## *[Mobileye Global Inc. Presents at Morgan Stanley's 11th Annual Laguna Conference, Sep132023 10:30 AM - Final](#)*

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## Body

Corporate Participants

* Daniel V. Galves

Mobileye Global Inc. - Chief Communications Officer

Conference Call Participants

* Adam Michael Jonas

Morgan Stanley, Research Division - MD

Presentation

ADAM MICHAEL JONAS, MD, MORGAN STANLEY, RESEARCH DIVISION: Dan, thank you so much for joining. Really looking forward to getting into a discussion about Mobileye and its business and the opportunities. Dan Galves, Chief Communication Officer, Dan doing it for a long time. So fun seeing your career and its many forms, and you come back home into Mobileye. It's good to have you.

DANIEL V. GALVES, CHIEF COMMUNICATIONS OFFICER, MOBILEYE GLOBAL INC.: It's good to be back in Laguna too. Like this is a great event. It's always good to see you and -- it's going to be an interesting talk.

Questions and Answers

ADAM MICHAEL JONAS: We'll stop trying in a second folks. I promise we'll get into this.

But I do want to say I think your role, not just in community understand Mobileye that's obviously well known. But I think you've really taken on an even broader kind of an educator in a kind of common language because it really is a different kind of language, the kind of business you're in -- so you help make these concepts understandable. You clearly have added, I think, in my opinion, a lot of value to Mobileye through all the phases of the next iteration of a public company and even beyond Mobileye and other aspects of electrification and autonomy just thanks. Thanks for all that you do. I'm a fan.

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DANIEL V. GALVES: Thanks, you too, Adam. No, it's -- I mean, I get a lot of help from the team in Israel, like they have a very kind of pragmatic approach to really everything that they do and that kind of -- it bleeds into the ability to explain it simply.

ADAM MICHAEL JONAS: Okay. Now we are going to ask some tough questions, okay? -- But any key messages you wanted to kind of get out there at the top.

DANIEL V. GALVES: Yes. I mean I think that we feel great about the current business, but what we're really feeling great about is kind of the advanced systems business, SuperVision, so far. I think our confidence has never been higher that a substantial number of design wins are going to come through pretty quickly. I think that, that confidence has ramped up pretty significantly over the last 6 to 8 weeks even.

And I think that there's a couple of reasons for it. One is proof points. And I think one of the things that's benefited us over the last couple of years is kind of the increased ability to provide proof points to our customers. You go back 2, 3 years and to experience the SuperVision system, you really had to come to Israel. And it's like you come to Israel and you are jet lagged, it's like it's their hometown, what do they do to the roads? It's nice experience, but let's see kind of what happens. Then the REM maps started getting built. And so that gave us the ability to take cars to North America and Europe and really drive anywhere. And so last year, we did several 2,000, 3,000-kilometer drives with customers where they basically said, we're not going to tell you where to meet us, but once you meet us, we'll tell you where to drive. And so that's kind of an increased proof point. Then you have the Zeekr production programs, right?

So we launched a set of hardware into a production vehicle in China. That was another proof point. The Porsche win, I think was helpful. But the ultimate proof point really happened 2 months ago when we rolled out the true kind of navigate-on-pilot SuperVision software to first 1,100 beta users, Zeekr owners. So they experienced the technology for 6 weeks -- 6 to 8 weeks, Zeekr monitored, got the car into hands of influencers and media people and kind of the reviews were really super positive. The expectation in China, which is the market where this technology is moving the fastest and the technology iteration is the fastest. The expectation was like, okay, Mobileye has -- they're using 50 TOPS of processing power in their vehicle and XPeng is using 1,000 TOPS. XPeng is using LiDAR and Mobileye is not using LiDAR, Zeekr is not using LiDAR, like how could they possibly compete?

So maybe you get maybe a comparable system, but certainly not a leap ahead and kind of what we found and what the kind of the third parties have found is this really is a leap ahead. The ability to kind of handle much more difficult situations, the ability to be more *assertive* on the road, things like if you're wanting to get off an exit and there's a line of cars, do you get in back of the line? Or do you do the Jersey move and go up to -- and push yourself in front and that's what the Zeekr vehicle is doing.

And then Zeekr had enough confidence to roll it out from 1,100 people to 110,000 people about 2 weeks ago. And so this is really the ultimate proof point. Because it's one thing to do a demo. It's one thing to put production hardware in place, but to actually have the confidence to launch the software kind of full capability and have these types of positive reviews even though you're clearly kind of at a cost advantage versus your competition is huge.

