.

And so I want to unpack the two sides of this platform. There are really two distinct technology elements, and you only need two. There are only two physics ways to route quantum signals. It's light and it's superconducting electronics, just like there's copper and fiber in the data center. There's really a quantum analog, and we have the world's only quantum platforms for semiconductor manufacturing.

So the first one on integrated photonics, there is a question about how Nexus Photonics really fits in here. So I'm really honored and thrilled to be joined by a luminary in the field of integrated photonics, Professor John Bowers. He pioneered the development of putting laser systems on a chip. And without that, we really wouldn't have the massive scale out of today's AI data centers, the optical interconnects that are connecting GPUs and computing devices.

And the way to understand how this applies to quantum is that Nexus has pioneered that same technology for putting quantum lasers on chip. And so on the left side of the screen here is one of our quantum sensing devices. As you can see, it's discrete components. They're integrated about as tightly as you can, but you can still see a jumble of wires connecting everything together.

So the Nexus technology, the designs, the intellectual property, the integration know-how is what allows you to take that complexity and put it on a single chip at a fraction of the size, weight, power, cost, and

with much higher manufacturability and yield and reliability. And so Nexus brings the know-how, the expertise, and SkyWater brings the prowess of being able to manufacture this all on US soil.

So this is the photonic side of the story. SkyWater also serves a number of customers that build superconducting technology. And we're very, very excited today to also announce a partnership with a leading superconducting qubit company, Qolab, which is co-founded by and CTO of this company is Nobel Laureate Dr. John Martinis. So instead of hearing it from me about how this works, we'd like you to hear a little segment from Dr. Martinis.

[Video] John Martinis:

I'm John Martinis. I'm the chief technology officer and co-founder of Qolab. I've been working on superconducting quantum bits way back in inception. I was a co-developer of qubits technology in the 1980s, and I've been excited to see the transition from a fundamental physics experiment to something that we want to make useful in the next few years.

I think we're entering a new phase of quantum computing. We have most of the science understood, but I think right now what we're trying to do is figure out how to go from that to build a manufacturable system and a system that works better, scaled up, build a useful quantum computer. And I think that transition is going to happen if scientists like myself, people in Qolab start collaborating with people in the manufacturing space, especially those who are doing semiconductor kind of fabrication.

In particular, we're really happy working with SkyWater because they're used to doing specialized fabrication and working to develop these new processes to overcome all the materials, demands, and processing demands.

We're very excited that IonQ has acquired SkyWater and are helping with an extra focus to work on quantum computing. And we think that's a very good partnership and acquisition and it helps SkyWater be able to focus, build new capabilities in their fabrication to properly scale up quantum computers and build them properly.

So I very much look forward to working with the SkyWater team to not just simply build a better and bigger quantum computer, but lay the industrial foundation for a new era of computing. So thank you very much.

Mihir Bhaskar (SVP & General Manager of Quantum Technologies, SkyWater):

As a physicist, it's personally very exciting to get to work with Dr. Martinis, but I think strategically you should ask yourself when you think about the quantum foundry, where are the leaders and luminaries in the field choosing to build their quantum technologies? So whether it's Dr. Bowers in the audience who I encourage you to meet later, or whether it's Dr. Martinis, it's happening at SkyWater. And really, to unpack this further, I'm thrilled to invite CEO of Qolab, Alan Ho to the stage.

Alan Ho (Chief Executive Officer, Qolab, Inc.):

So I want to contextualize what we're trying to build. If you look at the computers in the '60s, it looks kind of like this. You have all these jumbled wires, all these discrete components, et cetera. And the big innovation that was invented by Nobel Laureate Jack Kilby, and the CEO of Intel, first CEO of Intel,

Robert Noyce, is the concept of the semiconductor integrated circuit. That's what they did. They took all that discrete complexity and brought it down into an integrated circuit.

Now, if you look at all the superconducting qubit quantum computers from IBM, from Google, et cetera, it kind of looks like our computers in the '60s. And what we're doing at Qolab is that we're taking all those crazy wires, all those large amplifiers, all those filters, and integrating it into a single package, what I would call a quantum superconducting integrated circuit.

And I'm very proud to work with SkyWater to be their first customer for the SC250 process. SkyWater not only provides us a predictable unit economics for manufacturing, which is required for us to underwrite, investors to underwrite manufacturing at scale, but moreover, it's also located in the heartland. People talk about Silicon Valley, people don't really talk about the Silicon Heartland too much.

And to give you a little bit of understanding about that, Qolab does all its design, packaging, and cryogenic testing in Madison, Wisconsin, also in the Midwest. Now, the reason why I'm so proud of this is because having a quantum manufacturing ecosystem in the Midwest is a resilient quantum manufacturing ecosystem for America. Thank you.

Mihir Bhaskar (SVP & General Manager of Quantum Technologies, SkyWater):

Thank you, Alan. And just to conclude and move on to the next section, I hope you can see how, whether it's through the scale out solutions or the scale up semiconductor ecosystem, all of the roads to scaling quantum are running through the team in this room. And so very proud and excited to next hear from Chad about what applications this is going to and currently enabling.

Chad Sakac (Senior Vice President, Quantum Field Engineering, IonQ):

Thank you so much, Mihir. Thank you very much. How's everyone doing? All right, we're getting close to the next phase in the end of this. So I'm going to change up the energy here in the room a little bit. This is going to be something a little bit different. If you couldn't tell from the suit change, I represent the go-to market part of IonQ. So you've heard from the scientists. I'm an engineer who also spends a lot of time with customers.

So what I want to share with you is a little bit of what we're seeing, what we're doing, and I'm going to start with a little bit of a story to change the way we're thinking about this.

In the Renaissance era, Leonardo da Vinci had a dream, humans can fly like a bird. It was crazy, nothing came of it. It was invention. Fast-forward, December 17th, 1903, the Wright brothers create the first human powered flight, a glorious 12 seconds with a plane where there was only one manufactured in the world. They built it themselves with whatever the 1903 version was of duct tape and bubble gum. This is kind of like the early days of quantum computing and some are still figuring out how to get out of this phase and into the next phase.

What did humans do? We iterated. We turned into, "How do we productionize this? How do we make it manufacturable? How do we make it safe, reliable, deployable?" And companies like Boeing emerge and the Boeing 737 still widely used today basically brought flight to the masses. And where do we as

humans find ourselves today? Stuck in Atlanta Airport in a very dense situation like this, but of course this is scale.

