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QUALCOMM, Inc. (QCOM)

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MANAGEMENT DISCUSSION SECTION

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Please welcome Qualcomm President and CEO, Cristiano Amon.

Cristiano R. Amon

President, Chief Executive Officer & Director, QUALCOMM, Inc.

Thank you. Thank you. Good morning, everyone. First of all, Happy New Year. I have to tell you, I'm super excited. I thought there will be like five people in here. I have 75% to 80% of a full room. That's awesome. Thank you. Thank you all of you that came here in person to hear what we have to tell you. Great to have all of you that are joining us via the live stream. Also, a big thank you to the Qualcomm employees that chose to come in person to support the event as well.

So we're very happy to start the year with CES. Purpose of today is really in our press conference we have a number of announcements and hopefully we'll show momentum of all this great things that are happening with the company as we continue to diversify and grow into a number of different opportunities. Key message is we continue to see demand for technology virtually across every industry.

So I'm going to start with a recap of how we've been talking about Qualcomm going forward. We're always going to be the company defining the pace of technology in mobile. We're always going to be the company focused in mobile. But there's more to Qualcomm. And where we are right now, we see this opportunity of billion of smart devices, just not connected devices, smart connected devices that are connected to the cloud 100% of the time and significantly impacting industries, and that's how we look of this very broad opportunity that we call the connected intelligent edge, which is really driving a lot of growth for Qualcomm and driving a lot of innovation based on our technology roadmap.

The time for Qualcomm is now. And I want to build on that recap of what we had said in our Investor Day right before the holidays talking about the cloud economy. We all convinced of the opportunity with the cloud. We know that the cloud will continue to grow. You look of all the projections right now. You look at all of the hyperscalers projection and valuation. For that to be true, you need the edge, you need devices at the edge that are going to be connecting and sending data to the cloud.

So, the connected intelligent edge opportunity is real, it's massive. And when you look at the trends, it's not just about connectivity, it's about connectivity in efficient and smart processing that is going to happen at the edge. By 2025, 64% of all data will be created outside traditional data center and then the data gets send to the data center. And it's driving this cloud growth, which we just look at a 35% year-over-year growth. That's the opportunity for Qualcomm, the company that is going to power the edge.

And as we look of the way we do this, in the way we do this, in the way that has provide value to our customers and also to our shareholders is leveraging this one technology roadmap that get created by mobile. Mobile is a very challenging environment. Form factor is small. The battery has to last all day. You have to manage thermals. You cannot touch your face with something that is hot and you have to, year-over-year, continuing to improve the capability of technology on sensors, on processing, on connectivity.

That creates the ability for us to have this one technology road map with all relevant technologies that are required for the future connected intelligent edge from not only the edge in own-device artificial intelligence, to camera, graphics, processing connectivity, and we can do this at scale. And the more we grow into those new opportunities, the more do we see an expansion of earnings as we can leverage as one technology road map.

That's why when we had our last New York Analyst Day, and you saw the results as Qualcomm closed our fiscal 2021 fiscal year, you don't have today a large cap company that had five consecutive quarters of 100% year-over-year growth and in expanding margins as we invest for growth. And that's because we can leverage this one technology road map, which is going to enable an incredible opportunity for the company and our partners as we build the connected intelligent edge.

So, as we get to note the announcements, I want to start with talking about mobile. Snapdragon continues to set the bar for premium-tier Android smartphones. Our mobile strategy is clear, it's about focusing on driving flagship and premium and high-tier performance in Android. And we saw today a number of announcements, already at CES, some new devices from our customers, I will just name a few, Xiaomi, OnePlus, Realme, and many more that announced devices with Snapdragon 8 Generation 1 and other chipsets.

We continue to be the number one in connectivity in the performance of AI. And I wanted to point out what I said before about the phone, the performance per watt is extremely important and we see that reflected as we bring AI to all of the other devices. From automotive, where you cannot put a server on the trunk of a car all the way to a number of devices in the IoT space, that need to be efficient. Sound, camera, security in gaming as mobile become mainstream gaming. So, we're very excited about what's happening with the Snapdragon road map with 8 Generation 1. And with that, we're going to go into beyond mobile. We had identified a 7x expansion of addressable market opportunity for Qualcomm within the next decade.

What I like about this diagram is show the Qualcomm that started focus on MSMs and MDMs and licensing, of a $15 billion addressable market. At the present time, we're now serving $100 billion addressable market with the effort we made to diversify into our RF front end, automotive and IoT, and the incredible opportunity we have on premium tier Android as the market reshapes in the mobile environment. And within the next decade, we have an

opportunity to serve a market of $700 billion of size as the connected intelligent edge gets scale. It's an exciting time for Qualcomm and we are becoming the partner of choice at the edge for digital transformation.