And we think it really led to kind of an acceleration of kind of the seriousness of the conversations we're having. I think the other thing that's happening really is that China is just -- they're really moving fast. Kind of the market share gains within China have been pretty significant, especially this year, the rhetoric of bringing, exporting vehicles to Europe, I mean even in Israel, like Chinese vehicles are maybe 30% of the market now after being in market for 2 or 3 years

ADAM MICHAEL JONAS: Of the EV market or...

DANIEL V. GALVES: Of the overall market. And so I think that the question of like, clearly, we're a little bit behind on EV cost and input costs. Are we willing to be behind on AV as well has really played into kind of the sense of

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urgency of our customers. And it's led to -- we talked about 9 automakers kind of in significant discussions, we expect most, if not all, of those to convert in the next 6 months.

But now we're seeing the next wave. And these are some companies that have been kind of doing their own thing and now are, again, not anywhere close to as advanced as kind of that first group, but we're starting to see the next wave kind of come in, and that's important, obviously. So we're feeling great about kind of the performance of our system and this proof point and kind of the response from the customer base.

ADAM MICHAEL JONAS: Dan, I've had more than a few investors e-mail me in the last couple of weeks, they went to China, they experienced the system in the Zeekr vehicles. And they think it's better than ***Tesla***. They think it's better than ***full self-driving***. Are they right? Why are they right? Is that an unfair comparison? Is it -- are we comparing apples and oranges? Because I hear from a lot of investors, hey, Adam, I see you're bullish on ***Tesla***, but like Mobileye system is better, might drop over...

DANIEL V. GALVES: Yes. I mean we're -- I think we've been very impressed with kind of the progress that ***Tesla*** has made and their ability to put this type of technology on the roads, particularly in the U.S. because I think that it's not quite as advanced in the other regions. So -- and I have to say we don't have a SuperVision system in production in the U.S. yet. So maybe it is a little bit apples and oranges. I think that we know what we think, but I think most of our customers have also done these types of benchmark tests, whether it's versus ***Tesla*** or whether it's versus Li Auto, XPeng, NIO and kind of the most common comment we get is the intervention rate of the SuperVision system is much lower.

ADAM MICHAEL JONAS: I mean you can measure that?

DANIEL V. GALVES: You can measure that.

ADAM MICHAEL JONAS: You can test that?

DANIEL V. GALVES: Exactly.

ADAM MICHAEL JONAS: Do you test that?

DANIEL V. GALVES: Yes. I mean -- yes, I think things like kind of coming to a bank of traffic lights. And if one is red and the rest are green, kind of a harsh braking event. To us, that comes from kind of the lack of the high-definition map, which gives you kind of the relevance of traffic lights to lane, which traffic light is relevant to my action, which traffic light is relevant to my lane. So I mean, I think it's too early to really compare and contrast exactly, but this is what we hear from our customers.

ADAM MICHAEL JONAS: I had the CEO of a major EV start-up, give me this view about ADAS. He said -- and I started the conversation by saying, what do you think about what ***Tesla*** is doing? And he says, look, what ***Tesla*** has an advantage of is they do it all themselves, the hardware and the software they do pretty much all the key stuff all in-house. They have a monumental data set and their sensors are pretty much configured in a very, very consistent way. So that combination of huge amounts of data every line of code and all the hardware done in-house and then the sensors that are hearing and kind of fixing and there's no arguments about, hey, what data is yours and mine. That's a big advantage. He said, he continued saying, so he either want to do it -- if you're going to do advanced ADAS and then the Level 4, you want to do it all in-house or let someone else do all of it? Like someone like SuperVision, just take over. A, is that oversimplifying, where would you kind of -- what would you adjust from that view of the world of all or outsourced?

DANIEL V. GALVES: Yes. I mean I actually think that there's a middle ground. So what we're providing to our customers and prospective customers with SuperVision is a platform that includes some core technology assets. It includes a camera-based perception system, highly accurate. You don't have to do anything to it. The car will build a model of the environment based on kind of the data that's coming in through the cameras. We're providing a high-definition map that provides a lot of preloaded information about the world.