At this point, airlines aren't about airplanes anymore. They're about changing how the world works, how can societies function. And I call this the building the machine that makes the machine. And I'm not talking about the quantum computer machine. I'm talking about the organization, the people, the process, but how do you take these things to scale?

I think that we are now in the iterate phase and in the scaling phase of IonQ's life. You saw and heard that multiple examples throughout this. And I love to hear Alan's comment about how we're doing it not just for ourselves with trapped ion systems, but also with superconducting modalities. How awesome is that?

So let's talk about this a little bit briefly. In April, I was on this stage and I was talking about time to solution. And the reason that we wanted to bring this up is there was this disconnect about what was happening in the analysts and marketing and didn't match kind of the conversations we were having with customers.

Customers very rarely ask about two-qubit gate fidelity. They very rarely ask about coherence time. They very rarely ask about all sorts of things. What they do ask about is how long will it take to get to a solution that's valuable for me, my workload. What are the economics of getting to that solution, time to solution, economics to solution?

And we shared that our advantage in the market today is that we are like a sniper. Our ability to get to answers very quickly, very efficiently, with a very small number of shots relative to kind of a shotgun spray manifests itself in a better time to solution overall. So the architecture matters, but really in the form of the outcome as opposed to the individual feature.

And yes, we shared workloads. Sometimes we're about the same. Sometimes we're 10X better. Sometimes we're 100X better, 1000X better, 10,000X better. Those are nice hero numbers. I think what's more interesting is that we published the repo where anyone could duplicate the results. We published third-party validation. We showed up with receipts. Showing up with receipts is important. It's kind of moving out of the hype phase and into the put up or shut up phase of what's happening in our industry that you can see occurring now.

And again, yes, it's rooted in the fundamental architecture of our systems today and tomorrow. And that was a little bit of an Easter egg that I left in April and now I can pull the thread on a little bit more where I said today and tomorrow are connected. I talked about how one of those workloads where we're about 10,000 times or a thousand times faster is a quantum Fourier transform, which shows up in Shor's algorithm. The quantum phase estimation algorithm shows up in all sorts of chemistry and bio-life sciences use cases. And every single day, every single month, every single quarter, we are doing rapid iterations with our customers with solutions by industry vertical.

In the spirit of time, originally I had every vertical represented, financial services, manufacturing, logistics, and we said, "You know what? Let's focus in on bio-life sciences and pharma." But trust me, there's examples for this for every single one of those industries. And this is actually how we engage

with our customers. We tell them about Superion. We tell them about what we're doing around quantum platforms. What the customers really want to know is how does this apply to me.

I'll give you a couple of examples. Our groundbreaking work that we did with AstraZeneca, we continue to advance the bar on that. Every year we iterate. We've done three iterations on that so far and we continue to work with them on the next one.

Together with Kipu, we did some incredible work around protein folding. So this is going to be a little bit ... I'm going to poll the audience for some interaction here. Has anyone had a baby? Show of hands. One. Has anyone loved someone who's had a baby? Are you guys all just going to fail to procreate? Come on, show of hands. Does anyone who's raised their hand know what oxytocin is? You bet you do. It's pretty important. It has nine amino acids. So these relatively small enzymes are really, really important.

Is anyone here on a GLP-1 drug? You can see the before and after in April, about 10 pounds lighter. Oh, come on, you're lying. GLP-1s are roughly 30 to 50 amino acids in length. In other words, we're already able to use Forte Enterprise and Tempo generation hardware to work on problems that are important in the real world today. We did this for 12 and then 14 amino acids.

We've taken the work that we did with Einride and previous examples around logistics and optimization and we're bringing it with CCRM to healthcare use cases. People are like, "What does that have to do with logistics?" Precursor chemicals are very expensive, sensitive to light, temperature. How do they get from point A to point B? When you go into a wet lab, you see all sorts of stations. Scientists have to move from one to the other in a complex process. That's one of these optimization class problems.

And lastly, the example that you heard from Jordan about using quantum algorithms to find patterns can be used not just for satellite photos, it can be used to look at fMRI images to find early onset brain cancer, early onset dementia. And again, this can be applied in many, many places. This is the world of AI and ML with quantum together.

In every industry, there are stories that we bring to our customers like this and say, "We want to partner with you, bring your workflows to us." And it's not just us that's saying this. Is anyone here going to be at IEEE Quantum Week? That's a joke. None of you will be there. No one there wears a suit because it's the premier event for scientists, for quantum engineers. I shouldn't have said that. Is anyone going to be there? That would be really awkward. Okay, phew, dodged a bullet on that one.

At IEEE Quantum Week, there were 857 papers submitted by everybody in the world. Of those 857, 20 got selected for best papers. We submitted 13, 10 of ours were selected to enter and four of our 10 won best in show. That's a 3.7 sigma event in terms of other people who are in our industry, the luminaries recognizing this is groundbreaking work.

An example, AI plus quantum, using quantum algorithms to improve how LLMs behave for 24% better accuracy, lower time for solution, better energy efficiency overall. What industry does that apply in? Every single one of our customers won a gold.

The work that we've done with Synopsys, which we've advanced, we did an update in August of this year. That protein folding thing I was telling you about before, we've now done it on a Tempo

generation system and went from 14 to 16 amino acids, starting to close in on that GLP-1 kind of category.

And then we did this amazing paper together with NVIDIA and with Oak Ridge National Labs around how do you actually use LLMs to improve quantum algorithms the other way around. Super interesting. And by the way, notice how many of these workloads drove clusters of GPUs and QPUs working hand in hand, all of them. Again, super interesting scenarios.

Now, I'm going to give you one more little fast-forward view into things. Zoom out a little bit further. This is a problem that is not solvable today. That crazy, beautiful looking molecule is cytochrome P450. It is used in almost every metabolic process in our bodies. About 50% of the entire drug ecosystem either accelerates or modifies the metabolism rate of this particular enzyme. We have 12 genes in our bodies that make about 12 variations, about half of which do something.

This ecosystem is about \$2 to \$3 billion a year of research into how do you model this. And no one's been able to do it exactly right classically. The authoritative research on this was done in 2025 by Google and Caltech and many other great universities, which was that paper right there. And it's at a scale that is more than a Superion 20K system could do. We could do it with 100K, which highlights an important idea. What you heard from Chris is we are going to accelerate and scale up faster than anyone else and be able to tackle these problems.

