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PRESENTATION

Operator

Good day, ladies and gentlemen. Welcome to TomTom’s Fourth Quarter and Full Year 2020 Earnings Conference Call. (Operator Instructions) Please note that this conference is being recorded today.

I will now turn the call over to your host for today's conference, Megan Daniell, Investor Relations Officer. You may begin.

Megan Daniell

Thank you, operator. Good afternoon, and welcome to our conference call, during which we will discuss our operational and financial highlights for the fourth quarter and full year 2020. With me today are Harold Goddijn, our CEO; and Taco Titulaer, our CFO. We will start today’s call with Harold, who will discuss the key operational developments, followed by a more detailed look at the financial results and outlook from Taco. We will then take your questions.

As usual, I’d like to point out that safe harbor applies. And with that, Harold, I would like to hand it over to you.

Harold C. A. Goddijn - TomTom N.V. - Co-Founder, Chairman of the Management Board & CEO

Yes. Thank you very much, Megan, and welcome, everybody, to our call. Of course, the past year was a challenging one. And COVID-19 continues to impact people’s lives and has disrupted the global economy. Dealing with the pandemic’s consequences will remain a challenge for this year. Our Enterprise business showed resilience, and our Automotive operational revenue recovered since the lows experienced in the second quarter. We maintained an Automotive backlog of EUR 1.8 billion. Our 2020 order intake was strong and under normal circumstances, backlog would have grown. However, our Automotive customers have revised downward their forecasts for 2021 and 2022, which offsets the strong order intake.

Today, we announced an extension of our long-standing relationship with Precisely, formerly known as Pitney Bowes, and by providing our map information and traffic data, we will help Precisely enrich their location intelligence products. Precisely will also share some of the data and observed changes in the database back to TomTom in the context of our map editing partnership, a program we intend to roll out to more partners.

We further expanded our position in fleet and logistics by closing a new long-term agreement for our Maps APIs to Targa Telematics. And Targa will use the technology to help optimize the operational efficiency for their customers. Mitsubishi Motors has chosen our full stack navigation to
power the new Eclipse Cross infotainment system. Furthermore, in 2022, new regulation will come into force that requires carmakers to integrate new functions, including intelligent speed assistance, and in anticipation, we have significantly improved our data sets and developed a new delivery mechanism to increase reliability, reduce latency for those critical safety systems.

Our traffic information revealed insights into the spread of and recovery from COVID-19. Journalists, researchers, policy advisers and governments made extensive use of our traffic data, which we made available for this purpose free of charge. We received hundreds of requests for data, and I'm pleased we can support our communities in understanding the impact of the pandemic and the effects of the implemented policies.

We have, of course, not lost sight of our strategic priorities and longer-term objectives. We’ve kept investment levels up for our mapping and application platforms. I want to briefly discuss progress we’ve made and the plans we have for 2021 in the next slide. Our goal is to significantly improve our location platform, largely through automated processes. Progress has been made in 2020, and we are solidified in our resolve to make significant improvements to our data platform along the axis of geographical coverage, attribution, quality and freshness. And the aim is to make our data suitable for a much broader range of applications for more industries and in more geographical territories.

In parallel, we are significantly improving the quality and completeness of our online application platform to make it easier for customers to create value-creating applications on top of the database.

TomTom offers an exciting workplace for talent. Our culture is much appreciated, and we deploy a broad range of cutting-edge technologies to solve hard problems. In 2020, we were successful in hiring top talent from across the industry. We will make sure that we continue to coach and encourage our people to achieve great things by empowering them and providing them with growth and learning opportunities.

And it’s thanks to our people that we could act quickly and decisively to deal with the impact of the pandemic and avoid negative impact on customer commitments. This concludes my part of the presentation, and I am handing over to Taco.

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**Taco J. F. Titulaer** - TomTom N.V. - Member of Management Board & CFO

Thank you, Harold. I will make some comments on the financials and outlook. We will then go to the Q&A.

In the fourth quarter, we reported group revenue of EUR 125 million, that’s 20% lower than the same quarter last year. In the fourth quarter, Location Technology reported revenue of EUR 101 million, slightly outperforming our expectations, but this was offset by weaker consumer revenue.

Let me go through the revenue business by business. Automotive IFRS revenue was EUR 60 million, a decrease of 14% compared with the same quarter last year. Automotive operational revenue was EUR 90 million in the quarter, a year-on-year decrease of 23%. Sequentially, we achieved operational revenue growth of more than 50%. The sequential increase reflects the continued recovery of car production volumes during 2020 in combination with NRE invoicing.

Enterprise revenue increased marginally from the same quarter last year as revenue from new contracts was offset by unfavorable foreign exchange rate movement as around 80% of our Enterprise contracts are invoiced in U.S. dollars. In the fourth quarter, Consumer revenue decreased by 48% to EUR 24 million as retail closures and decreased demand following widespread lockdowns across Europe impacted revenue. In the fourth quarter, gross margin was 82%, benefiting from lower hardware revenue in our sales mix.