So, after this introduction, I'd like to give you an overview of what we're going to talk to you today. Within that incredible opportunity at the connected intelligent edge, we pick a few areas that we wanted to show the continued momentum and progress just since we recently had the new plan and the new vision and strategy for the company in New York Analyst Day right at the last quarter of the year. And now, we wanted to show momentum since then. Things are accelerating. We continue to see momentum toward those areas of growth and I want to pick a few.

Number one, next generation Arm PCs, that is a significant opportunity. PCs are changing the transition to Arm is inevitable. And we're starting to get momentum. We're going to talk to you about that. We're going to talk to you about what's happening with virtual and augmented reality. We've always been passionate about this. I remember being at CES and every press conference talking about XR before it was popular. And all of those investment has really come to fruition, we're going to have some interesting announcements today. And I also wanted to mention the ongoing partnership we have with Meta on VR and now China traction with VR. The China market size and the speed of the ecosystem is going to significantly increase scale within the next few years or what we see happening right now with the metaverse.

We're going to talk about wireless fiber. There are more opportunities for 5G, for broadband besides what we've seen in mobile, and there is an interesting view how we think about the end game of 5G, including millimeter wave. And of course, we're going to talk about automotive. I think CES is becoming a very important automotive show and we have a lot of progress made in this space, and we have some exciting announcements to tell you today.

So, with that, I want to start with our PC news. So, we're announcing today a broad support of the PC ecosystem to deliver the future of mobile computing. We have an ecosystem announcement today. One thing that is unique about Qualcomm, because of our horizontal business model, we have the opportunity to create ecosystems and to move forward with broad partnerships, because we're not a company that is focused about one company only innovates. We're not vertical. We're truly horizontal. And because there are all of the companies innovating together, we see the power of the Qualcomm ecosystem. Over the long run, it has proven to be correct.

And I'll give an example, it was not too long ago, it was just a few years ago that we start at CES, and we announced that we're building a coalition to accelerate 5G. I feel kind of the same way about next-generation computing devices. Convergence of mobile and PC is real. The transition to Arm is real. So, we see broad support from Microsoft in the PC ecosystem, Lenovo, HP, Acer and ASUS, about the momentum building within Arm Windows PCs powered by Snapdragon. And that's not only that, part of that announcement today about the ecosystem getting together with a clear intention to make Windows Arm PCs a reality, we are also taking that and empowering the enterprise.

So within the global 5,000 enterprises, there are 200 now already testing and deploying Windows on Snapdragon devices within their environment. We're just showing a few. So this stuff is happening. I know there was a lot of skepticism about the transition to PC to Arm, but it's happening. It's inevitable because when you think about the use case of productivity and work anywhere as we learn over the past couple of years, the on-device intelligence that you need a lot of computational capabilities in PC for on-device artificial intelligence, plus camera, and multimedia and the ability to do on-demand computing with 5G.

Also more and more, I'm sure all of you here today will agree with that, the data is moving to the cloud. So, the ability to access your data in a high speed, no matter where you are, becomes extremely important too. This is happening. We're excited about that. And we think that transition of PCs to Arm is a great opportunity. Thank you to all of our partners that agree to announce this commitment to make this a reality with Arm and also all of the enterprise partners, and we'll be happy to be announcing more addition to the list as of the world's biggest enterprises starts to deploy Windows on Arm within their environment.

So with that, I'm going to go to the next announcement. So, we're also announcing today an expansion of our collaboration with Microsoft to accelerate augmented reality and mixed reality. This announcement of this collaboration builds on a longstanding relationship. I'll be very specific to what we're announcing today that you'll be able to see in a press release. We're announcing that we're developing a custom augmented reality Snapdragon chip for next-generation, power-efficient, very lightweight AR glasses for the Microsoft ecosystem. And we're integrating into that chip platform software from both companies. The Microsoft Mesh platform and the recently announced Qualcomm Snapdragon Spaces XR development (sic) [developer] platform. Snapdragon Spaces will be fully integrated into Microsoft Mesh and this platform is going to be available for next-generation lightweight glasses.

There's another thing that is happening. We've been talking for years about the possibility of having wearable augmented reality devices that will gain scale. I'm very excited about this partnership. [ph] It's the next (00:15:00) step in making that a reality and gaining more and more scale with augmented reality. So, we talked about PC. We're talking about virtual reality, augmented reality in the Metaverse. Now, I want to talk a little bit about the wireless fiber and how we should think about 5G in the long-term and some exciting opportunities ahead.

