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PRESENTATION

Operator

Good afternoon, ladies and gentlemen. Welcome to the Ford Motor Company's briefing for the investment community on Ford's Smart Mobility conference call. My name is Ronnie and I will be your conference operator today. (Operator Instructions) Thank you.

I would now like to turn the conference over to Ted Cannis, Executive Director of Ford Investor Relations. Please go ahead, Mr. Cannis.

Ted Cannis - Ford Motor Company - Executive Director IR

Thanks very much, Ronnie. Good afternoon, everybody. Welcome to our investor briefing on Ford Smart Mobility, including autonomous vehicles. This will be a 30-minute call and any additional questions we'll answer at Investor Day.

Today's press release is available on Ford's Investor and Media websites. As normal, the results discussed may include some non-GAAP information and today's presentation includes some forward-looking statements about our expectations for future events. Obviously, actual results could be different; the most significant factors that could affect actual results are summarized and detailed in our SEC filings.

Presenting today from Palo Alto are Raj Nair, Ford Executive Vice President of Global Product Development and Chief Technical Officer; and Ken Washington, Ford Vice President of Research and Advanced Engineering. Raj, over to you.

Raj Nair - Ford Motor Company - EVP Product Development, CTO

Thanks, Ted, and thanks, everyone, for joining the call. Obviously we had some big news today, some great news, and really highlights our approach and strategy on autonomous vehicles, which we think could have as big an impact on the automotive industry as the moving assembly line did 100 years ago.

To summarize what we announced today, we announced our intention to deliver a high-volume, fully autonomous vehicle, a level 4 SAE vehicle -- that would be without any steering wheel, without any pedals for accelerator pedal, brake pedal -- introducing that into commercial service in a ride-hailing or ridesharing opportunity in 2021. We also announced investments in collaborating with four startups that are going to help us on autonomous vehicle development, they being Velodyne, SAIPS, Nirenberg Neuroscience, and Civil Maps.



And we'll be doubling our Silicon Valley team here. We have 130 employees; we'll be doubling that over the next year as well as expanding our campus, where we've identified and taken possession of two buildings that are right across from the building that we have here.

So a lot of great news. We're really excited about it. But with that, we know we want to save time for questions, so at this time Ken and I are ready to take any questions from the analyst community.

QUESTIONS AND ANSWERS

Operator

(Operator Instructions) Rod Lache.

Rod Lache - Deutsche Bank - Analyst

Thanks for hosting this call. I had a couple questions. First, obviously having -- making a statement about high-volume autonomous fleets in five years seems pretty ambitious given where we are right now. Could you just talk a little bit about what some of the developments are that you need to get there?

Are there going to be third-party ridesharing companies that you're working with? And also, importantly, what's the regulatory landscape that you anticipate that will allow for this?

Raj Nair - Ford Motor Company - EVP Product Development, CTO

Yes, sure, Rod. Thanks for the questions. Yes, certainly on the technology front, as you know we've been working on this for 10 years.

We were part of the original 2005 DARPA Challenge. We were the only automaker that actually had a factory team there -- not a sponsorship, but our own employees, and we've been leveraging on that. So the development of the technologies both internally and some of the partnerships we announced, we believe we're on a technology path to support the 2021 time frame.

We believe that ride-hailing and rideshare is a good business model for this type of technology. In the cost structure of ride-hailing, the driver is the biggest cost factor; so being able to reduce that cost structure and offer those services at a much more affordable and accessible opportunity for the masses we think is a good business opportunity.

We're still working through what aspects of that that we'll do internally and what aspects we'll be working with partners. We've been very open to many partnership discussions, so that's work to be done.

But this business model is also, obviously, very dependent on the existence of the autonomous vehicle itself. That's what enables the business equation.

So we think the fact that we're in a very good position on the software and the sensors, but also our ability to do the vehicle integration -- there's still a lot of changes that are required to the vehicle itself, like redundant control systems -- and our ability to bring that into, obviously, a system that's very efficient at mass production puts us in a unique position to take advantage of the opportunity.



Rod Lache - *Deutsche Bank - Analyst*

And anything on the regulatory landscape? Maybe you can also just comment; you mentioned that you're still assessing what you plan to do in-house and how you're going to be leveraging suppliers. Obviously, some of these acquisitions have some great capability, but they seem to be early-stage as far as automotive is concerned.

Any additional thoughts on what ultimately you want Ford to be taking on in-house?