Operating expenses were EUR 181 million, a decrease of EUR 20 million compared with the same quarter last year. Please note that our research and development expenses included a restructuring expense of EUR 7 million in 2019. Excluding this, the year-on-year decrease is mainly the effect of discretionary cost control measures.

The free cash flow for the quarter was an inflow of EUR 34 million, in line with our expectations provided last quarter. The year-on-year decrease in free cash flow reflects lower operational revenue in both Automotive and Consumer. At the end of 2020, we reported a net cash position of EUR 372 million. We will use EUR 35 million during the course of this year for share buyback to cover our long-term incentive plans.
On Slide 5, as Harold mentioned earlier, we reported an Automotive backlog of EUR 1.8 billion, stable when compared to last year. Our Automotive backlog is the sum of total expected IFRS revenue from all awarded deals. The backlog decreases when revenue is recognized during the year, increases with new revenue deals, and that can either increase or decrease when our customers revise their forecast of car production volumes.

While we are pleased with the volume and quality of the deal activity this year, the positive impact of deals in 2020 was offset by our customers downwards revision of near-term car production volumes on existing deals. To provide more transparency on our Automotive revenue expectations, we provided an indication of the phasing of how this backlog will materialize over the coming years. For 2021, most of our recognized revenue will be the outcome of our backlog. In later years, it will be based on a combination of new deals and backlog. We’ll give an update of the Automotive backlog on an annual basis during our full year results.

This brings me to the next slide, our outlook for 2021. For 2021, we expect group revenue to be between EUR 520 million and EUR 570 million, and Location Technology revenue between EUR 420 million and EUR 450 million. So based on our expectation that car production volumes in 2021 will not return to the levels that we were seeing in 2019. Our OPEX will significantly decline year-on-year from EUR 711 million in 2020 to around EUR 520 million in 2021. This decline is driven by the decline of total D&A from EUR 285 million in 2020 to between EUR 70 million and EUR 75 million. For 2021, R&D is expected to grow to around EUR 330 million, a 5% growth year-over-year, which I will further discuss on the next slide.

To conclude, we expect to generate free cash flow of around 6% of group revenue. Slide 7. As said, in 2021, we plan to increase our R&D cash spend. On the right-hand side of this slide, we indicate a trend for components of our R&D cash spend. Our overall spending on geographical data is expected to come down as automation levels increase. This will be the result of extra investments in our engineering in that area. We will increase our cash spend on our application layer, enabling faster software update cycles, ease of integration and flexibility.

In the last slide of this presentation, I want to discuss our mid-term outlook. We expect to grow our Location Technology revenue to around EUR 550 million in 2023. Growth is expected to come from new opportunities in Enterprise as well as further growth in Automotive following increased take rates. We have a target for free cash flow as a percentage of group revenue of around 10%.

Operator, we would now like to start the Q&A session.

**Questions and Answers**

Operator

(Operator Instructions) And I can see the first question comes from the line of Francois Bouvignies.

Francois-Xavier Bouvignies - UBS Investment Bank, Research Division - Technology Analyst

I have a couple. The first one is on your backlog that you mentioned to be EUR 1.8 billion. With the reason of order intake that seem positive, but it has been offset by the lower forecast from your customers going forward. So can you talk about your market share trends in 2020? I mean, where do you see it moving? And how much do you think you have in terms of market share in 2020 would be very helpful.

And about this lower forecast, I mean, if you look at the industry, Automotive seems to revised up their forecast quite aggressively, which is leading to shortage in semiconductors most likely. And the discussion we have with semiconductors is like the Automotive are changing their mind a bit late. So my question is, did you factor that in, in your backlog? Or is it something that you will maybe see a bit later? That’s the first question. I have others, if I may after.
FEBRUARY 04, 2021 / 1:00PM, TOM2.AS - Q4 2020 TomTom NV Earnings Call

Harold C. A. Goddijn - TomTom N.V. - Co-Founder, Chairman of the Management Board & CEO

Yes. Francois, thank you. So first question, market share movement. We believe it will go up this year mostly because of the switching over during 2021 from one of our North American customers from a competitor to our technology that will take place in 2021, 2022 with the introduction of new models. Otherwise, there’s no significant changes in market shares that we can see in 2021.

Yes, the semiconductor thing is, a tricky one. I think the shortage there is mostly a result of other industry players upping their demand as a result of COVID. So I think the Automotive industry takes about probably something like 10% of total silicon, 90% goes elsewhere, including the mobile phones and laptops and whatnot. And what we have seen, of course, in 2020 is that production volumes for those applications have gone up and demand has gone up. And supply is not infinite. There’s limited supply. So I think you see the effect of those two things.