However, there's another interesting thing that a lot of people don't get immediately, which is you couldn't do it with one 20K system, but you could do it with five. What is the economic value of being able to take a workload and pull it forward two years? If you do a net present value calculation on this, it's hundreds and hundreds and hundreds of millions of dollars. And that's through the cost lens, basically solving how much does it take to cost model this stuff versus the benefit lens about what is the economic value of being able to do new drug discovery.

And again, I've only used bio-life sciences as one example of many in our industries that we're talking about here. So the possibility to increase the scale at which we are manufacturing these things is a differentiator. Our ability to parallelize work streams is a differentiator. Our ability for some workloads potentially to network them to actually create a distributed computation is a differentiator. Some of you asked a question, "Is it prerequisite?" Nope, it's not. But if you can pull forward a workload by two years, that has immense economic value.

So the last little bit on this that I'm going to provide is a little bit of insight into my life. I can tell that you're very interested in this. My life is about how do we complete the stack. How do we make it so that we engage with our customers? It's as important as the systems themselves. In the last first half of this year, we've more than doubled the team that engages with our customers around how do we do training, enablement. How do we roll out systems, deploy them, customer success personnel in every theater?

Our applications experts, it's about 70 people around the world now that are part of our forward deployed engineering team, my team, customer solutions team. Those are the people that also are on my team that work with customers over long periods of time and our apps R&D team.

That team of 70 people are almost entirely PhDs. It is possibly the single largest concentration of this skillset in the industry, which is critical about how do we scale. How do we build the machine that builds the machine? And we're seeing this show up and others are as well.

BCG did this study. You might have read a Wall Street Journal study about growth inside the enterprise. It's occurring in every single industry. I did a fun little exercise, a little unofficial. I asked an AI model, "Hey, what customers have we visited in the last little while?" And then I said, "You know what? Let's broaden it out. Let's say they're not necessarily just customers. They're enterprises. They're public sector companies. They're people we're meeting for the very first time." One of them was the NYSE team, so the NYSE ICE team was great talking with you.

These are customers that a subset that we visited in the last couple of months and talked to them about these solutions and these problems and these workflows. They show up in every theater, every industry, every vertical. And anyone here who has been in a go-to-market role knows one rule of being in go-to-market is activity beats almost everything.

Every time that we engage with a customer or a prospect, we learn. We learn about their problems. We learn about how to engage with them. We're doing this more and more, and I'll give one last little example about a customer scenario.

We hired somebody who didn't know much about quantum, but knew everything about the oil and gas and energy industry. Within his first month, he had a meeting with two of the largest energy companies in the United States. And what was fascinating to me is they didn't ask us what's quantum. They said, "Here's our quantum science team. They've been working on these computational problems for the last four years. They've tested on these different modalities. Here are all of the scenarios we're trying. We're thinking about how do we take gravimeters and integrate them with our seismography." And they're like, "We want to know how you could help." This is a change in kind that is occurring in the market. And again, this is someone who can get that meeting in a month, that ability to have activity and volume matters.

Closing this out. I've also learned in the last year, customers like choice. They love the fact that we support whatever programming language you want. We support three, more than this three. In fact, we support all seven IDEs and software stacks that are out there that are open source projects.

Others actually ask customers to write programs in their particular language. That seems weird to me. Customers also like the choice of where. You heard from Inder a huge acceleration of, "You know what? I just want to get started on the cloud." Some customers say, "No, I want to have it in my data center for data sovereignty or because I want GPU clusters to be co-resident with my QPUs for all of the reasons that we described earlier." You're going to be hearing about some of those from the people who are on the panel. The AI and quantum discussion has lots of applicabilities. You'll be hearing about that from Matt Rabinowitz.

The other thing is some of them, and again, you heard this from Inder, come to us and say, "We're an allied nation state. We want to have a full-blown sovereign solution." That's occurred in multiple countries around the world and is everything inside the portfolio. And customers also like to grow with their trusted vendors. We have customers that have started with us on Aria and Forte generation have

bought Tempo systems and when they updated their contract for the Tempo system, they also said, "You know what? I want access in the cloud to the Superion system as soon as it's available."

We have other customers like EPB that started in one domain networking and have expanded to quantum computing. Their system is being commissioned right now, hot off the presses, and they're now expanding into quantum memories, really forming a nexus there in Chattanooga for the quantum ecosystem. And what I love about that EPB story is we trained and enabled their team to have some critical expertise, and now they're writing their own papers, their own analysis around these energy grid distribution use cases.

The net of all of this is that we're accelerating. We're in the iterate and scale phase, not only in the hardware, but also in the go-to-market, how are we engaging with customers around the world. And so with that, it's a great segue to hearing from a panel of customers, users, and partners. Thank you.

Audience:

[Inaudible] At least we have a microphone.

Niccolo de Masi (Chairman & CEO):

Okay. This is going to be insightful. We've got some wonderful panelists who are making their way up the stage here. John Licata is the futures director of ServiceNow, my friend at the end. Robert Long is the president of strategic initiatives at EPB and Matthew Rabinowitz. Dr. Rabinowitz probably doesn't need introduction. He is not only a very successful serial entrepreneur in the aeronautics space, but also in the AI space and the pharmaceutical biotech sector. He's the founder and executive chairman of Natera. Most of us in the room, if you've had children, probably use their product.

So we're going to have a pretty exciting discussion here, and I'd love to start with maybe each of you giving us your perspectives on which part of the IonQ platform is most relevant to your business as most exciting, because there's a range of time horizons that you've each been working on and you are working on. EPB is one of our largest, closest and most historic partners. You guys have a computer, you have a network, you're running your own applications, your own algorithms, as you just heard from Chad.

ServiceNow, you're thinking about what the next year or two brings, and you and I had a fascinating conversation before we started today. And of course, Dr. Rabinowitz is smack in the middle of the kinds of things that I talked about in my opening segments and that Chad added on around how can quantum computing actually make a difference for humanity and for the human condition. So you may want to start with John and go down the line.

John Licata (Futures Director, ServiceNow):

Yeah, good afternoon everybody. I think it's really important to note that the way we're looking at this is looking at two lanes. So we look at security. So clearly, the opportunity around QKD is quite fascinating. ServiceNow has been leading with security. We've acquired Armis and Veza. We are innately becoming more focused on the role of security into the future of workflows, which dovetails into the second opportunity that I believe is worth calling out is optimization. And I think there no longer could be two

different lanes of security and optimization. I think secure optimization is the really interesting path. So for us, we're looking at quantum plus AI and it's been wonderful to be on the journey of exploration with the team at IonQ.