Raj Nair - *Ford Motor Company - EVP Product Development, CTO*

Yes, sure. First on the regulatory front, clearly the regulatory agencies are going to be our partners in this. We're working through the Coalition, providing our input as an industry and even outside of the automotive industry, where Google is one of the members of the Coalition. So ensuring that we've got a regulatory framework that's supportive and including hopefully one that's at a national level, that we avoid a patchwork of regulations by state.

Our initial discussions with the agencies have been really positive. They recognize the societal benefit in terms of safety and in terms of congestion, in terms of missions that the technology could bring to bear.

So we'll continue to work with them, but you're absolutely right that they need to be partners in this. But we're pleased with the nature of the discussions so far.

Relative to the type of partnerships are -- as we said in -- I don't know if you were able to see the speech. There's this misconception that the automotive industry is just the hardware guys, and we're just going to be plugging somebody's software into our vehicles. That's just simply not how it works.

So on top of having many of these capabilities internally already, the aspect of this system integration is critical in developing and delivering the full autonomous vehicle. Now our current Tier 1 suppliers and maybe even new suppliers are going to be key partners in that; but relative to the announcements that we have today, the partners that we talked about today really bring unique capabilities.

Velodyne is clearly the global leader in LiDAR, and we've been working with them for more than 10 years. We've been pretty exclusive using Velodyne lasers on our development vehicles. We obviously talk to everybody, but Velodyne has been a great partner for us.

The acquisition that we have now of SAIPS, a small company but really brings some great machine learning and vision tools to bear. And the algorithms that they've been able to come up with in a very short period of time of working with them we found really encouraging and also a great culture to work with. So we thought they were a great fit for our team.

Nirenberg networks again in the areas of machine learning and work that you would think is pretty separate from what we do. But the retinal encoder technology that Dr. Sheila Nirenberg and her team have developed is absolutely applicable to taking our sensor data and filtering through that and providing a much more clean and prioritized signal into our processors.

Then finally, Civil Maps. Our approach is a hybrid of a mediated approach and a direct perception approach, so we do require high-resolution 3D maps. And they've come up with a very novel way of using artificial intelligence to develop those maps as well as providing a very efficient data transfer method, that we can transmit that data over existing cellular networks to our fleet of autonomous vehicles.

So all of these partners really fit in very well with our strategies.

Rod Lache - *Deutsche Bank - Analyst*

Interesting. Great, thank you.

Operator

Brian Johnson.

Brian Johnson - Barclays Capital - Analyst

Yes, good afternoon; hope you're enjoying the sunshine out there. I guess a couple questions, fortunately more or less in a similar track. As you think about the eventual business model for Level 4 autonomous cars, is it going to be operating it on a per-mile basis for someone else's ridesharing service? Operating a Ford transportation-as-a-service? Selling hardware and software -- thank you -- to ridesharing companies or fleet companies in the ridesharing business? How do you see this being eventually monetized?

Raj Nair - Ford Motor Company - EVP Product Development, CTO

Well, what we announced today is our intention to produce this actual vehicle, the autonomous vehicle, Level 4 vehicle available for a ride-hailing service. We're still evaluating all options on that front, deciding what we want to do internally or externally.

We're certainly open to discussions on partnerships of that nature, and we've been having some of those discussions. So I think that's work yet to do.

But I do think it's important to note that, again, the business model and changing the cost structure of the business model for ride-hailing or ridesharing or dynamic shuttle, the fundamental basis for it is the existence of the autonomous vehicle and automating and reducing the driver out of that cost equation. So we think we bring a lot of value to that.

So certainly the opportunity of generating revenue in the traditional way of designing and manufacturing the vehicle itself; but also participating in the mobility services that are enabled by this technology and engaging in transportation-as-a-service to expand our business model and expand our revenue model into those areas of Ford Smart Mobility that we've been talking about for quite some time.

Brian Johnson - Barclays Capital - Analyst

And second question, just touched upon it. Maybe I missed a part of the speech. You're a leader in the light commercial vehicle category globally, certainly in Europe and then with the Transit van in the US. Most people tend to think about Level 4 autonomous vehicles as driving people around Google robot-car style.

But can you talk maybe a little bit more about what you see in the LCV world vis-a-vis autonomous vehicles and how Ford could participate?