Now you could also argue that carmakers got it wrong in forecasting their demand, difficult to judge. The only thing that we can say is that during 2020, we have seen quite a bit of fluctuation in the outlook of carmakers for the near term. So for 2021. And I think they have recovered some of their optimism recently to reflect a transition to a more normal and stable run rate where we have increased level of visibility and predictability. But at the same time, I think there’s still quite a bit of nervousness in the Automotive industry around what will actually happen in 2021 and then 2022. I think, overall, the consensus is that by 2022, when I listen to what I hear from our customers, is by 2022, we will start to go more in a steady state, and we will approach the volumes that we have seen in 2019.

Overall, if you look at car makers’ performance, they have overperformed, I think -- or some of them, not all of them, but some of the car makers has overperformed in China, which has softened some of the negative effects of COVID. But in the context of looking at TomTom, it’s useful to realize that we are not playing for the domestic China market. So we have not been able to benefit from that recovery, if you like.

Francois-Xavier Bouvignies - UBS Investment Bank, Research Division - Technology Analyst

And in terms of -- because this year, last year has been quite unique in many senses. If we look at 2021, how do you see from an order behavior point of view? I mean, do you see like it’s going to be as well a very hot year in terms of order book order intake or...

Harold C. A. Goddijn - TomTom N.V. - Co-Founder, Chairman of the Management Board & CEO

Yes. It’s difficult to say at this stage, Francois. I think there are good opportunities for us to land some significant deals, but it’s too early to say, how it will all pan out, of course.

Francois-Xavier Bouvignies - UBS Investment Bank, Research Division - Technology Analyst

Okay. I understand. Then my second question was on PSA, FCA merger, I mean it seems to be according to your public statements and your report that it’s -- both of them are customers of yours. So I just wanted to ask you what are the implications? I mean, your risk and opportunities from this merger for TomTom?

Harold C. A. Goddijn - TomTom N.V. - Co-Founder, Chairman of the Management Board & CEO

Yes. I think we have excellent relationship with PSA that goes back a number of years now. We’re just moving in FCA in a meaningful way. We start shipping in 2020 for selected FCA models, but they are standardizing on TomTom technology for in the future. So we’re very excited about the progress we’ve made and how the relationship with FCA is evolving.

We’re very happy with how the relationship is with PSA. That merger is a complex thing. There’s a lot of work going on behind the scenes. We are party to some of those discussions. Don’t expect anything significant this year, but we fully anticipate that in the new rounds of RFOs, that we will see consolidated demand from the Stellantis group. And we feel we’re very well positioned to keep supporting Stellantis in that context.
Francois-Xavier Bouvignies - UBS Investment Bank, Research Division - Technology Analyst

Okay. That's very clear Harold. And the other question I had is on the EV that seems to be as well quite growing fast, not only in China, where you are not present, but also in Europe, which obviously, it's more important for you guys. So I was just wondering, if we compare an EV car versus a premium combustion engine, where your content is, if you compare the two, I mean, is it a similar content? Or you see -- because I know you are doing some products for EV only, so do you see a meaningful average selling price higher for an EV versus IC or not really?

Harold C. A. Goddijn - TomTom N.V. - Co-Founder, Chairman of the Management Board & CEO

No, well, I think there are opportunities in EV for services and stuff. But I think what EV is doing, and that's more important to us, is a real watershed in terms of deployed technology. So what we see with EV vehicles, they are all using Location Technology for range and charging and whatnot. They are all connected. So there are more opportunities to deliver higher end-user experience. That means online routing, online maps, which is really bringing us at a level now with the best you can get on a mobile phone. So we're closing that mobile phone car gap significantly now.

Enhance also significant investment in online technology and we're all on track there. So that's good. I like it. And then, of course, the significance is that 100% of electrical vehicles will use our technology or at least -- in the customer base; where for combustion engines, that's still a relatively low percentage. It doesn't exceed 40%. It's probably somewhere at 35% now. For EV, it will go to 100%. And then what we have seen and what we read every day is more and more momentum behind the EV movement. So I think Volkswagen really, really pushed the boat out with the ID3, ID4 to follow now. We see FCA coming out.

We see PSA coming out with volume products that are offering consumers now a much broader choice -- it's becoming mainstream really rapidly. And I think its taken a long time, this whole EV thing to become mainstream. And maybe at the beginning, we have been a bit too optimistic about that transition. Now I think we could be underestimating the speed by which things are happening with respect to electrical vehicles.

Yes, so I think the train has left the station. The end-user experience is great. Prices are still a bit high, but I think you can clearly see now and more and more people can see that the future is going to be electric. There is no doubt in my mind that this is an irreversible trend, which will continue to accelerate.

Francois-Xavier Bouvignies - UBS Investment Bank, Research Division - Technology Analyst

Okay. So if I understand correctly, is it fair to say that as EV accelerates, your take up will accelerate basically more rapidly? Is it a fair comment to say in this case?