So when the car goes out and drives in some environment, it's like it's driven there 20, 30 times before. A decision-making system that makes decisions through AI, but then really checks them against safety measurements through a system we call Responsibility Sensitive Safety. And then the compute platform, which is super efficient because we design it in-house. And then what we've found and what we believe is that, the OEM has a lot to do beyond that, right? They -- an OEM should tune the system to create a driving experience that their customers want, right? And they should monitor feedback from the customers and they have the ability to tweak how the car feels like. Do I want a car that's like weaving in and out of traffic and want a car that's doing the Jersey mode, right? The Jersey mode, do we want a car that is kind of like harshly braking in front of...

ADAM MICHAEL JONAS: If anyone here is from New Jersey, like, come on, just show out. Sorry, keep going.

DANIEL V. GALVES: The driver monitoring, right? How am I going to monitor the driver to make sure that they're staying focused, like what kind of warnings, how am I going to visualize the system, how am I going to make the driver feel comfortable that the car is identifying everything around it. And what's its next move, like these are all kind of customer-facing areas that the OEM should take on themselves and there are areas that don't require hundreds of AI experts in to do.

And so we've worked very hard over the last 5 or 6 years to provide these types of essentially tuning knobs to the driving experience and ability to kind of access our data feed and create visualizations. And so I think that you -- I think our view is you should let the expert take care of the kind of the core of the system and provide you these assets, but you should be able to build on top of it. And I think that, that creates kind of a nice offering for the OEMs.

ADAM MICHAEL JONAS: So look, there's different ways to skin a cat. And I don't want to overly obsess about _**Tesla**_ here, but Mobileye and _**Tesla**_, that really the 2 main benchmark setters in this field right now, at least, I think in the eyes of investors. You do HD Maps. _**Tesla**_ says they do not. Is that really correct or is there some nuance there from your understanding? _**Tesla**_ says they're no longer doing labeling, not even auto labeling and that's freeing up 40% of the GPU capacity. They just -- they say they feed just raw visual data to the computer and then outcomes actions.

They don't draw circles around a stop sign, they let the computer -- they let the car figure out that, that Octagon with it's red, with the word stopping it is just synonymous with bringing a car to a stop. Are these things that you're -- you do label and you do HD Maps. Is that something you think is just absolutely critical for the safety? Or is it something that maybe over time, maybe you won't need it one day when the compute can catch up with the task? Sorry for the wordy question...

DANIEL V. GALVES: No, it's a good question. I mean on the HD Map side, I think our belief is that _**Tesla**_ is building something kind of similar to what we've built. It took us 6 or 7 years to do it. So it's not easy.

ADAM MICHAEL JONAS: Can be a definitional thing of...

DANIEL V. GALVES: It could be a definitional thing. It's like we don't know that for sure, but some kind of clues from their AI base, would give us that impression. And I think our view is that HD map really takes a lot of pressure off of the real-time sensing, right, and kind of gives the car this kind of preloaded information where I mean the traffic lights are kind of the perfect example because it's like clearly a camera can see whether traffic light is red or green.

But if there's 8 or 9 traffic lights across an intersection, which one is for the pedestrians, which one is for the left-hand turn, which one is for your lane, to kind of have that built into the car, it's very helpful, I think, in construction areas or areas where the -- you have a merge or split in the highway, it's good to have that capability. Another thing that's been really impressive to the kind of Chinese media is, there's a lot of kind of highways in between highways. So like connector highways that could be curvy. They could be 3 or 4 miles long. And if you get stuck in one lane or maybe there's two lanes, but if you get stuck in one lane behind somebody that's going 30 miles an hour, it's very frustrating.

And because our system has kind of the knowledge of what's the common speed on that road, and kind of very kind of clear knowledge about the geometry of the curves in the road and the lanes, people have been very impressed that we're passing people on those lanes. So I think that HD map is really critical and not **_Tesla_**, but you've also got companies in China that are saying, we don't need an HD map. Well, if it's going to cost you like $20 million for every city to build a map manually, and then you've got to figure out how you're going to keep that updated then that kind of could make you say like, I don't want map. In terms of the kind of the question of labeling or not labeling kind of -- I think that this is really like the end-to-end approach versus what we do is kind of break the problem into modules.

We have different techniques for each module, could be like vehicle detection or pedestrian detection or lane detection, traffic sign. We have multiple techniques within each of those modules, which creates redundancies within the vision system. This is our approach. This is what we think is the right way to do it. I think if you go back to 2015 and kind of when deep neural networks were new, this was kind of invidious pitch to automakers. Like we've got these GPUs and deep neural network technology, all you need to do is feed a ton of data into the system and kind of out is going to pop autonomous driving. That clearly didn't work, but I think **_Tesla_** is in a different ballpark, right?

