

R.W. Baird Vehicle Technology & Mobility Conference—Transcript

Tristan Gerra:

With us today, Omer Keilaf, chief executive officer, Eldar Cegla, chief financial officer, and Oren Rosenzweig, chief business officer. Please refer to the event calendar, please research Baird website, for important disclosures regarding the companies discussed during this event. And with that, let's get started.

Omer Keilaf:

Thank you very much, uh, good morning everyone. Um, so I'm Omer Keilaf, I'm a co-founder and CEO of Innoviz, uh, happy to be here and, uh, talk about Innoviz. So, I'll start by showing our product. You can see InnovizOne, which you can see it's a very small device. Very, um, very, very small. Um, I'll- I want to show you, I'll share my screen, um, in a second. Just one second. Yeah. Okay, I'll start with a very quick, uh, wrap- wrap up on our history. It started in 2016, uh, to develop a solid state LiDAR. Uh, we partnered with, uh, several Tier-1s. Uh, Innoviz, uh, is a- is a Tier-2. Uh, when we work with car makers, we always work with Tier-1s, uh, when we're competing on- on business. So we have, uh, four Tier-1s today, um, Magna, Aptiv, Hira in China, and Harman. Uh, we were selected by BMW with Magna for that project. Uh, on this project we are providing the InnovizOne LiDAR and our computer vision. The software that translates the road data into a 3- uh, object detection, classification.

Omer Keilaf:

Uh, we believe that eventually the market will converge to only a few, um, players. This is common in automotive, uh, specifically for functional safety elements, as you can see in other sectors. We believe the LiDAR sector will converge and having already been selected by a technical leader such as BMW, um, reserves us that lead.

Omer Keilaf:

Uh, we recently announced our second generation InnovizTwo, which provides a significant cost reduction and also a very, uh, an improved performance of the product. I'll show you a few videos so you get a- some impression of the performance of the LiDAR. Uh, so, I hope this runs smoothly enough, um, through the internet. I know that the internet might be a bit slow. Uh, you can find all of these videos on our, uh, YouTube channel. Uh, you can see the very long range, high resolution, uh, it- it runs at 15 frames per second. You can see here, our computer vision software. Here you can see the LiDAR driving through a tunnel, you can see the camera becomes blinded and the LiDAR doesn't. So, you can see it's a very high performance though we are using 905. People ask about why- how, um, 905 compared with 1550, the- the need for low cost is very clear and you- as you can see we've managed to achieve very high performance, uh, with our 905 based on our many innovations that we included in our LiDAR. Uh, the next video- videos here shows you industrialization, so you can see here, uh, different parts of our supply chain that we have fully automated. Starting from the component level, this is the MEMS assembly, which we, uh, automated for the assembly and testing. Those are- these scanners that we have within our LiDAR. We have the active alignment, which is the assembly. You can see the lenses with our- are mounted on the objects automatically. And, uh, this process ends when you have a complete LiDAR assembled. And we've also automated, uh, the testing and calibration at the end of line tester in the production line. So we have fully automated our process to- to prepare for the high volume automotive grade programs that we're working on.

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Omer Keilaf:

Okay, uh, in order to bring, uh, 905 to high performance, we developed our own components. Uh, very unique technologies around the MEMS detector and ASIC. Uh, we believe that 905 is the only way to achieve full adoption of automotive due to the very strong, uh, importance of- of cost, when it comes to full adoption. And we also, uh, developed the object detection and classification, which I showed you a video of earlier, uh, including, classification for cars, trucks, pedestrian motorcycles, that are, um, velocity acceleration, uh, et cetera. Um, there are several key differentiators between us and other LiDAR companies, uh, we have a program with BMW, uh, that we were awarded for high volume production. We are the only one with such a high volume, uh, I would say deal. We project two billion dollars of revenue coming from this platform. We have four tier-1s that gives us the ability to be exposed to basically all of the, um, programs in a- in the world. I've showed you the maturity of our production line, and we are getting to automotive grade by the end of the year. And, um, we are differentiated on our architecture, which is based on low costs, 905 nanometer, solid state design.

Omer Keilaf:

Uh, okay, that's uh- that's my presentation, and I'm happy, uh, to answer your questions.