Harold C. A. Goddijn - TomTom N.V. - Co-Founder, Chairman of the Management Board & CEO

Yes, I think that's fair. But bear in mind that we're coming from a low base. I'm very enthusiastic about what is ahead of us, at the same time, you need to realize that we're coming from a very low base as of today. But it will catch on and it will go and it will grow quickly. And I bought one myself now, I bought a Fiat 500 with our own technology in there, and it is a fantastic user experience, both in terms of electricity, the powertrain, the software, the whole infotainment system is really a big step-up. And I'm not claiming we are at Tesla level here, but we're getting close. The gap is closing quickly now, in terms of end-user satisfaction and closing the gap, with what's happening on the mobile phone. So there's a lot to be optimistic about in that sense.
Francois-Xavier Bouvignies - UBS Investment Bank, Research Division - Technology Analyst

Okay. That’s very clear. And maybe last one, and then we’ll go back to the queue for my peers. If you look at your 2023 targets for Location Technology, can you give us a bit more details around the drivers of that? I mean, because if you look at the past, it’s true that it has been very volatile, very difficult to predict -- to forecast, sorry, because of the OEMs, their own forecast and it’s -- we saw a couple of adjustments in the past around assumptions -- long term assumptions. So how can you give us confidence about this number basically for 2023? Would be very helpful to understand what you baked in for this and how you get there?

Harold C. A. Goddijn - TomTom N.V. - Co-Founder, Chairman of the Management Board & CEO

Well, -- so if you look at that 2023 number, there is a fair chunk of Automotive revenue that is already in the books. There is some short-term nervousness around COVID, that will go away and that will be reflected as well in the solidity of that outlook. We also have given quite a broad range because of some uncertainties in the short term. But I don’t know about you, but I think that after the summer, it will be strange if we’re not in more predictable territory.

I don’t think we have -- that means that we have globally kind of processed all the pain and the damage but at least we will get back to a normal situation where the economy can start to adjust to the new reality. People can start traveling again. And we get into a more predictable future. So I think that part of the forecast, I’m pretty confident that we will get there. I think on the Enterprise thing, things are a little bit more difficult to predict. But as I alluded also in my introductory remarks, we are building a much more powerful platform. And I think that’s needed. If you look at our history, we are very much in navigation, and that’s great because it’s the most difficult use case that there is. But there’s a whole other world out there for other location services. And I think by 2023 -- 2022, our platform will be much more capable in dealing with those use cases as well.

So it’s a very active program on the way to automate the hell out of making, make much more efficient use of existing resources that will result in a more powerful platform, broader market opportunities, both geographically but also along the type of applications we can deploy. There’s enough to play with for us to start growing also that Enterprise revenue by that time. So I’m confident that we will get there. Difficult especially in tech to predict, on the tech side 2 or 3 years out. But I’m quite confident that new opportunities will open up.

Operator

And the next question comes from the line of Marc Hesselink from ING

Marc Hesselink - ING Groep N.V., Research Division - Research Analyst

Marc Hesselink from ING. So the first question is on the comment that you made on -- in the slides to automate and the extra investments in the application layers. What can you do in the short-term this year? What are the investments to be made? And how is this going to improve the products?

Harold C. A. Goddijn - TomTom N.V. - Co-Founder, Chairman of the Management Board & CEO

Yes. So I think Taco has given an indication where the investment levels are going to be. And we feel comfortable with that number in order to achieve our goals. But what we are saying, as a business, we are really aiming to have a step change in efficiency in that mapmaking platform. That will create -- that will create space and efficiency. We can go faster. Mapmaking has been a very manual process, and that's okay. That's the world we live in and we came from. But as a result of the introduction of our new mapmaking platform, and that's now up and running for a couple of years now, 2, 3 years and maturing, it has also opened up a new way to look at how you build maps. And that is the second kind of transition we're going through.

The platform is there. Now we can hook on automation, look at different data sources, figure out new ways to have a high degree of automation in integrating those data sources, while making sure quality is there, consistency is there. And that you can meet the high demand applications
as well, that are often safety critical and so on and so forth. You know what I mean, ADAS and HD and but also a broad range of other applications, more in the Enterprise world and in the developer world.

So that's -- our path to efficiency improvement of the platform and ultimately addressing a broader range of potential customers and potential industries that we can target our products for. I do know well, that's going to be critical, and that's going to be important. And the progress we've made, again, I said it in my introductory remarks, the progress we've made in 2020, that gives us a lot of confidence that we can actually get there.

**Marc Hesselink** - ING Groep N.V., Research Division - Research Analyst

And is this like a multiple year story? Or you can make big steps in the coming year?