They have -- they're willing to spend a lot on compute power, training compute power. They have a lot of data. So I think I'm not qualified to say that they're going to work or not.

ADAM MICHAEL JONAS: I want to go a little deeper on compute, and then I'll come up and take questions. So please think of your questions now, folks. Let's talk about the hot mic on the 2Q results. Thanks for -- let me ask a question, but I did make an average hour at the end. I asked Amnon, custom silicon versus GPU? And I was thinking in the training computer. And I think he was answering the question more at the edge, the inference computer which, of course, you've been doing yourselves, custom silicon forever.

And I said the words, I don't think you understood the question. I apologize for that I'm not. I'm sure -- but -- so the question has intended, let's talk about that. Are you -- I would imagine that given the scope of your mission and then how it's ramping that you want to get your hands on as much compute power as you can. Am I wrong with that? And are you -- where are bottlenecks or experiencing bottlenecks and getting GPU clusters from NVIDIA?

DANIEL V. GALVES: We are not experiencing bottlenecks at all. So I think it's a different approach that, on the edge, we don't need as much compute power. And I think **_Tesla_** doesn't really either, other approaches need a lot. I think in the training environment, we don't need like a massive, massive amount of compute power. We have -- if you look at kind of the data size, we have 400 terabytes of kind of video clips, which is a lot more than anybody else. We've heard of [Has,] but we're able to kind of process and use that information to close up edge cases. When we find a problem with the system, we can search for the specific clips that would help to kind of improve the system, train the system. And so we're not -- I think it's just a different technique...

ADAM MICHAEL JONAS: You are not constantly feeding the data back into a training computer like...

DANIEL V. GALVES: That's all right. So we spend most of our CapEx is related to buying GPUs for kind of on-prem computing. A fairly significant part of our R&D is for AWS off-prem cloud services. So we use a lot of compute, but it's not in the same ballpark as kind of what you're..

ADAM MICHAEL JONAS: One more for me and go to the audience here. The topic of clean sheet versus retrofit. Around the time of the IPO, you and I engaged in this discussion, and I was quite skeptical. And I still kind of on the ramp of clean sheet or pure EV architectures from legacy car companies. At Morgan Stanley, we think that, that stuff is going to get way pushed out, way dialed back. And I don't see a path to profitability from the legacy car companies categorically.

There'll be exceptions along the way. And my message to you is, well, if SuperVision -- and yes, there's the China ramp, which is thankfully there and that's an incredible asset and learning for you. But if the EV adoption of clean sheet Gen 2, Gen 3 is slower, then maybe your shots on goal for SuperVision might be lower because SuperVision,

it seems to lend itself to start over a clean sheet. But then there's the argument of, oh, you may not need that. You could put SuperVision on a diesel F-150, whatever, [dually,] and it'd be fine. But it strikes me is that I don't know if OEMs are going to necessarily want to commit to that kind of thing. So tell me where I'm wrong in terms of the -- do you need the attachment to clean sheet and your revenue being traps outside of your control attached to that ramp of legacy car companies versus no, in order to sell a car, you're going to have to have SuperVision whether it's a hybrid or...

DANIEL V. GALVES: Yes. I think that SuperVision, it's not necessary to have a clean sheet EV architecture to support SuperVision. I think it's a mix. Our customers, I think much more to come in terms of, sort of who the design wins are with and kind of what platforms they're going on. But I don't necessarily think that the majority of OEMs are thinking of this as needing to be on a clean sheet EV architecture. I think that they're thinking of it is like we want to put this on our highest profile vehicles.

Now a lot of OEMs, their highest profile vehicles are EVs, so that change, right? But with Porsche, it's not an EV-only design win.

ADAM MICHAEL JONAS: Okay. Thanks for that, Dan. Questions for Dan. And -- just wait for the mic, if you don't mind. Thank you.

UNIDENTIFIED PARTICIPANT: Could you maybe frame the opportunity or how you think about companies that are coming from different backgrounds, say, cellular modem or GPU compete in this space? And how have you seen things evolve for them?

DANIEL V. GALVES: Yes. So I think that our competition in kind of the single front-facing camera, ADAS comply with safety rating is the same as it always has been. It's other Tier 1 auto suppliers, and we're not seeing competition from semi companies or GPU providers. I think that those companies like Qualcomm and NVIDIA are trying to penetrate into these advanced systems, right? Because I think that their products are not relevant from a cost standpoint for basic ADAS. It's not new.