Robert Long (President of Strategic Initiatives, Electric Power Board of Chattanooga (EPB)):

Hey everyone, Robert Long with EPB. We are, as Niccolo said, we have a quantum network. We've had our network in place for about 10 years now. We have a full fiber network in the Chattanooga area. And as I also said, we are peeking around the corner when our IonQ Forte Enterprise system will be fully commissioned. And so we have the first nationwide or the first national available quantum network as well as the first commercially available quantum computer.

So we're making our systems available and we are approaching different business aspects with those in the community and nationally and really focusing on the energy grid, energy grid optimization and energy security and really utilizing pretty much the full stack of IonQ services.

As Chad mentioned, we have eight fellows via NIST grant and we leverage the IonQ training platform to train our fellows and we are writing our own algorithms and running our own programs to service the energy needs of the industry.

Matthew Rabinowitz (Co-Founder and Executive Chairman, Natera, Inc.):

Hello everyone, Matthew Rabinowitz. I'll just kind of give an anecdote for why I'm so excited about what IonQ is presenting today. There are problems in AI where we still don't really understand whether we are limited by the data that's available or we're limited by the architectures and finding the global minimum of those architectures.

And if you take a sort of cartoon example of a protein folding problem that was spoken about earlier, imagine you've got a hundred amino acids and amino acids one and two can rotate relative to one another and the configuration will be optimal for those two, but whatever they decide will be relevant to all of the energy configurations of the other amino acids, including 100.

So if you assume as IonQ did in one of their papers that you've got four different permutations between each amino acid, you've got four to the power of a hundred hypotheses that you've got to evaluate, it's computationally non-tractable.

Now, we've been able to solve this kind of problem classically with systems like AlphaFold, et cetera, but it doesn't really solve those problems robustly. What's incredible is that in nature, you always find that global minimum. When you make a protein in a cell from a DNA sequence somehow by a combination of quantum tunneling and jiggering, that protein always finds that global minimal folded structure and doesn't get stuck in a local minimum the way the AI algorithms of today do.

Now, that's an incredibly powerful concept. If you can apply that concept to the challenges that we have in AI architectures today, there's huge applications in healthcare. So obviously, there's applications in protein binding. There are things that Natera is potentially interested in with neoantigen prediction for personal cancer vaccines, the AI problems that we're addressing for predicting how patients will respond to certain therapies, prognostic applications.

And then MyOme, which is a private company, is trying to solve healthcare in the United States based on whole genome analysis and AI modeling of electronic medical records. And we've built these models with the leaders in the field that suggest that we can save over \$200 billion to the United States healthcare system by predicting susceptibility to common and also rare diseases where we can catch these diseases much earlier when they're much cheaper to treat and delay or stop the onset of these expensive diseases by intervening early.

And the application of AI to tease out the signals in these genetic data sets where you've got DNA and very noisy gene expression data, very noisy clinical data, to find those connections and correlations is a problem that obviously AI has got a huge role to play in and we believe that quantum AI will play a role in the future as well.

Niccolo de Masi (Chairman & CEO):

So each of you has been a visionary and leader in this sector. And of course, Janet at EPB and her predecessor, I think used to analogize being early to quantum the same way you guys thought about being early to the fastest fiber network in the country.

Dr. Rabinowitz, I think almost grabbed my lapel at an event we were both at and said, "I want to be five years ahead of all my competitors." And all of these areas he's mentioned, it was very memorable because I thought this is a man who is not only a polymath and R&D researcher of the year actually in '24, but also a capitalist. And I always like to say that at IonQ, that's who we are. We are physicists, but we are capitalists.

So I'd love to understand how you've each thought, and John, same thing, you led the quantum initiative at ServiceNow, I think, across the board for quite some time. How are you thinking about extending your leadership positions in your sectors? Because you can see that things are just inflecting, but whether it's security or computing, this is really just a race that's in its first inning.

Robert Long (President of Strategic Initiatives, Electric Power Board of Chattanooga (EPB)):

I'll go. So thanks, Niccolo. So with our quantum network and thinking of what we're trying to build in Chattanooga by adding the quantum computer, we really want to have an ecosystem that builds within Chattanooga centered around obviously quantum, our network, and our computer.

We are the local power utility and generally maybe not think about quantum with a power utility, but to be able to leverage our full fiber network, like I mentioned, 10 years ago, we partnered with Oak Ridge National Lab, Los Alamos National Lab, as well as Qubitekk, now in the IonQ family, and worked on and successfully tested QKD across a 21 kilometer span on our fiber network. We took that as continued drive to fully build out our fiber network with quantum as well as add the quantum computer.

And now with IonQ forming an office, landing an office in Chattanooga, an R&D facility, Vanderbilt is coming to Chattanooga over the next three to five years, they've announced a satellite office with 250 faculty or staff. We have partnerships with UT Chattanooga and other entities are looking to come and continue to build out the ecosystem around quantum. And so that first mover, continuing that momentum, I'm a strong believer in that momentum gets momentum. We're continuing to invest, we're continuing to pull investors into Chattanooga to have a residence as well as to work on our network.

We'll make our computer available physically in our quantum center that we have there in Chattanooga or available via the cloud.

So we really just want to keep the momentum. We have a very supportive city and county as well as a state government that is very much continuing our momentum and wants to invest behind quantum to make Chattanooga and Tennessee a leader. And we're very proud of what we're doing to help the broader community and just help quantum continue to grow in the Chattanooga area and across the state.

John Licata (Futures Director, ServiceNow):

And I think for us, I think the word trust is very subjective and we're trying to see what we can do to redefine the very definition of hybrid work. For most people, hybrid work is working from home and working in the office, but what if you can imagine working across classical and quantum systems?

So quantum will not help every problem. And I think sometimes people look at quantum as a very fast, speedy solution when in fact several days is fine for the right strategic solution that you could deliver. So I think understanding the great American rock and roll band Aerosmith had a quote that you need to know how to lose before you can win. And I think to Matt's point, you need to know where AI stops. You need to know where the complexities become far greater and we need to start thinking outside the box to see what we can do to deliver the future of workflows, hybrid workflows, quantum plus AI.