Raj Nair - Ford Motor Company - EVP Product Development, CTO

Yes, that's a great question and that's certainly one of the possibilities. We're lucky enough to have a global presence with our Transit commercial van and in a great position with that. And certainly one of the opportunities could be whether it's hauling people in a dynamic shuttle-type model, in a route that's very efficient, far more efficient than mass transit but it would still be a shared vehicle with other customers; or the opportunity for parcel delivery, small parcel delivery, which again would benefit from eliminating the driver and its cost structure. A vehicle like the Transit could be an ideal platform to introduce that technology on.

So there's multiple options here which is why we've left open those aspects of ride-hailing or ridesharing or parcel delivery and how we deploy the technology moving forward to 2021.

Brian Johnson - Barclays Capital - Analyst

A final question. Just technically, SAIPS apparently has deep learning for vision processing. You're obviously sourcing camera systems from Mobileye, which has vision processing technology. You know there are others out there in the supply base [etc]. There is also the whole question of sensor fusion.

At what level or levels do you see Ford writing its software? What does SAIPS get you? Where would you work with Tier 1s who are also making investments in algorithms in sensor fusion?

Raj Nair - Ford Motor Company - EVP Product Development, CTO

Right now our approach is we're taking the raw data from the sensors, and we take that and process that into our own algorithms. Certainly we'll be leveraging SAIPS's expertise in developing our algorithms.

We don't use Mobileye cameras right now on our development fleet, but obviously they are very good partner for us in our driver-assist technologies, where we do use them in production. So we'll continue those type of discussions.

But certainly our intent right now is that we are the system integrator, and many of the aspects of the software algorithms and determining the path and those aspects required for the virtual driver system we'll be doing internally, but always open to discussions with our Tier 1 and supplier partners. Ken, I don't know if you have anything to add to that.

Ken Washington - Ford Motor Company - VP Research and Advanced Engineering

Yes, I'd like to add one, I think an important element to that, which is: The reason we do the raw sensor fusion algorithms ourselves is -- bring the data directly from the sensors into those algorithms is that there is a fairly tight feedback loop that happens in between the raw data feed and the learnings that we get from evaluating the performance of our algorithms in the field as we test our vehicles, so that we can feed that back and do changes either to the tuning of the hardware or to the placement of the hardware sensors.

And by treating the raw data streams directly, it gives us the ability to make those adjustments without going through another cycle of negotiating with a supplier to make a change that would take a longer time and be more indirect.

Brian Johnson - Barclays Capital - Analyst

Okay, thank you.

Operator

Chris McNally.

Chris McNally - Evercore ISI - Analyst

Thanks, guys. Chris McNally from Evercore for the team. I think you guys described your approach as a mediated perception and direct perception. Can you discuss how this approach is maybe different from some of the other robo-taxi trials, such as Google and Baidu, which has been referred to as the heavy mapping and light sensing approach?



Raj Nair - Ford Motor Company - EVP Product Development, CTO

Yes. I think it's the hybrid that's a little bit unique, that some competitors are very heavy mediated perception, which is taking that sensor data at a -- I wouldn't call that a light sensing, because it's still pretty intensive. But the key is comparing it to very detailed 3D maps and annotated maps, maps that are annotated what the objects are in the environment. And then the vehicle then using that data to precisely locate itself, as well as using that data to understand what its sensors are picking up.

In the direct perception, it can be more sensor-intensive, but it's certainly more processing-intensive and requires very sophisticated software to look at that sensor data and directly perceive what's in its environment. We use a hybrid approach of still using the 3D maps for robustness and reliability; but also for areas that could be changing, or areas that are not annotated in the maps, using a direct perception approach for some of those like certainly pedestrian detection, but even aspects of should a stoplight be -- a temporary stoplight go up that's not in our 3D map that we can directly perceive that and interpret that correctly.

There's numerous scenarios and numerous cases where our hybrid approach we believe is the most robust way and efficient way to deliver Level 4 autonomy.

Chris McNally - Evercore ISI - Analyst

Great. Then just a quick follow-up. It sounds like since some of the more software-intensive aspects you're going to be working on internally are around I guess what people are calling driving policy, some of the other Tier 1s have also been discussing a move to more open industry standards, particularly around some of the issues that may come about from regulations as we hit Level 4 and Level 5. Can you just discuss how your approach would work if we did over the medium to long term move to regulator-driven or industry-driven standards?

Raj Nair - Ford Motor Company - EVP Product Development, CTO

Well, again, when we're working closely with the regulatory agencies, they certainly recognize the benefit of the technology and the type of discussion we're having is a more performance-based discussion. So I don't think you'll see regulators dictating aspects of what your software code should be; but certainly they'll have expectations of performance and scenario-based performance and that's what we're -- the type of discussion we're having with them.