I want to make a bold statement which is 5G, including millimeter wave, is a universal last mile technology. It's not only the technology that's going to connect their phones. It's going to connect our PCs. It's going to connect our augmented reality glasses. It's going to connect our mobile gaming devices. It's going to connect our smart IoT devices. But it is also a technology that is going to have a major role in the last mile.

When you look of what's happening, for example, with televisions. If you look at the use case of television today, traditional broadcast is streaming with 5G and mission-critical capabilities, things that are sensitive to latency and reliability, such as sports and news, who have the bandwidth and the capability to do it. You think about the use case of streaming, the use case of streaming of games. Games need low latency on the control. You think about the role of uplink. We demonstrated in Tech Summit record speed of uplink capabilities with 5G.

So, in addition of being a transport technology for the home, it can also be a last mile technology for the home alongside Wi-Fi. And we're very pleased to announce our partnership with AT&T. AT&T is looking at 5G now as a core technology for not only backhaul, but also direct broadband access connecting both homes and the enterprise. And what they're staying is with the technologies that we're developing with 5G, and that includes not only our devices but also our small cell 5G RAN is making that a reality.

And I'm just going to take a moment when you hear about discussions around 5G, about, for example, private networks, or when you think about an enterprise, whether small, medium or large business, you can easily see that if you deploy millimeter wave into an indoor facility or into a campus and into an office, you have the ability to have all devices connected at very high speed. You have the ability to do on-demand computing, you do the computing on the cloud. You have all of the data into the cloud. For a CIO, you just have to firewall that versus thinking about what's in every other computer, but also you have the ability to stream for collaboration for different type of multimedia devices and that can get extended to the home as well.

So, we see a world that 5G is going to be in addition of being the technology we're going to find in all the devices is also going to be the technology we're going to find not only in the wide area network, but we're also going to find in the homes and the enterprise as a direct broadband access alongside Wi-Fi. I think we're just at the beginning of that transition, but it's very exciting news for 5G.

And with that, I'm going to go to the area number four that we had announcement for you today, which is Automotive. So, when we think about the Automotive and the Qualcomm focus on this incredible segment, which has been completely transformed by technology, we look about how to work towards the automotive industry of the future. It's about really redefining vehicle for the 21st century. And we start by rethinking from a Qualcomm standpoint how the relationship between the various companies providing technology and solutions to the automotive ecosystem is.

Car companies are becoming in the yard, now many of them are now tech companies. Technology assets become extremely important. There are also those new partnerships are formed. What we saw with the transition of the car into a completely more digital cloud connected and intelligent experience, car companies started to develop direct relationship with technology companies and chipset providers, and I think that got taken to the whole next level as we look at the supply chain crisis and the understanding of the importance of semiconductors and the semiconductors' road map and the role in the technology and digital evolution of the cars.

So, we think that we're redefining, building direct relationship not only with the Tier-1s but the automakers, and focus on can we create a true digital chassis? Not only thinking about the car as you have a car model and you're going to decide for that car model which components you put into the car. But if you look traditionally the car companies had really mastered better than any other industry how to do platform development and integration. They will develop a drivetrain that they will use across commercial, consumer cars from across the world and they will have platforms for the unibody and the chassis. So, why not create a digital platform that can scale from entry-level cars all the way to premium automobiles, can serve multi-generation, in addition a multi-tier, and can be a platform for innovation. That's the Qualcomm approach. It's about building a chassis with all of those systems being integrated for the digital cloud connected capabilities of the car versus individual components for a car project. That is resonating with the industry and it's meeting the needs of the car companies, especially with the Qualcomm approach of a horizontal model that allow every company to innovate and retain their innovation. It's open. It's upgradable. It is – you can customize and you can drive towards the future of automotive, which is going to be evolving in real-time, personalized experience for every driver.

And with that, that is how we think about the digital chassis. It's a platform that includes the Snapdragon Auto Connectivity Platform. It includes the digital cockpit, which is much more than infotainment. It's how you really interact with your car, includes the Car-to-Cloud service platform and Snapdragon Ride for ADAS and Autonomy. And that new platform meets both consumer and industry demands for a completely new approach in how thinking about technology development into the cars in the future.

And as we look individually, I want to start focus on how we think about the digital cockpit. It's really moving towards an immersive driving experience. It's about taking this concept that there's a lot of information that is part of your digital life from your phone and why don't you take that plus with everything else that is part of your life when you're behind the wheel into how you're going to interact with the car. We all know today, and the car industry has validated that, the digital cockpit becomes one of the key buying decision for new car buyers today. It becomes a very important feature in the decision about buying a car. That's really important.

So, as we look of the digital cockpit portion of the digital chassis, we have a number of interesting announcements for you today. So, I will start that we're working with Volvo to enable Snapdragon Power premium infotainment experience in the Polestar 3 SUV and Volvo's upcoming fully electric SUV.