**Harold C. A. Goddijn** - TomTom N.V. - Co-Founder, Chairman of the Management Board & CEO

Well, we can make big steps in the coming 2 to 3 years. It's never done, it's never finished, but -- all the time new opportunities arise with AI and new technologies and more powerful cloud and whatnot. So it's a never-ending story. And I think we've been doing quite well certainly compared to competition with limited investments compared to competition, we have improved faster on our content, but we need to continue on that path and accelerate on that path. That's going to be an important driver for operational leverage, growth geographically growth in type of applications, growth in industry segments where we can play. And ultimately, solidifying a role in location-based technology next to, dare I say, Google.

**Marc Hesselink** - ING Groep N.V., Research Division - Research Analyst

Okay. Clear. Next I move a bit to the competitive dynamics. If I'm correct, the first half of the year was very good on order intake. Do you believe that strictly, you're still winning share in the backlog?

**Harold C. A. Goddijn** - TomTom N.V. - Co-Founder, Chairman of the Management Board & CEO

Yes, I think we are. So as I said earlier, there is big North American customer that's switching around now. That's been in the making for a couple of years, but -- we will start seeing the effects of that coming through in 2021. Bit later than expected, again because of COVID. I don't want to use this as an excuse, but it's a fact. It will happen, it's on its way, and -- I'm happy with that. A couple more customers out there that we need to switch. These are within -- we have them in our visor, I think, with a good story and then the bigger prize, I think, is broadening the suitability of our platform and technology for most broader range of applications outside of the auto industry. I think there is significant opportunity for growth.

**Marc Hesselink** - ING Groep N.V., Research Division - Research Analyst

Clear. And then final one and a follow-up on the attach rate trends. Can you indicate a bit where you are today within your client base and how that is trending? Is that going very gradually? Or is that accelerating? Or what are you seeing?

**Harold C. A. Goddijn** - TomTom N.V. - Co-Founder, Chairman of the Management Board & CEO

No, the growth in attachment rate is growing gradually, much slower actually than people would expect. Typically, the people we talk to and that are on the phone on a day like this, have expensive cars with expensive screens in the middle. But there's a whole world out there where that's not been implemented. So attachment rates are still not where you typically expect them to be. It's more around 35% I reckon now. But anyway, so that's growing, but its growing at a glacial speed. But as I said earlier, electric will change that. Electric will help in converting -- so electric will do 100% attachment rate or close to 100% attachment rate. That's the way we see it now. And the other thing that electric does is bringing connectivity in the vehicle. And that in itself allows us to close the experience gap between what customers do on a mobile phone and what people are doing on a screen.
So I think we've long been critical on our own work, actually, that we were not able or insufficiently capable within the constraints of an Automotive industry to deliver a good end-user experience. And that has been a source of frustration, if you like. But those constraints are being limited; are being lifted now. And I think there are 3 movements that are facilitating that. So electric is one, connectivity is 2, and 3 is an awareness in the Automotive world, in the industry, that we really need to speed up now in closing that gap. And that is leading also to a different conversation.

So typically, the relations between the supplier and an Automotive customer are not very balanced. It's often around specifications and price. That's the traditional way of buying components for a vehicle, but the awareness that that doesn't work for software is growing. And that is opening up new ways of partnering, collaborating, all with the goal to make it more efficient, more collaborative and improve that end-user experience. So I think we're on a pretty good trajectory there.

Operator

And the next question comes from the line of Wim Gille ABN AMRO Bank N.V., Research Division - Head of Research & Equity Research Analyst

Wim Gille - ABN AMRO Bank N.V., Research Division - Head of Research & Equity Research Analyst

Wim Gille from ABN AMRO ODDO. I would like to have 2 questions, please. First is on Apple and Apple Car. Yesterday, quite some news flow around the Apple Car, which is supposedly coming to the market. So according to CNBC, they're close to finalizing a deal with Hyundai Kia to manufacture this Apple branded autonomous vehicle from their plant in Westpoint. The product should already go in production by 2024. So the first question is, what is your relation with Hyundai Kia at this point in time? And secondly, more directly, maybe are you involved in this project directly. And the second question I would have is on Enterprise, that was flat year-over-year in Q4. Obviously, there's underlying industry growth. So maybe you can give me a bit of feeling on what happened there exactly in Q4. And also dig a little bit deeper into kind of how the market is developing for net APIs versus uncompiled maps and possibly how the Microsoft contract is doing for you guys?

Harold C. A. Goddijn - TomTom N.V. - Co-Founder, Chairman of the Management Board & CEO

Yes, thank you. Yes, I think the Apple thing is an endless source of speculation. And I have very little to add. There's enough chatter there. And I don't think I've got anything meaningful to add there. I don't feel I can contribute to the conversation and that speculation. I think the other thing Hyundai Kia is in itself, a very reputable company, of course, we have a good relationship with there. We are aiming to get a bigger portion of their wallet. We have a billing relationship for a number of projects and for a number of territories. But it's clearly one of the customers where we want to increase our involvement. So and then – sorry, I missed a bit the question on Enterprise development. Can you please repeat that?