I think we are hearing from some folks a little bit too much of keeping those two words mutually exclusive, but we see the convergence and to deliver that, we need to redefine how the workflows are actually delivered. It's process management, it's workflows of the future, but as we start to become more future ready, we need to look beyond the letters PQC. And PQC is largely classical anyway, but nevertheless, we need to understand how we can lead with security and how we can drive opportunities that absolutely make sense for modern day GPUs. But when you need the QPUs there, you need the plumbing that can integrate between today and tomorrow.

And picking up on a point that Chad made about today and tomorrow, too much of the focus is on using quantum to solve today's challenges where we, as from the futures team, actually look at where the problems could evolve. There will be several billion agents coming online over the next several years. How can you orchestrate that? How can you actually leverage the probabilistic intelligence to deliver true deterministic workflows? So for us, we're looking at bringing this together to really become ready because no company could become future-proof that we believe quantum plus AI, you could do a lot more to become future ready and that's the focus of what we're trying to accomplish.

Matthew Rabinowitz (Co-Founder and Executive Chairman, Natera, Inc.):

Well, I grabbed you by the lapels because you're always so fancily dressed. I just wanted to ruffle you up a bit. So that was the motivation. And I'm not so much a capitalist these days. It's just I like to work on really hard, interesting problems that are going to be very important for mankind. And I think that the kind of things that IonQ is enabling are down that vector. So I'll give you a little anecdote. In 2010, I had a patent on training multilayer nonlinear dynamic systems with embedded memory.

Niccolo de Masi (Chairman & CEO):

We all have one of those, Matthew.

Matthew Rabinowitz (Co-Founder and Executive Chairman, Natera, Inc.):

And Stanford let the patent expire because they didn't want to pay the \$1,000 annual licensing fee for this patent and they couldn't get hold of me. And this was the year before Google Brain started to work intensively on training multilayer non-linear perceptrons with memory. And who knows whether that would have had any effect. But the point is I never dreamed at the time that you could do these incredible things with deep learning neural network architectures if you train them, these transformer and convolutional network architectures on the entire internet of information to just predict the next word in a sentence.

And with that amount of data, you could use all these stochastic training algorithms where you could basically get an incredible extraction of insight from this huge amount of data. So I am trying, besides ruffling up the very well-dressed CEO, I'm trying to be ahead of these possibilities and I think that we are seeing some light where those possibilities are starting to look very exciting.

So Natera, for example, has an incredible amount of oncology data. We have this technology, which most of you probably know where we can catch the recurrence of cancers years or months before you see clinical symptoms. We can see how you're responding to therapy better than imaging. We can see in the adjuvant setting after surgery, whether all the cancer has been cleared and who will and won't benefit from chemotherapy.

And this is all about seeing single molecules from the tumor in the blood, incredible levels of sensitivity and specificity where you need to do a personalized workup of every patient in order to get to that level of performance. With that capability, we have a huge amount of data where we curate the clinical data with AI models. We have the upfront tumor sequence and RNA sequence most of the time. We have the outcomes and we can use this incredible wealth of data to train models.

For example, we can train models on neoantigen prediction to target particular mutations that will be relevant for personal cancer vaccines. And less than 1% of the mutations in a tumor will be good neoantigens. In other words, will generate an explosive immune reaction that will be great for a PCV.

The problems that we are addressing there are the kind of problems that I was alluding to earlier where there is hope that with these quantum algorithms, you can be selecting your neoantigens more effectively. So that's an example where we just want to be aware of what's possible and a little bit ahead of the curve. And then in the context of the MyOme work where we're looking at predicting disease more generally, common and rare diseases, there's a bunch of stuff that we are starting to play with now, which is looking very promising and a collaboration that MyOme has with IonQ.

We are looking, for example, at the fine-tuning of LLMs. And it's a beautiful application of qubit architectures because right now when you train a big deep learning neural network, you've got to put a lot of data in at every training iteration. And if you try to do that with a quantum architecture, that's going to be challenging for a while. And also to see where you're at in the training iterations, you've got to have multiple shots to see the expectation value of your quantum circuit.

So training a whole LLM is still going to come, but if you do the fine-tuning with a quantum architecture, you take the embedding from this deep learning architecture where it sort of extracted the essence of your information. And there was a beautiful paper that came out of IonQ in May where they were looking at fine-tuning a large language model to look at text and basically see whether reviews were positive and negative. And we emulated a very similar architecture to that on a sort of similar embedding structure where we had about an 800-length vector, which was the embedding out of a standardized large language model. And then we tested with six qubits on the quantum output layer as the sort of fine-tuning head. And then we tested with 14 qubits to test whether the additional qubits were giving us that additional performance. And it was quite amazing what we saw.

This was a simulation of the quantum hardware, but we saw that the power of this model was going from 0.7 AUC, the area under the receiver operating curve, which gives you a sense of the power of the model to discriminate. It went from 0.7 to 0.83. And so as we're able to add more qubits on the fine-tuning quantum head of these existing large models, I think there's a lot of opportunity there. And so that's the part that we're exploring to build these various disease predictive models. And I can talk more about the details if you're interested.

Niccolo de Masi (Chairman & CEO):

Okay, wonderful. Well, I appreciate the partnership gentlemen. Any final remarks?

John Licata (Futures Director, ServiceNow):

I would just say that operational resiliency is a term not used a lot in this discussion. And I think that we need ... This is a partner ecosystem where coming together is mutually beneficial. So I look forward to building upon the conversations with the group and the industry in general, but I think that we need to look more long term and understand that the longevity is also operational resiliency, not just compliance.

Robert Long (President of Strategic Initiatives, Electric Power Board of Chattanooga (EPB)):

I'll just add that I believe that the future will need an unbelievable amount of teamwork and connectivity to work together to solve these problems and to have these connections and cooperation across various organizations, the government having the support and coordinating those efforts will absolutely pull forward the technology and continue to push the US to the leadership position with quantum.

Niccolo de Masi (Chairman & CEO):

Thank you so much, gentlemen. Appreciate the partnership. To many more great moments and events together.

Robert Long (President of Strategic Initiatives, Electric Power Board of Chattanooga (EPB)):

Thank you.

Niccolo de Masi (Chairman & CEO):

Okay, so we're going to move on and I'm going to introduce our guest keynote speaker for today. It is a truly great honor to welcome Undersecretary Alessio Butti. He's been one of the leading voices behind Italy's digital and technological transformation under Giorgia Meloni's leadership, the longest serving government, I think, Italy's had since the war.

Under his leadership, the Department of Digital Transformation has played a central role in advancing Italy's National Quantum Strategy and supporting Italy's ambition to become a leading hub in Europe for quantum innovation.