Tristan Gerra:

Great, well thank you, uh, thank you for that intro- uh, introduction. So, you, uh, briefly talked about your technology and uh, you know, some of the advantages of using MEMS technology. Could you compare this with some of the other technologies for LiDAR that are around? You know, some people use, uh, flashlight or there is FMCW. If you could go, uh, over the- the pros and cons of each and the reasons for, uh, you choosing the technology that your company, uh, is now featuring?

Omer Keilaf:

Sure. So, let's start with the flashlights that- which you mentioned. Flashlight- are very straightforward architectural, which you basically bloom the entire scene with light and collect, uh, different pixels. Um, a big area of the detectors that- very much like a camera works. Um, the disadvantage of using a flash is that, because you cannot bloom the scene too strongly because of eye safety, it's very limited on range. So flashlight does- can only achieve only a few 10s of meters, 20 or 30 meters, it's not adequate for the requirements that we see for, uh, long range, which is 200 meter and more.

Omer Keilaf:

Um, using MEMS allows us to collimate the light to a, uh, very small portion of the field of view at each time, making, uh, the advantage of collecting the light from one point of the scene, which increase our signal to noise ratio. So we can scan the entire scene at a long range.

Omer Keilaf:

Uh, FMCW requires usage of higher wavelengths, which are, um, more expensive from the laser point of view and from the detector point of view. Um, it needs to be a single mode and stabilized in temperature, which requires also, um, more complicated hardware and more expensive ones. Uh, that technology is still not- not mature and very expensive and on top of everything, FMCW provides a very strong trade off between, uh, resolution, frame rate, and field of view. There is an inherent, uh, trade off when- of using an FMCW that limits the number of pixels you can actually achieve in a certain time. And once you try to divide that, um, optical budget, between the different requirements, you- you find there is actually almost an order of magnitude, uh, missing, in- in order to meet the requirements.

Tristan Gerra:

Okay. And then, um, could you talk about, uh, you know the resolution that your LiDARs feature relative to the competition? And- and also your, uh, optical budget, you know, in the context of some of the manufacturing you, uh, you briefly mentioned on your slides?

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Omer Keilaf:

Yeah, sure. So, uh, InnovizOne resolution is 0.1 over 0.1 degree, um, which- which is uniform across the entire field of view. We only use four lasers and 905 lit diodes, uh, which is an order of magnitude lower number of components compared to, uh, others that are using 905. And still able to achieve much higher resolution. In number of lines, which is that like, uh, you know many companies are providing performance in lines, we have 256 lines. Uh, at 10 hertz, um, compared to you know, um, I would say the most premium mechanical LiDARs that have 128 but at the fraction of the- of the cost. And we are able to achieve the 200 meters, uh, point at that resolution and that frame rate.

Tristan Gerra:

Okay. So, b- based on the maybe you could expand on the, you know, the reasons why, uh, BMW selected your technology as opposed to, uh, other suppliers, maybe if you could expand on that. And also tell us if this is an exclusive contract or if it can share LiDAR suppliers among different platforms and- and if not, why?

Omer Keilaf:

Um, so l- let's start the- the first point, so the- there is no exclusivity. Meaning that we can, uh, sell the LiDAR for any- any other customer. It's actually to the benefit of any customer that, uh, LiDAR would be shared across different platforms. Uh, to get more maturity and get more volume so the price could be, uh, lowered. Um, BMW selected Innoviz because of the, uh, the right fit that we offer between performance, price, and real ability. Um, we've- we've gone through a very long, uh, due diligence-

Omer Keilaf:

Um, we, we've gone through a very long, uh, due diligence by BMW during 2017, um, before we were nominated, and since then, working with Magna and BMW to ramp up the technology, uh, which is now available.

Tristan Gerra:

Okay. Um, you mentioned, you know, the, the, basically the, the, the performance versus price points. Could you tell us, you know, by, uh, '24, when there's an expectation that, uh, some of the volume ramp will, will occur, wh- what type of pricing you would be able to achieve, uh, with your LiDAR as seen in mass production?

Omer Keilaf:

Yeah, so, uh, we recently announced our second generation, you know, InnovizTwo, which is targeting the sub-\$500, uh, LiDAR, which was actually much even much, much higher performance than InnovizOne, it'll be a very, very high performance LiDAR. Um, and we see that as, as, as a way for us to penetrate the level two plus and higher, obviously, uh, markets, uh, due to the very low-cost, um, offer.