So I think it does lend itself to, as you're currently seeing, people are having a different approach on how to address the problem. But the regulators, I think, will be looking for the performance of the system, not getting into the type of -- dictating type of hardware or type of software code to use.

Chris McNally - Evercore ISI - Analyst

Okay. Thanks so much.

Operator

Itay Michaeli.

Justin Barell - Citigroup - Analyst

Hey, Raj; hey, Ken. This is Justin on for Itay. You guys mentioned earlier Mobileye and the difference between them, not using for the development fleet versus current production and driver assist. I guess with regards to this 2021 driver, this program, how should we think about that relationship going forward with regards to a potential change? I guess just purely specific to the 2021 program.

And then what about from like the Tier 1 perspective? Can you give us a sense of there are any newcomers that we should be thinking about with regard to the program?

Raj Nair - Ford Motor Company - EVP Product Development, CTO

No, I wouldn't mention any specific newcomers to the program. We've been talking to a lot of people and we've got a lot of great relationships with our current Tier 1s.

Obviously, this is a very hot space. I think the key for any of the partners that we would be working with is probably what Ken mentioned, that our system is very much about system integration, so some of those areas where we need the raw data so we can do those feedback loops, regardless of which particular sensor we're getting the information from. So some of the preprocessing can actually create some problems when we're trying to do that system integration.

Now having said that, that doesn't preclude a partnership with Mobileye or someone else in the future. And a lot of our Tier 1s, we're having exactly that type of discussion.

Justin Barell - Citigroup - Analyst

Great. Then I guess one question with regards to -- well, I guess it's a two-part question -- with regard to the steering and pedals not being present on this 2021 launch, so effectively a true driverless vehicle. You spoke a bit about the regulatory environment before, but given the current regulations that are out there, do you expect the laws to change with regards to wheels and pedals?

And then the second part of that question would be for this program in particular. Is it really -- should we be thinking about this as like a geofence program that's running like a predetermined route, similar to maybe that of a shuttle? Or is this going to be like an open program where the vehicle is able to traverse like non-predetermined paths but still within like a geofenced area?

Raj Nair - Ford Motor Company - EVP Product Development, CTO

Yes, on the first question, clearly all the regulations on the books today assume there is a driver in the driver's seat. So whether it's the requirement for wheels and pedals or requirement for rearview mirrors and requirement for visibility, all of those will require a change. So that's certainly what we're working with the agencies on -- and would require that change prior to us going into production with this vehicle. But it's also consistent with the discussions that we've had with the agencies.

When we talk about Level 4 capability, we do mean in this geofenced area where we have high-definition 3D maps. But it's not preprogrammed routes. It's free routes within that area, obviously on public streets. We wouldn't be doing any off-road driving or anything like that, but certainly the customers being able to select their destination, and the vehicle taking the most efficient path and safe path to get from point A to point B.

There are aspects of a dynamic shuttle. Could be an opportunity where it may not be a vehicle dedicated for your use; you may share that with other customers. But the vehicle will still have an algorithm to determine ride by ride what the most efficient route would be within the geofenced area.

Justin Barell - Citigroup - Analyst

Great. Then just one super-quick follow-up, I guess, just trying to dive into -- what do you really -- how should we be thinking about the general definition of a high-volume platform or program? Can you put some numbers to that, if possible?



Raj Nair - Ford Motor Company - EVP Product Development, CTO

Well, it's early to put numbers against it. But in the context of a SAAR of close to 18 million we're not talking about a 3 million program. But we're also talking about volumes considerably higher than the Ford GT, for example.

So we're talking about mass production of the vehicle and offering this service in cities to the broader public. So it's a considerable number of vehicles that will be required to deliver that type of business opportunity.

Justin Barell - Citigroup - Analyst

Perfect. Thank you guys so much.

Operator

John Murphy.

John Murphy - BofA Merrill Lynch - Analyst

Good afternoon, guys. Just to follow-up on that line of questioning on scope, have you got these partners lined up? And were you thinking of [unit size] it would be towns, or major cities, or college campuses? Just trying to understand really the scope of what this 2021 target really means.

Raj Nair - Ford Motor Company - EVP Product Development, CTO

Yes, so we've obviously been talking to a lot of partners, both in city as partners and other mobility services. We don't have any news to make on that today.