Undersecretary Butti has been an important bridge between the US and Italy, fostering stronger transatlantic ties in technology, innovation and investment. He's been a strong advocate of collaboration between government, industry, and the research community. And he has brought together Italian scientific excellence and American technological leadership.

It's therefore particularly fitting to welcome him here today to the New York Stock Exchange as we look forward to a new chapter of technological cooperation between our two countries. Please join me in welcoming Italy's Undersecretary of State for Technological Innovation, Senator Alessio Butti.

Alessio Butti (Undersecretary of State for Technological Innovation, Italy):

Thank you. I took some notes. Good afternoon, Niccolo, members of the IonQ leadership team, distinguished guests and colleagues. Bear with me, because I have a terrible jet lag. It's a privilege to join you today at the New York Stock Exchange on behalf of the Italian government. Thank you for the invitation.

Three very challenging questions. And Investor Day is naturally about performance, strategy and growth. My responsibility is to look at the broader question. How can government, industry and science work together so that transformative technology creates lasting economic and social value?

Quantum is at the turning point where scientific breakthroughs are beginning to translate into real world applications with growing economic, social and strategic significance. Our ambition is very clear, Italy intends to become one of Europe's leading centers for quantum technologies. That is why I have personally focused on this area and why under my direction, Italy adopted its first national strategy for quantum technology. We issued it last year in July at the same time Europe did.

The strategy goes beyond computing. It encompasses quantum communication and security, sensing, research, skills and development of a strong industrial ecosystem. Italy's National Quantum Forum brought government, researchers, universities and industry together to begin turning strategy into action. We don't want Italy simply to use quantum technology developed elsewhere, we want to help create them. This is where international cooperation is vital.

The United States brings technological leadership and entrepreneurial strength. Italy brings scientific excellence, engineering talent, universities and industrial capabilities. Together, we can create opportunities that neither country could achieve alone.

Niccolo, you spoke about the quantum renaissance. I was pleased when I first heard you mention this when we met in Rome last year, because it is a concept that I have also been discussing for some time. I believe in Italy's quantum renaissance. Italy has an extraordinary scientific tradition. The renaissance was not about looking backward, it was about moving forward, and quantum can help us do exactly that. It can become a catalyst for innovation across manufacturing, aerospace and defense, life sciences, energy, cybersecurity, telecommunication, finance and advanced materials.

We welcome companies such as IonQ Italia led by Marco Pistoia, bringing global quantum expertise to Italy and investing in talent, research and universities. IonQ's decision to establish IonQ Italia reflects this collaborative approach. Niccolo de Masi, Marco Pistoia, it seems like an Italian company.

The Q-Alliance of which IonQ is a founding member is another important part of this vision. It connects companies, universities and research institutions, and provides the researchers with access to advanced quantum system. But the technology alone is not enough. We must invest in people, skills and trust and connect research to real economic and social needs.

Quantum technology will be measured by the problems it solves, the productivity it creates, the knowledge it expands and the opportunities it gives our citizens. That is why Italy wants an open competitive and technology neutral ecosystem in line with the European Union. No country, company or university can build the quantum future alone.

Thank you to IonQ for this invitation and for its continuing engagement with Italy. Niccolo and Marco, I look forward to seeing you next month in Cernobbio on Lake Como at the ComoLake Digital Innovation Forum, where we signed an important MOU last year to develop quantum in Italy and Europe. To the entire IonQ team, I wish you every success for the Investor Day and look forward to the next chapter of our cooperation. Thank you so much.

Niccolo de Masi (Chairman & CEO):

Okay, so we've got an exciting announcement now that follows on the undersecretary's kind welcome and attendance today. Marco Pistoia runs IonQ Italia, and over the last few weeks and months we've struck up a fantastic partnership with a business called Lutech that is run by our friend Giuseppe here. And we're announcing today, this will go out in the news, I think tomorrow morning before the market opens, that there is now a partnership between IonQ Italia and Lutech for the nation's go-to-market of all of IonQ's quantum platform. So we thank the undersecretary for his sponsorship. We thank Giuseppe for his incredible partnership, and we thank of course Marco for being the gel in all of this.

Giuseppe Di Franco (Group Chief Executive Officer, Lutech):

Thank you.

Niccolo de Masi (Chairman & CEO):

Congratulations gentlemen.

Giuseppe Di Franco (Group Chief Executive Officer, Lutech):

Thank you.

Niccolo de Masi (Chairman & CEO):

Thank you so much.

Alessio Butti (Undersecretary of State for Technological Innovation, Italy):

Thank you.

Marco Pistoia (CEO, IonQ Italy and SVP, Special Projects):

Thank you.

Alessio Butti (Undersecretary of State for Technological Innovation, Italy):

Thank you.

Niccolo de Masi (Chairman & CEO):

Thank you so much.

Alessio Butti (Undersecretary of State for Technological Innovation, Italy):

[Speaks in Italian] Thank you very much.

Niccolo de Masi (Chairman & CEO):

Thank you. Okay, we're onto our final panel here, which is in the national security space. So I'd love to invite my colleagues up.

Jay Raymond (General, USSF (Ret.); Former Chief of Space Operations, U.S. Space Force):

How'd we do?

Niccolo de Masi (Chairman & CEO):

So General Raymond is to my left. He serves on the board of IonQ and other public companies, institutions. He is the founder of the Space Force under the first Trump administration, and the only four star general to be a four star in two services since the Air Force was founded in 1947 by a gentleman that probably was the visionary, as he was, last century.

So we're honored to have General Raymond on our board and he's been a tremendous supporter of our mission. Robert Cardillo, also a board member, now board observer at IonQ. He was the former director of the National Geospatial-Intelligence Agency. And he has been a vital supporter of our insights in that community.

Rick Muller led the quantum program at Sandia National Labs for, I think 22 years, which you'll correct me, slightly fewer, 21. And then he went and became the director of IARPA before he joined IonQ about 12, 18 months ago.

So we're closing the day discussing our nation's government and our allies, and the perspective of these three gentlemen who have served our nation to a tremendous extent at a very high level to discuss everything from quantum security through to the relevance of quantum computing on the continuation

of your mission. Maybe we'll start with General Raymond. Would love each of you to tell us how we fit into your life service as well as obviously what drew you to IonQ.

Jay Raymond (General, USSF (Ret.); Former Chief of Space Operations, U.S. Space Force):

Well, thank you, Niccolo, and what a wonderful day this is. It's a real privilege to be part of the IonQ team and to be here this afternoon.