To tell you more about the partnership between Qualcomm and Volvo, virtually is going to be joining us Henrik Green, Chief Product Officer of Volvo Cars that made a video for you. Please watch.

Henrik Green

Chief Product Officer, Volvo Car AB

I'm Henrik Green and I'm the Chief Product Officer at Volvo Cars. Volvo Cars is a company that believes in collaborating with tech leaders all over the world, large and small. We want to work with the best technologies available to give our customers the best possible experiences. And today, I'm here to proudly announce that we're also working with Qualcomm.

Qualcomm's deep knowledge of the automotive sector provides a good foundation for a long-term collaboration between us. You will see the first result of our collaboration later this year when we launch our fantastic fully electric flagship SUV. It will use Qualcomm's Snapdragon processor to power its infotainment system and to deliver an industry-leading video, audio and connectivity performance.

Our teams have worked closely together to improve the system we have in our cars today, enhancing its overall capability and making it much faster and more responsive. We expect great things going forward. This is one more reason to look forward to our next generation of cars and to Volvo's future.

Cristiano R. Amon

President, Chief Executive Officer & Director, QUALCOMM, Inc.

That's fine. Thank you, Volvo. Thank you for the partnership. We're very honored to work with Volvo on this project, continue to make progress in more – both design wins as well as new launches with Snapdragon Digital Cockpit. And we have another announcement of digital cockpit today, which is with Honda. We're extending our longstanding relationship with Honda to deliver smart and premium experiences. Third-generation Snapdragon Cockpit platforms will power advanced infotainment systems at Honda. You're going to see highly intuitive AI for in-car virtual assistance, natural interactions and contextual safety use cases, the power of bringing artificial intelligence to the digital cockpit. It will be commercially available in the United States in the second half of this year, and globally, as part of Honda platforms, by 2023. Thank you again, Honda, for the partnership. We're very excited to announce this new engagement with you at CES 2022.

So moving on, we want to talk about also opportunities for the digital cockpits within companies like Alps Alpine. We're announcing that we're going to bring in-cabin capabilities as well. A lot of new technologies, such as e-mirror for blind spot reduction; ceiling display, that's a new technology as well; next-generation input/output devices [ph] and put it in the (00:26:48) door trims; and individual sound zones for the [ph] varying – (00:26:53) different passengers in the car. We're very excited about the digital cabin partnership with Alps Alpine, and it's another example of how our digital cockpit platform continue to expand to more and more use cases.

So after I talk about the digital cockpit engagement, and I mentioned earlier about – it's about Digital Chassis, it's not about components in the car. I mentioned earlier, it's not about infotainment. It's about the digital cockpit experience of the driver and the passengers with the car. Then I want to talk about something else that hopefully will be able to describe what makes Qualcomm very different when we take a whole chassis approach versus individual components.

The Digital Chassis also powers real-time engagement with the vehicle surroundings. Look, we can spend a lot of time give you many examples, I'm just going to highlight a few. But for example, as you are behind the wheel, when you think about technology such as ADAS, and it's not a separate technology, it's not a separate component. It is just part of a digital platform. What is unique about Qualcomm is the system level approach, that one thing interact with the other and allow the OEM to develop a platform around the entire system.

You can see that the digital cockpit with the driver-facing camera is monitoring the driver and connected with the ADAS system is processing information that come from all the different sensors to make a decision using artificial intelligence, whether the driver needs to pay attention to something and call the attention to the driver.

We're using technologies that allow the car to be aware of its surroundings within the ADAS platform. For example, we've been a big supporter since the very beginning, we're pleased we continue to see progress. This 5.9 gigahertz is now harmonized across the globe for cellular V2X, vehicle-to-vehicle, vehicle to bikes, vehicle-to-pedestrian, vehicle to traffic lights will allow you to have real-time information [ph] populate the (00:29:17) infotainment, whether that is going to be your navigation system that has now this overlay of information, even if you're in full control and you're driving, all the way to engage the ADAS system to take action upon the vehicle, plus the ability to do OTA updates on the system.

So there's much more than the infotainment when we think about the digital cockpit and it becomes an integral part of ADAS solution. We believe at the end of the day this system approach will win. And that's why we're very excited when we go from that conversation to what we're doing with Snapdragon Ride, which is our scalable, open, proven base on the Arriver/Veoneer assets platform for ADAS and autonomy.

It's one of the industry's most advanced, flexible and customizable ADAS platforms, and it's designed so it can scale not only for premium level vehicles, but all the way to entry-level vehicles. And at that point of the presentation, we wanted to continue telling about the progress we're making in ADAS within our automotive business.