Relative to where this operates, both in terms of having 3D maps available as well as an environment that's conducive to ride services, cities are the obvious location. So those urban environments, those large metropolitan areas, areas where a fleet is accessible to these customers within that -- what's typically a 10-minute wait period time frame makes cities the ideal place to operate.

The discussions we've initially had with the cities, they also see this as a tremendous opportunity not just for the safety but to reduce congestion, to reduce the number of parked vehicles that are going to be in their city centers. Because of the high utilization of these vehicles still the same number of people coming in and out, but a much more efficient way to do that, whether it's the individual ride-hailing or the dynamic shuttle.

So we've got a lot of cities that are receptive to introduction of this type of service.

John Murphy - BofA Merrill Lynch - Analyst

And, Raj, just based on that description, I would interpret that as large, dense metropolitan cities. Is that a fair interpretation? We're not talking about Mountain View, California, or a corporate campus or college campus?

This sounds like the real deal in a major city. Is that the correct interpretation?



Raj Nair - Ford Motor Company - EVP Product Development, CTO

I think the business opportunity is in those major cities, but the technology is certainly capable of servicing something like Mountain View or Palo Alto or Ann Arbor. But obviously for the right -- achieving scale and making it a good business opportunity initially, the initial rollout in major metropolitan areas.

I wouldn't say it necessarily has to be dense, because I think our studies have shown that it's a surprising coverage of a metropolitan area that can be within 10 minutes of a ride service. But certainly cities would be the correct definition of initial rollout.

John Murphy - BofA Merrill Lynch - Analyst

Okay. Then just a second question. As we think about your doubling the presence out in Silicon Valley, what is the pitch you're going out to recruit talent with? Obviously, there's a lot of competition for tech talent out there and it's pretty high-priced. I'm just curious how you're going out and competing.

Raj Nair - Ford Motor Company - EVP Product Development, CTO

Yes. There certainly is a talent war, not just here in Palo Alto, but pretty much everywhere we operate, for not just this type of talent, which is a very high fever pitch, but even automotive engineering in general. I think what we find is we've actually been very pleasantly surprised that we've been really successful in recruiting very high-caliber talent in the 130 people we have here in Palo Alto, and been on track to our plan for hiring, and intend to remain on track.

One of the things that we offer is the ability to work on a project that's really going to change the world. Many of these people have focused on this as their goal in life to make their mark on the universe. And we have an ability to provide them, clearly, a major technical challenge, but the opportunity to actually see that come to fruition into a product that's going to change people's lives.

We think we provide a unique opportunity in that type of both challenge but also job satisfaction in seeing something that you work on really touch people in the way an autonomous vehicle can in providing personal mobility to many people that didn't have it available to them before.

Ken Washington - Ford Motor Company - VP Research and Advanced Engineering

I would add --

John Murphy - BofA Merrill Lynch - Analyst

Then just lastly, some people have speculated that an EV would be a much better platform for an autonomous vehicle. Is that a necessary step? Or is the internal combustion engine perfectly capable of this full autonomy you're talking about?

Raj Nair - Ford Motor Company - EVP Product Development, CTO

No, actually, that's a great question. We're fortunate enough to have a full range of powertrains, both internal combustion and electrified, being the number one plug-in hybrid producer in the US and the number-two total electrified producer in the US. So whether it's battery-electric or plug-in hybrid or regular hybrid.

The engineering aspect of it is the sensors and the processors are actually a pretty big power draw. So as far as an architecture, what lends itself well is actually a hybrid, because we've got the battery, we've got a lot of capability of generating power.



And also for the type of use that you would see in a ride service, it will be important to have good range and it will be important that your recharge or refuel time is short, so you can keep the utilization of the vehicle up.

Now having said that, it will obviously depend on our customers and some of the cities that we operate in that a battery-electric vehicle is viable. But it will suffer in its range and it will obviously suffer in utilization time as it comes out of the fleet for recharge, which is some of the advantages of the hybrid.

But as far as feasibility, any of those powertrain offerings is capable.

John Murphy - BofA Merrill Lynch - Analyst

Great. Thank you very much.

Ted Cannis - Ford Motor Company - Executive Director IR

All right. Thanks, everybody. At this point, given that we're right at the end, any additional questions that you have, we'll have the team at Investor Day and we can answer more at that time.

Thanks very much for everybody on the line. Thanks very much, Raj and Ken.

Operator

This does conclude today's conference call. You may now disconnect.

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