Tristan Gerra:

Okay. So maybe, uh, expanding on this, since it's such a price-sensitive market. So, in order to get into, uh, enhanced L2, what type of price point and range do you think you need? And also, if you could talk about the price points and range that you need to get into the L4 market since they're going to be, you know, require two very different type of LiDAR characteristics.

Omer Keilaf:

Yeah, um, so the, the ballpark of pricing for level two plus entry point is \$500 or less, uh, that's based on customer's, uh, willingness to pay for the whole platform, which is around \$5,000, uh, which can absorb such a technology. We, we offer a LiDAR that can actually, uh, function in, in level three, or level four at the price point of level two, uh, because we believe that it will enable car makers to use this platform, uh, to continuously develop the software to reach level three, uh, on the ground, meaning that once they will start shipping cars with a platform that supports level three, uh, but at the price point of level two, it will allow them to crowdsource data and validation and do incremental steps of development of the software, uh, to which eventually level three.

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Tristan Gerra:

Okay. Um, and so if we look, you know, again, at enhanced L2, since that's going to be a much larger time opportunity over the next few years than the L4, I think, you know, L2 maybe as much as a third of total, uh, car units worldwide by '24. But L4 is only going to be 1%. What do you think the adoption rate can be in general for LiDARs in enhance still to application? Are we talking about a very small fraction of L2 market where LiDARs are going to come in? Or can it be pretty broad based? And what functionality would the LiDAR achieve in those enhanced L2 applications, which today are really based on, uh, cameras only?

Omer Keilaf:

Okay. So start with, there are already LiDARs used in, in house L2, uh, in the market already. Um, and those are primarily used because of the, of the need to achieve higher safety of the driver and the environment. Um, we see many car makers that are, uh, desiring to include the LiDAR for this platform because they are worried about the safety in this application, even though they are not responsible for the driving, uh, in the sense that if there is an accident, they don't have any liability. Uh, but they are not interested, uh, to be in a situation that every week, there is another accident, which they need to accuse their customers of not holding the wheel or looking at the road.

Omer Keilaf:

So in, in order for them to increase the safety of enhanced level two, um, and still meet the price point that willingness to pay off customers. They are interested to use a LiDAR. So I believe that LiDARs would be widely adopted, uh, for level two plus. Um, and that's what we are targeting for. Oren if there's anything you want to add to that, feel free.

Oren Rosenzweig:

I, I think you, I think you've covered it. I think, uh, it really depends on the price. Right? So I mean, the adoption- adoption always depends on the price. And I think, uh, given that, uh, we plan to offer a LiDAR that's relevant to get into L2 plus applications, similar to the price points that you see some of the LiDARs that are used there today in some of the Audi cars, the new Mercedes S-Class, some of the Japanese cars, um, price points, you need to get through like, you know, sub-\$500, maybe four \$400 for, uh, uh, for those applications, because of kind of the value that it gives to the, the end customer and the overall system cost.

Oren Rosenzweig:

And since, you know, we are, we are targeting that, I think, uh, we're going to offer something that improves the performance by orders of magnitude versus, uh, what you can get today for those price points, and give you the ability to upgrade the system to L3 over time once enough data is collected, KPIs are, you know, measured. Um, and enough confidence is kind of generated in the safety of the system, which, which is, I think, a, a huge advantage for such a system.

Tristan Gerra:

Okay. And then how should we look at the timing of when, you know, the waves of adoption for enhanced L2 as opposed to L4? You know, am I correct to think that there is some initial volume on the enhanced L2 maybe later part of next year with L4 starting initially in '24. And when does it get really in higher volume?

Omer Keilaf:

Um, I think that in, in... Oh, sorry, go ahead.

Oren Rosenzweig:

No, I, I, I just want to make sure that I, that we get the question right. So when you said enhanced L2, is it kind of like really good L2 system that's, uh, like, because you already have some pretty good L2 systems that can change lanes, change speed, basically drive the car, but not taking any liability for the driver. So meaning that the driver always has to be in control. You, you mean something like that?

Omer Keilaf:

Maybe, uh, uh, sorry.

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Tristan Gerra:

Oh, go ahead.