So as we look into the ADAS, we're announcing today a new addition to the Qualcomm ADAS family. It's the Snapdragon Ride Vision System. It's an open, modular, scalable platform for [ph] automotive (00:30:56) driving. It ranges from an entry-tier NCAP front camera all the way to more advanced front, rear and surround view solutions. It combines the Ride SoC with next-generation vision perception software stack from Arriver. It's OTA upgradable. It has a Snapdragon Ride SDK for the OEM to customize and develop their own drive policies or use Qualcomm pre-integrated five-star rated solution; the ability to do object detection, surround-view parking, driver monitor [ph] and (00:31:40) maps, and is a product of the Qualcomm Arriver collaboration. It is going to be ready in vehicles by 2024.

So we're very excited in a very short period of time to continue to make progress. The results of the Qualcomm and Arriver collaboration is the new addition of the Snapdragon Ride Vision System to our ADAS platform. And with that, we're going to have one of the most advanced SoCs for the Ride Vision. It's a 4-nanometer SoC for vision applications. I won't go to every detail, but this is a great example of the Qualcomm one technology roadmap. The ability to leverage the technology that are relevant technologies, whether it's graphics processing, AI processing, CPU, modem, multimedia, camera sensors, and be able to take that into new applications.

And you can see the whole picture when we really talk about Snapdragon Ride. It's – you have the Snapdragon Vision SoC announced today. The Snapdragon ADAS SoC, which is scalable from Level 1 to Level 3 and you

have the accelerator that takes it from Level 3 and Level 4 with leading TOPS performance per watt. At the end of the day, you cannot run a server in a trunk of a car.

It's a very comprehensive solution, including drive policy, front and surround vision, maps parking, driver monitoring, SDK and middleware, and of course, the Qualcomm state-of-the-art safe SoCs running safe OS and hypervisors. We're very excited about that. And the purpose of what I'm going to tell you next is we're not alone in seeing how the automotive industries transform into a complete Digital Chassis platform that it becomes a platform for innovation.

What are we going to announce today is increased momentum for the ecosystem support for their Snapdragon Digital Chassis. It's been the technology partner – Qualcomm has been the technology partner of choice for the global automotive industry within this transition, and is enabling the companies that are – we just look of where the companies wants to be, look at where the valuation is of the technology companies in the auto space and allow all the automakers to rapidly deliver the capabilities they need for new experiences.

So we continue to expand. The customers, they take the full advantage of the Digital Chassis and we're still at the beginning of the transition. So now, as we get to the later part of the press conference, as a recap, we talked about PCs, we talked about the – what's happening in the Metaverse, we talked about 5G in the home and the opportunity for millimeter wave to go everywhere. We talked about what's happened in the automotive, the Digital Chassis, the digital cockpit. We announced the new Snapdragon Ride Vision SoC.

And then I want to show how fast the momentum accelerating. We had announced in New York Analyst Day that BMW has selected Qualcomm for ADAS. We had announced at the Tech Summit, the partnership with Cadillac for Super Cruise into the Cadillac Lyriq. And the opportunity to look at the whole thing is really resonating with more automakers.

So, today, we're very pleased to announce that Renault Group will also leverage the Snapdragon Digital Chassis, delivering enhanced safety and immersive experience [ph] they're (00:35:49) upgradeable throughout the vehicle lifetime across all domains.

To tell you more about it, it's my dear friend, Luca de Meo, CEO of Renault, that produced a video for us. Please watch.

Luca de Meo

Chief Executive Officer, Renault S.A.

Hello, everyone. Hello, Cristiano. It's a pleasure to say a few words to you as we are announcing this new partnership with Qualcomm. At Renault Group, we are really excited to expand our collaboration. As you certainly know, today's automotive landscape is evolving more rapidly than ever. The automotive experience is increasingly a digital experience. So keeping up with our customer expectations requires, I believe, working closely with top tech companies like Qualcomm.

So I am convinced that this new collaboration around the Snapdragon Digital Chassis will be key for us in the coming years. With you, I am sure we can achieve our ambition to be a front runner of the mobility tech revolution. So we are really looking forward to working with you. Have a good day. Have a great CES and happy new year to all of you.

Cristiano R. Amon
President, Chief Executive Officer & Director, QUALCOMM, Inc.

Thank you so much, Luca. Really excited about the partnership with Renault. And as we said, we're just going to keep going. We're very excited about what's happened with the company and we continue to gain traction.

As a summary on the automotive segment, we're working now with all leading automakers, number one in telematics, automotive connectivity, and premium next-gen infotainment, and Digital Chassis with all the capabilities, including ADAS, is getting a lot of momentum. It's a design win pipeline of $13 billion. And as I said, stay tuned. We're seeing a lot of traction. I think the market was looking for a solution like that and a special solution that is open and flexible with capability across all domains.