Wim Gille - ABN AMRO Bank N.V., Research Division - Head of Research & Equity Research Analyst

Yes, in the fourth quarter, you were flat year-over-year. So I was kind of -- since there's underlying, there's a continuous growth in the industry for Enterprise. So maybe if you can shed a bit of light on what happened, specifically in the fourth quarter. Is it maybe volume versus pricing? Did you lose a contract? Or what's the reason why it didn't grow in the fourth quarter despite kind of the positive momentum in the industry? And maybe also give us a bit of feeling on how Map APIs are developing versus how the uncompiled maps are developing? And lastly, on the Microsoft contract, if everything is running according to plan.

Taco J. F. Titulaer - TomTom N.V. - Member of Management Board & CFO

I'll take this, Wim, this is Taco. I'll take the first part. Most of our customers have a fixed value arrangement. So it does not fluctuate with underlying performance of those companies. If you compare year-over-year, the one thing that hurt Enterprise was the weakening of the dollar as
80% of our Enterprise customers pay us in dollars. So the severe weakening of the dollar had an impact. And without it, it would have grown year-over-year. Harold, so the question about API growth?

Harold C. A. Goddijn - TomTom N.V. - Co-Founder, Chairman of the Management Board & CEO

Yes, so again, a small proportion of our revenue, but growing. So encouraging signs, it is an area of growth and ongoing investment. When we further mature our API family of products and add the SDKs to it that we currently have under development we are ready, again, to start pushing on that side of the business in a bigger way. We see good growth. We see improvements in the technology coming through as well. And it’s an area where we will keep investing. And investing is happening in 2 ways. So we see, generally speaking, all of our customers taking more and more online services instead of embedded products. So the majority of our development efforts are now for online products. But when you’ve done that, they’re not, as is, suitable necessarily for developer usage. You need to do something, you need to make it more user-friendly, documentation and all the rest of that and make it suitable for developers to use it in an easier way. So the customer -- the productization, if you like, of core technology we’ll develop elsewhere where we increase the investment. But what you will see from TomTom is a more harmonized, focused and capable concentration of products and services around online delivery. That is the trend we’re witnessing. And that is possible because we have a lot more alignment now in terms of product between Enterprise customers and Automotive customers. That is facilitating that simplification if you like, of the product portfolio.

Wim Gille - ABN AMRO Bank N.V., Research Division - Head of Research & Equity Research Analyst

Very good. And the Microsoft contract?

Harold C. A. Goddijn - TomTom N.V. - Co-Founder, Chairman of the Management Board & CEO

Yes, so it’s going according to plan, it’s a long-term thing. We made an important step in the further development of that relationship in 2020. They’re now about ready to phase in our map content for the Bing platform. That’s all on schedule, all underway. We see significant uptake in API usage as well. So yes, I think it’s going to plan. And yes, -- I still think it’s a very exciting partnership with a lot more potential that we can develop further over the years to come.

Operator

(Operator Instructions) And the next question comes from the line of Miki Sugimoto from RWC Partners.

Miki Sugimoto - RWC Partners Limited - Investment Professional

So going back to Automotive, 2 questions. First is that I understand that we see penetration of EV, the take rate will increase, and that is the same for, that would be for TomTom as well. My first question is why that is that penetration is increasing, is it conceivable that take rate -- your take rates will decline in the meantime in the next 2 or 3 years because of, for example, like CarPlay and Android Auto so that consumer would rather opt to use those, rather than in SatNav. And then my second question is that as EV penetration increase and the take rate will increase to 100% along that, are there new competition coming in for you when -- when you go and speak to your customer. And specifically, I was wondering for the companies such as working on a HD Map like Mobileye, that belongs to [Intel] and also Cruise, I think this partly owned by GM, how do they fit into the picture? And also in addition to that, you spoke a little bit about, in your press release, that given the current uncertainty resulting from cyclical and structural market developments, you are not providing long-term view at this time. So I was wondering if you could put a little bit more color around the structured market development that you have defined.
Harold C. A. Goddijn - TomTom N.V. - Co-Founder, Chairman of the Management Board & CEO

Miki, let me take a look at my notes, just make sure that I get it right. Yes. So first question about take rate. As I said, generally speaking, take rates are going up, but it's going slowly. What's going to change that is electric, but electric is still only 2% of the total car production in the relevant markets that we are operating in. But we expect that number to grow, but before it has a meaningful impact, the overall volume of electrical vehicles needs to go up before you can actually see that in the overall attachment rate number.