As Niccolo said, I served about 35 and a half years in the Air Force, and then transitioned over to the Space Force in 2019. As I reflect on the environment in 2019 as it relates to space, our nation was becoming much more reliant on space. There was a sense of national urgency associated with moving at speed and there was a thought that you had to have an organization that came to work every day and focused on it.

As I think through that and what we see with quantum today, I think we're in the same spot. As we've heard today, quantum has moved out of the laboratory into real world applications in the hands of national security experts. That's absolutely critical. You see a sense of urgency is codified in the EOs, the two quantum EOs that just came out.

You see technology moving at a speed that probably people didn't think initially was going to happen this fast. And then the other thing is you see, and you've heard this from Tom, about scaling. So all of this comes together. And as I look back to my life service in the Space Force and I look at why we stood up the Space Force was to ensure our access to space. Space allows us to see with clarity. It allows us to navigate with precision and it allows us to communicate over great distances with a surety.

That's only if an adversary lets us, because the domain now has become much more contested. And what quantum brings to this, in my opinion, is the ability to see even more clearly the ability to communicate with a surety and to be more precise and to take the adversary's vote out of the equation because of the security that's inherent in quantum. So I'm privileged to be a part of this team. I see the great benefit that quantum is going to provide to our nation's security, and I'm happy to do my small part. Thanks.

Niccolo de Masi (Chairman & CEO):

Thank you, sir.

Robert Cardillo (Executive Chairman, IonQ Federal; former Director of the National Geospatial-Intelligence Agency):

So thank you. I had the privilege to serve almost four decades in the US government, all of that in our intelligence community, most of it in the geospatial intelligence world that I was privileged to lead at the end of my career. But that service crossed seven presidents. I had the privilege in that time period to spend four years in the Oval Office providing that intelligence service to important customers at critical moments.

And if I learned anything from all of that, I learned that strategic surprise doesn't come from not expecting what's coming over the next horizon. Sometimes you know what's coming, and yet you don't prepare. And so I would actually call that a strategic failure.

What got me to this company, was it was the only company that I saw bringing together all of the pieces that you've seen today. Obviously, we wouldn't have had a foundation to build upon without Dr. Monroe's founding and without Chris Ballance's carrying forward the compute piece. But what really excites me about the IonQ response to that strategic challenge are the applications and the customers and the missions that you heard about.

Because the other thing I guess I learned about as an intelligence professional, in many ways what we do doesn't matter unless it affects a better decision on those we serve. And I feel that same way about IonQ. We know we're in a critical race. Jay, you talked about the national security implications of it, but what compels me about this team is that it comes together in a way that reflects that outcome, that mission satisfaction, that drug discovery, that application of science in service of humanity and security that brought me here to IonQ.

Rick Muller (Senior Vice President and Chief Scientist, IonQ Federal; former Director, IARPA):

I'm Rick Muller. So I've spent a lot of my career doing technical development with the government as some sort of customer, either as a funding agency or ultimately when I was at IARPA as a destination, as a transition partner for what we were developing. And what you learn in that, is that the government doesn't want a qubit, they want mission solutions to their hardest problems. And what IonQ brings to that is an amazing set of technologies and a broad platform of different capabilities that can be combined together to address the nation's hardest mission challenges.

The other side of that though is that the technologies alone don't get you very far and you learn that especially as a tech person, I can tell you whether a qubit's going to work or whether a clock can work or not, but it takes people that understand the mission well to understand what the value of those solutions are. And I think one of the things that IonQ builds is the team. I mean, you see who's sharing the stage with me. I'll complain that for the second year in a row, I was completely upstaged by the people at Analyst Day that I shared a stage with.

But the point is that we've built a team that can take the best science and combine it with people that understand the mission well and create really important solutions that are targeted at the hardest problems. And for someone who does this kind of work, that's a personally gratifying place to be. And as a company, I think that's a very solid business model.

Niccolo de Masi (Chairman & CEO):

Thank you. Well, Rick's the only one of the four of us that has a PhD in ion trapping, but Robert and Jay have run much larger organizations than both of us. And I've appreciated their counsel and mentoring on how to do a good job of that as we continue scaling. I'd love, General, if you'd share some team building examples if you have a moment as pertains to where you think quantum is and where quantum's going.

Jay Raymond (General, USSF (Ret.); Former Chief of Space Operations, U.S. Space Force):

Yeah, I'd be happy to. As I look at the IonQ team, you asked me what attracted me to come to IonQ, it was the team. It was a team that operated, in my opinion, with the same integrity that I saw when I was

in the Space Force or in military service. It was a team that was as mission focused as Robert said, as we were when we were in the military. And to me, it felt like it was a good fit.

It's also a team that's grown significantly over the last few years. And if you look at what we did in establishing the Space Force, the vast majority were like me that came out of the Air Force, but we also brought together people from the Army and the Navy and the Marines, and we brought people from off the streets and out of colleges and out of the academies, and we had to integrate these people all together into one high functioning team that our nation required. And I see that in IonQ as well.

I mean, as you've built this whole platform, it's required the integration of all those. And I'm hopeful that I've been able to share a thought or two as it relates to how to do that and how to do that well to advance the mission and not slow it down.

As I look at what our nation's going to require, it's going to require speed to meet this national security environment that we're in. It's going to require trust, it's going to require security, and it's going to require scale. And if you look at what you've heard throughout the entire afternoon, those are the things that really have resonated with me, and I think they're perfectly fit for the security environment that we find ourselves in today.

Niccolo de Masi (Chairman & CEO):

Thank you. Robert?

Robert Cardillo (Executive Chairman, IonQ Federal; former Director of the National Geospatial-Intelligence Agency):

If I could, Niccolo, I'd like to pivot just a little bit off of the team question, because I just can't help myself. I want to build on something that Jordan talked about earlier as a way to explain what I think is the magic of the company.

Jordan showed you some examples of how our applications are creating new insights in something called synthetic aperture radar, which by the way, was a central theme of the business I used to run inside the government. We used to apply synthetic aperture radar against our adversaries to create more information about their capabilities and their intentions, so that we could be better prepared in the worst case.

And what I love about that model though is it shows me what the value of IonQ is, because what we're really doing there is we're taking an overwhelming, and I mean that word purposefully, amount of data and information.