Thank you so much for coming here today. Now – from where we started, I see now people standing up in the back. I cannot believe that I got a full room, super happy about it. Thank you so much. So, hopefully, we'll be able to show momentum with everything we're doing at Qualcomm as we see opportunity for technologies in a number of other industries. Hopefully, what we brought for you today relevant to the show, it's a very important show in our industry. That's why we got to be here and especially at this time for Qualcomm.

And with that, I'm happy to take questions.

QUESTION AND ANSWER SECTION

Patrick Moorhead Q
Analyst, Moor Insights & Strategy

Hey, Cristiano. Pat Moorhead, Moor Insights & Strategy. How are you doing?

Cristiano R. Amon A
President, Chief Executive Officer & Director, QUALCOMM, Inc.

Very good. Good to see you. Happy New Year, Pat.

Patrick Moorhead Q
Analyst, Moor Insights & Strategy

Yeah.

Cristiano R. Amon A
President, Chief Executive Officer & Director, QUALCOMM, Inc.

Thank you for being here.

Patrick Moorhead Q
Analyst, Moor Insights & Strategy

I just – first of all, thanks for doing this live, and I'm sure everybody in the audience appreciates that. But I actually do have a real question here. Qualcomm is known for leading globally in smartphones, and you're trying to apply similar strategies in automotive. And I'm curious, how are you dealing with the nuances, regulatory, and all the things in automotive that are a little similar in spirit, but different in automotive. And how are you going to get over some of these pretty big issues, particularly around even Level 3 and Level 4?

Cristiano R. Amon
President, Chief Executive Officer & Director, QUALCOMM, Inc.

A

Look, great question. I want to touch upon two things. One, a general Qualcomm, I think, core competence, if I may describe it that way. And then I will talk about the regulatory. Look, we jump into the automotive opportunity right away, and you saw incredible amount of progress in a very short period of time, all organically, which is unusual.

I can't tell you how many times we hear from many of the investment banks and [ph] all the (00:40:13) investors that we needed to make a very large acquisition to become an automotive provider given the opportunities in auto, and we were able to do this organically in a short period of time. And the reason is because there are a lot of similarities that speaks to the Qualcomm core competencies.

Number one, it's – Qualcomm has always done well with industry disruption, and there's no bigger disruption from a technology standpoint in the automotive industry. Compared to every other industry, the car has been completely transformed. The experience of owning and driving a car is different. The relationship between the car companies with their customer is different and the relationship between the suppliers is different. So that's one.

Number two, we – if you look at what was the success of Qualcomm in mobile, unlike some of our competitors who have been focused on providing a component into an OEM, Qualcomm has been involved in every single aspect of the mobile, from [ph] standards, early on on standards (00:41:14), regulatory, mobile and telecom's highly regulated environment, the mobile operators, we're involved in spectrum harmonization, [ph] we're being (00:41:24) involved in building ecosystems and we have the ability to create horizontal platforms that companies can innovate on top. We just apply the same recipe to automotive because the similarities are incredibly remarkable. And I think that explains why you see demand for a company like Qualcomm to become a technology partner for the Digital Chassis.

Now, the second part of your question is the regulatory environment associated with ADAS. We took a very pragmatic view. It's interesting when we had to go build our automotive business over the past few years, the first thing we [ph] saw – (00:42:06) we went from connecting the car to the cloud telematics. The next immediate transition to us was the digital cockpit. It was [indiscernible] (00:42:16) the decision was easy. People were driving their cars looking at their phones. They're supposed to do that. There's a reason they're doing that. Can we just help redesign that whole experience?

The next approach – the reason we think about ADAS next because we think the real market opportunity for ADAS is to attach Level 2 and 3 to every car that it can become as pervasive as ABS, airbags and you still can have the driver behind the wheel. We're working with full autonomy as well that – we all know that has more regulatory challenges. The technology need more time to mature.

But the opportunity to do Level 2 or Level 3 with – as an assisted solution to the driver is real and it's one that can really scale. And then I connect the two parts by applying the Qualcomm model, we actually can create a multi-tier platform [ph] that are (00:43:10) unique to premium cars, we can take this to every car. And that's resonating well with our customers.

I don't know who is the next. Thank you.

Q

Hi. This is [indiscernible] (00:43:23) with Silicon Valley Global News. I wanted to ask you, what do you see as the future for Qualcomm integrating with self-driving car platforms and bringing Microsoft Mesh into the car?

Cristiano R. Amon
President, Chief Executive Officer & Director, QUALCOMM, Inc.