The CarPlay Android Auto is that working against you? That's not what we see. It's important to understand that if you want to run CarPlay and Android Auto in the vehicle, you must have a powerful infotainment system, with a big screen and a big processor and you have the whole infrastructure, you also run your own applications there. And because we see a much tighter integration between vehicle functions and the infotainment system, we find it difficult to see that the map will no longer be part of that infotainment system. We see integration of ADAS and the cluster, all that information being distributed throughout the vehicle, making part of vehicle functions new safety requirements as well for speed assist and maximum speed warnings, all that is integrated in the vehicle and needs to be tested as such. So yes, Android and CarPlay will not go away, and they are popular with certain customers, end-users, but we don't see them displacing built in maps in the vehicle.

Then HD Map, a lot has been said, a lot has been done about HD map and about self-driving. We've seen initially great enthusiasm for HD and for self-driving technology. And we have seen announcements and introduction plans that have not been living up to expectations. Now -- that HD Map and self-driving is not off the agenda, and we are still working and in close relationship, close contact with the number of customers who want to license HD Maps from us. But I think it's fair to say, and I said it in earlier calls as well, that the progress is not as fast as we had hoped for. And I don't think that has changed. So for us, visibility on a breakthrough in adaptation of HD Maps is not something -- that has come any closer than it was in the last earnings call.

Yes, then what's going on with companies like Intel and more specifically Mobileye. So I think one of the effects, what we see, is that more and more sensor derived observations are becoming available as a result of more technology in the vehicle? So what the vehicle sees now is speed signs and other signs, and can distinguish lane markings and traffic signs, traffic lights, zebra crossings, and so on and so forth. And there is now emerging a marketplace for that data. Carmakers want to own it. Carmakers want to make money out of it, but there's also a marketplace that's evolving.

And that's quite an interesting and important development for us because it will help us to further automate the mapmaking process. So as a result of those data becoming available and affordable, it's becoming a more automated process to use that data and improve the quality of the map and do it in automated continuous way. So when I say, we work very hard to make our maps fresher, more reliable, have more data in them, one of the things that makes that possible is broader availability of all those observations. And new technologies will help us to compare what the camera sees to what we have in the database and make adjustments. That doesn't mean that you can make mapmaking fully automated, not at all. There's a whole load of data that you cannot create and generate through these kinds of processes and require different methods, different ways of collecting, processing, harmonizing data. Does that answer your question?

Miki Sugimoto - RWC Partners Limited - Investment Professional

Yes. That's very helpful. Could I just confirm that, for example, the conversation you have with the OEMs for, let's say, for the new EV model to be launched in 3 or 4 years' time. For those, you don't see any new competition competing for the orders. It's the same that you're already competing with?

Harold C. A. Goddijn - TomTom N.V. - Co-Founder, Chairman of the Management Board & CEO

Yes. We have not seen any changes in that respect to the competitive landscape.

Operator

And the next question comes from the line of Francois Bouvignes.
Francois-Xavier Bouvignies - UBS Investment Bank, Research Division - Technology Analyst

Just a quick follow-up, sorry, guys. On your comments about that the CarPlay and Android that you don't think it will replace it. There are a couple of news. Renault was a few years ago, I don't think they will integrate android into their car. So I just wanted to clarify, does it mean that even if Android is by default operating system, does it mean that you will still be in the car? I mean, just wanted to understand this comment. If an OEM announced that you will use Android operating system, where TomTom can be in the car if it's not replacing it. Just wanted to clarify that. And the second one is on HD. I mean, it has been delayed, like you said, because of COVID. But obviously, you invested a lot in R&D into that last few years. And if I look at your Capital Markets Day back in 2019, it was something that was part of the strategy longer term. So when do you think it is going to come back into this or -- because it seems that for autonomous driving, level 4 plus, industries, experts, were saying that HD map is a requirement. Is there any change for this kind of statement?

Harold C. A. Goddijn - TomTom N.V. - Co-Founder, Chairman of the Management Board & CEO

Yes. No problem whatsoever, Francois. Thank you. So the landscape for -- so let me say what Miki was referring to is CarPlay and Android Auto. And those are applications that are running on a smartphone. And the idea is that you replicate the screens onto the head unit of a car. So she was really referring to this kind of brought in functionality. But that is the CarPlay, Android Auto debate. Then there is another development, and that is the operating system in the car.

And the operating system that says nothing about the application layer. But the operating system is also converging to the Android open source part. And that makes -- and there are various reasons for that. But one of the things that does -- so you have a number of operating systems, you have QNX, you have Linux and you have Android as the main contenders I think in the car operating system world, and it looks like AOSP, as we call it, that the open source bid is gaining momentum. And there are good reasons for that.

Because it's well supported by silicon, it's well supported with hardware abstraction layers and there are powerful development tools for application development and test and what have you. So it's a well-understood operating system that is license free and we see more and more carmakers converting to that operating system. And that makes life a little easier for everybody in the industry because you have a standardized operating system, you can standardize your own applications, you can build on the latest tools, you can use the hardware abstraction layers, which makes it all a lot easier, less complex to build those applications. So that's the other trend that we're seeing in the auto industry.