Omer Keilaf:

No, yeah, so, um, basically we, we see rollout of level two already is on set. But those, um, functions, uh, only well in, in most of the cases. And therefore we do see, uh, a desire to improve the LiDAR, as I said earlier. Uh, level four will take much more time. I think that, uh, what we do see is level three, car makers that are, are very technical car makers like BMW as an example, and the, the, the other premium German cars, uh, will probably roll out level three before the rest of the, of the industry. Um, and I think that because of the complexity of, uh, really establishing a safe level three, uh, what we expect to see is that other car makers that are less technical and less have the desire of, um, I would say investment in, in, in development, uh, they would probably go for enhanced level two, as you say, uh, and, and grow from there.

Omer Keilaf:

And, and the way to really grow from there is that if you have a, an L2 plus, uh, platform that supports level three, from the hardware point of view, very much like Tesla did with their cameras, only that includes a LiDAR. So those car companies would, uh, would use, uh, a LiDAR to bring level two plus two safety, uh, and get to level three, uh, in incremental steps rather than, uh, one big step like, uh, the other more technical car companies.

Omer Keilaf:

So it will be starting in 2024 for, uh, level two plus with LiDARs, and go from there to, uh, you know, I believe '26, '27, a more high adoption of level three among, you know, other car makers.

Tristan Gerra:

Okay. Um, wouldn't... when I was in your beautiful country in the late '19 for the Mobile AI analysts, they talked about, you know, the regulation as being a, uh, a factor for adoption, and the need to work basically with each government, uh, before, you know, when paying, you know, autonomous driving. So I know that commentary really pertain to, uh, L4 applications. Um, how do you see that, uh, ecosystem, uh, taking place, you know, for L4, and you feel that, uh, you know, there's going to be the same level of, uh, regulatory approval needed for enhanced L2 applications?

Oren Rosenzweig:

I can take this. Like at the moment, we don't see any regulatory hurdles for, um, L2 plus or, or even L3. So basically, when you think about L2 plus, or L3, you primarily are talking about passenger vehicles. So personally-owned vehicles. Um, and we don't, we don't see any hurdles. I mean, basically, if you still have a steering wheel, and especially with L2 plus where the driver is still in control, then there are no issues. Um, maybe there are a few countries we're going to do L3. There, there might be some changes to, uh, regulations that are needed. But, uh, for now, it's not regulation that's, uh, kind of dictating the pace of adoption. It's, it's really the maturity of the technology, and the kind of willingness and ability of, uh, OEMs to take the liability for the driving. Um, that's kind of dictating the pace of adoption for L, for L2 plus, especially for L3.

Oren Rosenzweig:

Uh, when you go to L4, uh, kind of, you know, similar situation. I think it's on the kind of, kind of country by country, um, case, um, you know, at least in countries like, uh, U.S. and China, um, you see a lot of, uh, push for a, you know, conducting the experiments. Um, you don't see governments or, or localities putting any kind of, uh, issues, uh, around it. And in some cases, even they're kind of trying to push it, because everybody understands that the, uh, value for kind of saving, you know, the human lives that are taken by, by, uh, accidents is generating a lot of value. So I think, uh, even here, I think the, the adoption is really driven by technology, uh, progress, and I don't think that there is any system out there that's kind of not being deployed because of regulation. And, and I think it's, uh...

Oren Rosenzweig:

... not being deployed because of regulation. I think it's, uh, kind of the, the technology is being deployed at the fastest pace, that's possible, depending on the, kind of the maturity of the technology.

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Omer Keilaf:

I think that just to add to this, we are involved in some programs that are working on, uh, shuttles, which are kind of a level four, you might say, so, um, you know, in order to use those vehicles, uh, you need to go through a very long process of validation. Uh, those companies need to show, uh, the validation they make on this platform because before they ship, uh, start to deploy them. Uh, but I, as Oren said, I don't see the regulation right now as being the bottleneck.

Tristan Gerra:

Okay. And then, um, how should they look at the trucking, uh, market, uh, the timing of adoption and whether you think that, uh, you have potential in that segment as well, um, and, would trucking be L4, or would it be initially, and the enhanced L2?

Omer Keilaf:

I'm sure that, I mean, obviously there is a good fit for InnovizOne and also the InnovizTwo, uh, in the truck, uh, market. Uh, the truck market is very interesting because the business case is very clear, uh, the cost of the driver and the long drives makes a very high motivation to deploy them. Overall, the truck market is smaller obviously than the passenger car, uh, but still, uh, that's something that we see a lot of interests. Um, as for how it will be, um, uh, developed, clearly... it will go very similar to the passenger car. We'll start with the level 2+, kind of, uh, ADAS, uh, that will allow, um, the, the trucks to drive more safely. And then, um, level three. Uh, I think that level four, um, if from a point of view of, uh, driving on the highway, um, this will take more time.