A

Excellent question. So let me – when I think about integrating – part of the answer I just provided, self-driving cars. Self-driving cars, from a Qualcomm standpoint and full autonomy, we have engagement right now with some of our customers [ph] we believe (00:43:58) is going to happen. There's a number of interesting applications for that. Also, when you think about the commercial aspect of it, it's a technology that's going to take a little bit more time to get scale for obvious reasons. I think that what Pat asked about regulatory, but we are now – we are engaged with programs of our customers for fully autonomous cars.

Now the second part of question is about bringing Microsoft Mesh. That's a very interesting question. In general, when the car gets connected to the cloud, the way we think about it, the [ph] core now part (00:44:33) of the network and the network has a number of other devices. And I can see why augmented reality that could benefit you, as for example as you wear glasses and you get information that is delivered to you that gets superimposed on your reality, I can see that that could be also capabilities that you can have on display of your car.

So I think it's fair to assume that could be an interesting evolution, as now the car is part of the network and is connected. And I believe those things are not a technology challenge. It's really the time that it takes to develop and get scale. But, yes, it's – like I said, it's a very good question and I think there is enormous possibilities of bringing more and more technology to the car, including augmented reality.

Q

[ph] Wydna Ward, CRN (00:45:34). Can you share a little bit more of your thoughts on the growth of metaverse in the workplace and on factory floors? I mean, what kind of – to the best of your ability, what kind of timeline are you seeing for the proliferation of that and the kind of mainstream acceptance of it?

Cristiano R. Amon
President, Chief Executive Officer & Director, QUALCOMM, Inc.

A

Very good. Thank you for the question. Look, there's a lot of discussion recently about metaverse. And the way we look at the metaverse, the easiest way, at least, I found to explain this. It's the understanding there's going to be digital twins of everything. So, you can have a digital twin of a car. You can have a digital twin of a substation in the case of an engagement that we have with the utility companies for 5G industrial IoT. You can have a digital twin of a conference room. You can have a digital twin of your home. You can have a digital twin of your social network.

And the reality is when we think about technologies such as 5G that connect us with the cloud 100% of the time, now you can have access to your digital twin or you can connect the two. That's the role of Qualcomm into the metaverse. That's why we're the ticket to the metaverse. We're the gateway that connects the physical to the digital world with the devices that we built that allow you to have a virtual reality or augmented reality experience.

And at the end of the day, I think this will develop in different forms. It's easy to see, for example, that the enterprise, and some of the work we're doing with Microsoft, is very enterprise-focused digital twins. So, it can range from, I am going to do a repair on a car in an automotive industry, and as you look at somebody's car, the car will have a digital twin. So, you can see, for example, you put an augmented reality glasses, you open the

hood as a technician, you give away information. This is a problem, this is a problem, this is not a problem, this is how you do it. You can research and get tutorial. You can use it for training. In a completely different industry, you can use it on a warehouse. So, it's going to develop this way.

Digital twins are a reality as we think about a cloud-connected economy, and you have the ability, when you connect the physical world with the digital world, to have incredible use cases in how the – this is how the metaverse is going to take shape. It's not about one metaverse. It's going to be about a combination of different applications that you connect digital-physical spaces. But I also believe the opportunity for consumer or this one metaverse is also very big. It's just a natural evolution of how you think about social, which is connecting people and now you can connect people virtually. I think we got a glimpse of how that actually works when we started to do a lot of collaboration and see the collaboration we've done for the past two years, you can see how that can evolve.

So, the opportunity is already significant. We mentioned in our New York Analyst Day that the numbers are already material in the Qualcomm results, but we're just at the tip of the iceberg. We haven't even seen yet augmented reality, which is much at scale, which is much bigger than VR. We haven't seen yet China, which is coming, and I think that's an incredible opportunity and the size is going to be material.

Q

We have time for one more question.

Frank Markus
Editor, MotorTrend Group, LLC

Q

Frank Markus of MotorTrend. CES has been known over the years that are making a lot of screen news, and I wasn't expecting you to make screen news today, but I have never heard of a ceiling display. I'm wondering what you picture using that for? Is it a control, a touch screen, or you're putting programming up there or what?

Cristiano R. Amon
President, Chief Executive Officer & Director, QUALCOMM, Inc.

A

Yeah. It's new use cases. I think especially for – when you think about cars that when you – it's that part of application which our partner, Alps Alpine, is doing in Japan, think about how you redefine the rear seat entertainment into – to the next level and have the ability to have a more immersive experience even when you recline your seats. And I – but I think there's going to be other applications of it as well as you add a ceiling display. So, think about as yet another display that you add to the car that you'll be able to get information to the passengers as well or other future use cases.

Look, I know we're running out of time, but I'm happy to take one more question for – two actually for you that came in-person. So awesome.