Then HD, when is it coming back? Well, what I do know is it is coming back. The problem is not HD Maps. We know how to do it. We know how they're used. We know how to produce them at scale. Our operation pipeline has much matured in the last years. But the real question is when is Level 4 going to happen? And that is still not answered. I mean it's a harder problem than people have expected, and we don't see a real breakthrough.

We see some bravado, some statements still in the marketplace with very little evidence yet. So that is still not some problem that the industry has solved. But what we have figured out, of course, with the new technologies that help us to produce HD, we can also make map production more efficient and better automated. So that whole visual recognition of data classification, processing and integration of data has moved on significantly from where we were only a couple of years ago.

Operator

And the last question comes from the line of Wim Gille.
Wim Gille - ABN AMRO Bank N.V., Research Division - Head of Research & Equity Research Analyst

Yes. I was triggered by, let's say, the last discussion, where you basically said the fact that Android as an operating system is gaining ground is helping the industry because of standardization. But let's say, from where I'm sitting, like a few years ago, we had a duopoly here with QNX from Blackberry and Linux. And now we have 3 operating systems. So isn't this just, kind of, just adding complexity.

And the other question that I had was I think this information is a bit still here, but in the past QNX was the only one that had specific licenses that are required or certificates that were required to have kind of the security of the car actually embedded, i.e., if you want to have kind of emergency brakes and those kind of things embedded in your infotainment system, then you need to have certain certificates and QNX was the only one that actually had those. So where are we in the industry with respect to standardization? And aren't we just adding a lot more complexity?

Harold C. A. Goddijn - TomTom N.V. - Co-Founder, Chairman of the Management Board & CEO

No, we're not adding complexity. And we're making it simpler. So if you want to run products that run on a broad range of platforms, you need to develop in C++, and that's all great, but not very productive. So by concentrating your leading products on an AOSP platform, we can use much more efficient tools, libraries, test frameworks and so on and so forth. And I think the industry is recognizing that. So we still see some legacy stuff.

But I think it's a safe bet to say that the market will converge to AOSP. We definitely have made that bet. And arguably, you always need to be a little bit lucky with that. You never know what the future will look like. But every now and then, you need to make -- as a company you need to place those bets, which platforms are going to win. And we are now saying C++ is no longer the main way forward to deliver great end-user experiences, and we can use modern tools because we see simplification in the landscape of operating systems. What you say about some safety critical applications. Yes, there is something like that. In line with regulation you can't do everything in AOSP because you lack a certain level of security. But -- the industry has figured out a way around that by running a more secure operating system somewhere in the corner of the SOC and running the safety critical applications that are needed.

And then you can still combine them in a unified user interface, but you have different levels of certification and whatnot. It's all a bit technical. I don't want to dwell too much on it. I think the takeaway is that the overall trend for infotainment is AOSP as operating system, standardization, hardware abstraction layers, which makes it for companies as us much easier, and we can go much faster.

Wim Gille - ABN AMRO Bank N.V., Research Division - Head of Research & Equity Research Analyst

And then I would say, obviously, from a sentiment perspective, there were a lot of investors and people in the financial community who generally lack the kind of experience and the, let's say, insights to really distinguish between those technical details. And what they will fear obviously with Android taking over the operating systems there is that they will embed Google maps as well, blah, blah.

And as a consequence replace embedded maps. So what's your kind of response to that fear, which is obviously here in the market. I mean, I just had the feedback from a client once more that in the end, Google will take over. And it's a very difficult, let's say, sentiment to battle, especially for the sell side. So what -- can you explain us one more time, why the kind of emergence of Android as an operating system is not a threat to your company?

Harold C. A. Goddijn - TomTom N.V. - Co-Founder, Chairman of the Management Board & CEO

Well, because they're independent decisions. It's an independent decision. The decision is, do I want to run the Google application set or do I want to have something where I will have better control. If you've make that decision then your second decision, or your secondary order is on what operating system am I going to run that. And they are independent. And the obvious choice these days for an operating system in a car for an infotainment system is now clearly heading for AOSP because it has got widespread support in the industry from Tier 1s, from silicon hardware vendors who are connecting to an infotainment system that can have one interface.
So there’s a clear rationale why that is happening. And what it does, it makes the choice for not going with the Google set of applications a much easier one because there’s much wider support for the SoC and for the whole architecture for whole system. So the cost of not doing Android at the application layer is significantly coming down. And the quality of what you can deliver is significantly going up.

Megan Daniell

Since there are no further questions, I would like to thank you all for joining us this afternoon. Operator, you can close the call.

Operator

Thank you. That does conclude our conference for today. Thank you for participating. You may all disconnect.