Like I kind of indicated before, NVIDIA has been kind of trying to get into this market since 2015. I think their kind of approach and it's generally the same with Qualcomm or other semi providers is hey, we've got these kind of very powerful chips and we're going to tailor them to automotive uses and if you can come up with the software, this is kind of the right approach. You're going to need a lot of processing power, we can help you get there. And will create tools and libraries and SDKs but it's really reliant on the automaker to find the content, the software.

And we've seen a lot of attempts at this, and some of them have come to the road or some are coming. And I think when you -- the results, you have to think about kind of what do the OEMs want, right? They want good performance, right? What -- and performance is really all about how broadly will these functions work? Is it just on highway? Is it off-highway? Is it all across the country or regions and kind of what we're finding is that the systems coming to the road are limited by maybe speed, they're limited by what roads have been mapped, they're limited by geography.

There's a lot of limiting factors. So I think from a performance standpoint, our ability to scale and create a system that works everywhere is very positive. From a cost standpoint, what we're -- all you really need to do is look at the sensor set on the vehicle and the kind of the amount of compute. And so we're seeing efforts that are using 2 NVIDIA boards and a Qualcomm board, so probably more than $1,000 of compute and with LiDARs and radars and tons more sensors than we have. And kind of what we're hearing from inside companies is that these systems that are limited, severely limited in terms of where they operate are costing $4,000, $5,000, $6,000 bill of materials.

And we can provide -- SuperVision is essentially roughly 1,500 to us and maybe $2,000 total bill of materials to the OEM. So we feel like we have a significant cost advantage. Ability to customize is something that it was the real kind of benefit of working with those companies, but we've created IQ Kit, which is an open architecture within our chip, and we've created these kind of knobs where you can tune the driving experience. So we feel like we're comparable on a customization standpoint. And then the last thing I would say is like ability to scale to eyes off.

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Because a lot of OEMs feel like the real value here is if you can put a system on the road where people don't have to pay attention anymore, and they can do other things, at least on the highway.

And because our system is kind of -- SuperVision is camera-centric, like so we are supporting this broad ODD with just cameras, mapping and kind of a low compute driving policy. Our approach is to add a second perception system based on radars and LiDARs to kind of expand the meantime between failure to get to the point where you can feel comfortable enough to allow the driver to disengage. The other systems that we're seeing, they're basically throwing everything that they have at the initial problem and not really kind of -- and still kind of being limited, but then what do you do? If you've got a system that's not good enough to kind of tell the driver to disengage except 15 miles an hour, then how do you -- and you -- but you've thrown everything at the problem and how do you go to the next step. And I think that, that's something very appealing about our approach. So we feel like we're competing very well against those providers.

ADAM MICHAEL JONAS: Any more questions for Dan?

I got one more before we wrap up here. Would love your views on -- what are the differences between the Chinese EV makers and the Western ones. Seems to be very topical and even the OEMs -- the Western OEMs themselves, the Germans, the U.S. guys have experienced these vehicles and met with the management team there, post COVID, it's like what were you doing during COVID like something's changed. But from your lens in terms of how they work.

DANIEL V. GALVES: Speed to market, it's really unbelievable that you've got like start-up companies launching a new car every year or maybe 2. And I think that there is a, our -- we have a lot of people within the company that are kind of directly interacting with automakers that are coming from the legacy automaker world. And sometimes they're surprised that it's not really cutting corners, but it's not the same process. It's not the same validation process. And it's -- but they're willing to take those risks. And I think it's leading to much faster iteration. And of course, it's helpful when you only have to focus on one type of propulsion system.

ADAM MICHAEL JONAS: It says a lot about your strategy that you were ahead of that and doing business with them to help your other customers and be that kind of vessel, if you will, of, hey, look, you need to pay attention to what they're doing. Super important.

DANIEL V. GALVES: It's a really important market for us.

ADAM MICHAEL JONAS: Well, Dan, thanks for spending time with us. Again, whenever you were up here, I feel like I could spend hours with you. Unfortunately, we don't have the time.

DANIEL V. GALVES: It's always fun. Have a good rest of the conference.

ADAM MICHAEL JONAS: Appreciate it.

DANIEL V. GALVES: Thanks a lot. Thanks, everybody.

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