Q

Hello. [ph] Samuel Mustin at Saudi Aramco (00:50:16). Two questions. First question is regarding the – are there any concerns about the leadership positioning in this generation of mobile [ph] associates? (00:50:33) For example, MediaTek have recently inked a deal with TSMC who are using a more advanced fabrication process, 4

nanometers under what you call it Dimensity 9000 chip compared to your chip, that is also designed to run higher clock rates. This is the first question.

The second question is regarding the Microsoft. Microsoft have been trying to push the Arm – Windows on Arm since Windows 8, I think, almost 10 years or less than 10 years. What makes you so – what's different now that makes it far more attractive? Also corporations, they are very much interested in x86 or AMD64 compatibility. And Windows on Arm does not have the perfect emulation layer to run compatibility on all the software. So I'd like you to shed some light on that.

Cristiano R. Amon
President, Chief Executive Officer & Director, QUALCOMM, Inc.

A

No problem. I'll take those two. Let me take the first question. Look, the mobile market has been a super competitive market. It has been competitive. We have a lot of respect for our competitors, but the reality is what we saw in the marketplace right now, premium tier Android flagship became synonymous with Snapdragon. I mean the traction of Snapdragon that we're seeing now is probably one of the highest we ever seen. And what we're seeing happening with 8 Gen 1, with a lot of our customers that they go into new markets right now. For example, there's a great opportunity for expansion of our China customers into Europe, their number one advertisement message is we have the latest Snapdragon 8 Gen 1, and you're going to see that throughout the show. I think Snapdragon is a result of significant R&D that we put in the space versus our competitors. And I think we never been more confident about the market position of Snapdragon than we are right now.

Second part of your question is about Arm PCs. Look, Microsoft is the truly horizontal and enterprise ecosystem for computing, that's been the strength of the Windows ecosystem. You have a lot of legacy and you have a lot of embedded systems. We started this journey with Microsoft a while ago together knowing it will take time. And now with Windows 11, you have 64-bit emulation coming to the Windows ecosystem, plus every single Microsoft app native on Arm, two other things to add to why the time is now.

What Apple has done with the transition to Arm, actually both Apple and Microsoft doing this, plus gaming becoming a streaming platform is driving a lot of major developers to think Arm first. Companies like Adobe will release Arm for – at the same time of every new application Arm native. The last part of this and we'll be saying PCs are different, next-generation pieces are not the PCs we're seeing today, we see an incredible growth on PCs now as we saw to the past two years. As you think of how people are using, PC became a telecommunication device. Number one application right now is collaboration, is a video telephony, something that we've been trying to do in mobile for years, though things are changing, this transition is happening, it's real and it's getting momentum.

All right. I think our last question and then we're truly out of time.

Q

Thank you. [indiscernible] (00:54:20) Mexico City. All of this technology are already related to the personal transportation. We want to know if do you have an expectation or road map for road transportation or working vehicles. Also, public transportation like Lyft, Uber, all of the digital cockpit is on a lot of possibilities for establishing communication to traffic, something like that. We want to know if this technology is related to Qualcomm Digital Cockpit is going to be available for public and also for working?

Cristiano R. Amon
President, Chief Executive Officer & Director, QUALCOMM, Inc.

A

Thank you. I want to make sure I understand, road map for what technology you said?

Q

For digital cockpit. The digital cockpit?

Cristiano R. Amon
President, Chief Executive Officer & Director, QUALCOMM, Inc.

A

Yes, yes. Thank you. By the way, thank you. Gracias [indiscernible] (00:55:21). So, one thing that we believed and that speaks to this digital chassis is intelligent transportation. So what – if you look what's happening today, for example, when you think about smart cities not yet talking about automotive, think about smart cities, you see that now transportation in a city, especially when governments make APIs available, you know where buses are, when do they get to subways, when to get to different stations.

Now think about the potential in all of this come to your car. On top of this, you now have this overlay with this technology, which is cellular-V2X, that a car can communicate with the other car, can communicate with the buses, can communicate with the traffic lights, the opportunity to have intelligent transportation as a key feature of this digital cockpit connect to C-V2X is incredible. Something as simple as telling you adjust your speed to get a green light. Simple – as simple as instead of just telling your callers, this is red, yellow, green populate with every other car and tell you about hazards, about things you need to pay attention to what's happening in the intersection.

So I, at the end of the day, believe that as this technology gets deployed into cars, there's an opportunity for cities, for states to look into this as a safety mandate. No different than it was the mandate of GPSs and cellular phones a long time ago for E-911. So I actually believe, because of the benefits of intelligent transportations, technology to C-V2X, could become a mandate, at least we'll continue to advertise the benefits. But, thank you for the question.

Thank you, again all of you for coming here to our press conference. Happy New Year to all of you. Thank you.