It's silly to tell an audience in Lower Manhattan that we live in a noisy world. We do. And it's more and more difficult to do that synthesis between the noise and the signal. And what we're now able to do through applications, is to do that synthesis for you and with you so that you can find signal, ultimately you can find answers. And so to me, what's most exciting here about what the team's doing is essentially providing what I call a coherence from chaos service. Just again, finding the right info at the right time to make that better decision.

And to finish on where your question was going though, just if you think over the past 12 months since we were here last year, the teammates that we've invited, many of which you've seen today, have not just complemented, but they've truly scaled. And the executive order that Jay mentioned actually demands that piece, a scaled ecosystem. And couldn't be prouder to be part of a team that's responding to that call.

Niccolo de Masi (Chairman & CEO):

Well, thank you. So look, just on that theme, and we got time for our last question here, sovereignty, trust, zero trust, obviously domestic supply chains, executive orders. Rick, do you have any comments on that? And then of course, Robert and Jay, would love you to take us home with your closing thoughts as well.

Rick Muller (Senior Vice President and Chief Scientist, IonQ Federal; former Director, IARPA):

Yeah. So I think there's something ... So getting back to why ions in this context. Ions are quantum particles. I've had the pleasure of knowing Chris Monroe, Professor Monroe for many years. And one of the ways that he argued for ions was that they're just naturally identical qubits and they're naturally quantum particles.

And because they are natural quantum particles that we can control classically, we can do a lot of the things that people have talked about today. That means we can build low cost solutions that consume low power, that can be scaled very rapidly. And what that gives you is not just some anonymous quantum service that you log into some anonymous host, but that gives you a solution that can be deployed locally or deployed remotely that is your own solution to a lot of these technical problems.

And I think that's the oldest technology that IonQ has, and I think it is uniquely capable of delivering high trust solutions to sovereign nations and to companies, and to ultimately individuals who need to be able to use that capability.

Robert Cardillo (Executive Chairman, IonQ Federal; former Director of the National Geospatial-Intelligence Agency):

If I could just finish with a quick comment about the paper that was released today about the advances that our scientific team has developed along the lines of Shor's algorithm. IonQ is a responsible, credible partner, obviously to our customers, but also to the governments that we work with. And I want to credit the whole IonQ team for the conversations that ensued. Rick led many of them with the senior most levels of our government, because one, we didn't want to surprise our partners in government, and two, we wanted to be responsible going forward on the safe cracking part of it. And to me, that is the essence of being a good partner. And I know we've raised our reputational credibility with our most important customers and we commit to that going forward.

Jay Raymond (General, USSF (Ret.); Former Chief of Space Operations, U.S. Space Force):

Yeah. I am not the smart guy, that's why they sat me down on this end-

Robert Cardillo (Executive Chairman, IonQ Federal; former Director of the National Geospatial-Intelligence Agency):

They put you way over here. Yeah.

Jay Raymond (General, USSF (Ret.); Former Chief of Space Operations, U.S. Space Force):

... and put the smart guy way down there. I went to Clemson University, otherwise known as the Harvard of the South, I guess. But what I do know is that to take the brains of the folks that you've heard and to be able to translate those into real capabilities and put them in the hands of the warfighter is nationally critical. That's what IonQ does really, really well. And I will tell you, when you're talking about national security, coming in second place doesn't work. And this company is committed to making sure that we come in first place and we got the team to be able to do it.

Niccolo de Masi (Chairman & CEO):

Thank you, sir. Well said. And I'm going to close here for 90 seconds and then we're going to transition to our bell ringing ceremony because we're only 30, 40 minutes out here at this point.

You've heard from the leadership team of IonQ today, and you've heard from some of our board members and many of our ecosystem partners as well. It has been an overwhelming privilege to watch our team grow, watch our team perform and watch our company, not just scale, but hit technical milestones as we promised. And as importantly, I would argue even more importantly, hit our commercial milestones time and time again.

You have seen us now for 20, 25 quarters in a row be able to do that. I always jokingly say we can chew gum and walk at the same time. We can hit our technical milestones, hit our commercial milestones. And you've seen us build very thoughtfully the world's first quantum platform. You've seen us become vertically integrated. You've seen us grow our merchant supply business decisively this year.

We not only supply to the leading players in the quantum ecosystem in the friendly world, things like our atomic clocks, which are the most accurate in the world. You can see we've built multimodal networking and we've led at that for a long time. Chris Monroe has been at it a long time, Mihir Bhaskar has been at it a long time, and together we have the leading team that I believe will underwrite not just our success in a data center world of quantum computing, but in a world where scale beyond our current concept of it will be demanded. Because humans like Dr. Rabinowitz there will be demanding the very best that we can come up with for decades, not just many months to come.

You've seen us add a quantum foundry and be very deliberate about how we expand integrated photonics, so we can provide more value to our nation's quantum ecosystem, to our allies' quantum ecosystem, so that they can go faster. And you've heard clearly from Thomas and myself since we announced the SkyWater merger that our commitment to supporting existing SkyWater customers as well as new ones when it comes to everything from the best members of the team, as well as of course, unparalleled IP protections is absolute.

We look forward to growing our merchant supply business with only more participants amongst the US, the Five Eyes and the Allied world. We look forward to remaining the largest quantum company in

history and the leader not just in quantum computing, but also quantum networking, quantum sensing, quantum security, and of course our foundry business.

I'm grateful for everyone's support. There are many friendly faces in the audience. There are many new faces in the audience, and we're excited by the breadth of demand that we've had for today and the depth that you've been able to see in not just the R&D team, but also the go-to-market team. And the federal team is as much part of our go-to-market muscle as you've heard from the enterprise side of the house with our friends, Chad.

The board of directors has been hugely supportive of our aggressive agenda, both technically and commercially, and you should expect to see only more of that in the coming 12 months. So I look forward to seeing you all at the podium downstairs soon. We'll start up here with the remarks by our partners at the NYSE. I look forward to seeing all of you at World Quantum Day when we will be back here on April 14th, '27.

And of course, I look forward to being able to proudly say, a year from today, the next time we have an Analyst Day, we have done what we said we would do and IonQ's say-do ratio is sky-high and unparalleled, despite the fact that we are pioneering before anyone else in the world, I would argue, so many different aspects of this unique quantum platform. Thank you so much for a great day and thank you for your attention. We'll talk to you soon.

Jay Raymond (General, USSF (Ret.); Former Chief of Space Operations, U.S. Space Force):

Thank you.

Niccolo de Masi (Chairman & CEO):

Thank you, sir.