Tristan Gerra:

Okay. And then, um, as we continue to look at some of the end markets, um, are you are so targeting thenon-automotive markets? Do you have any engagements there and what would be known automotive applications where you see a good fit for your technology?

Omer Keilaf:

Yeah, I mean, um, you know, for a LiDAR, which is such- so small, and InnovizTwo would be much smaller, uh, there is a good fit between, uh, you know, a 3D sensor in many applications, such as drones that, uh, are very, uh, you know, uh, the way it is, is a critical element, um, surveillance, small cities and congestions, I think that there is a really endless, um, you know, uh, applications that, you know, on a day by day, I get, uh, interest from different, uh, companies.

Omer Keilaf:

Um, I think that today, because we see there is a lot of, um, I would say many programs for automotive, uh, that are now being decided, uh, we, we are very focused on, on those, uh, we have teams that are working on different programs and, and once in the, in the sales cycle is very, very, um, I would say, uh, technical. Uh, it's not, uh, off the shelf components, uh, it's working day by day with the customer, which is the [inaudible] maker. Uh, but once you, you, you get nominated, it provides you very, uh, good projections of very high volume revenues, uh, for, for many years. Uh, and we see today that Innoviz has a very strong advantage, uh, in that segment, which is the most important one. Um, obviously we keep our eyes open, uh, for several opportunities that are, uh, besides the automotive, but I would say we're very focused on that today.

Tristan Gerra:

Okay. And then, um, could you talk about the, uh, the competitive landscape from the standpoint of, uh, ODMs like Continental and Valeo, which seemed to have some decent market share very early on of the LiDAR market, uh, but also seemingly uh, lower price point and lower performance level, importantly. How, how competitive you think they can get in the future? Do you think that they're going to be around when we need a higher performance LiDARs or, or do you think it's going to be primarily a market for high-end guys, like, uh, like you?

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Omer Keilaf:

So w- when we approached the market, we, we don't approach alone. We approach with other key ones that we partnered with, such as Magna and Aptiv, which are considered very strong tier ones in the ADAS space. So it's not as head to head with Valeo or Continental, as you said. And, um, and yes, uh, Valeo and Continental are very good tier ones with, uh, experience in this field, but eventually, um, for level three programs, uh, today, Innoviz is the only one that is offering an automotive grade product through a tier one that can actually meet the timelines, uh, for launch, uh, in the coming years. Uh, so we have a very huge advantage there. And now coming with InnovizTwo, we are also, uh, I would say super competitive on the price points that are offered for, uh, the, the, you know, the, the competition from, uh, the companies you mentioned.

Tristan Gerra:

Okay. Since you've, uh, you've mentioned, you know, the second generation of, uh, of your product, could you talk about, you know, how you're able to scale your technology. So in other words, you know, once you have InnovizThree, what type of, uh, improvement it's going to be in terms of performance, in terms of pricing, and how do you get there? What allows you to get to the next generation? You know, it's... I'm assuming not like a semiconductor where you just go to the next telemetry node and it gives you, you know, improvement in performance and cost, but if you could talk about the, the things that allow you to scale your technologies, you can regularly improve on a performance center and pricing.

Omer Keilaf:

Sure. So I know I can start with, uh, obviously, InnovizOne, uh, was a breakthrough in, in, in our ability to provide the high performance on 905. So it's now... and that was introduced due to the unique components that we designed, and those are components that we finalized a couple of years ago, but since then, we've made a lot of progress on each of those. So it's a chip set, uh, that we designed and each one of the components has obviously a roadmap. So the way that we were able to solve the 905nm was based on our ability, uh, to improve several factors that are important for an optical system.

Omer Keilaf:

So obviously for 905, you're, you're more limited on the amount of light that you're allowed to emit because of eye safety, uh, but you could improve the performance if you, if you increase the aperture which you use, uh, in front of the detector, uh, we were able to do that through a very big, uh, MEMs that we designed and that's also one of the improvements in the second generation, uh, very high sensitive, uh, detector that allows us to collect... detect single photons, allows you to, um, to use very low power, uh, compared to others, because you can detect single photons, you only need a fraction of light.

Omer Keilaf:

And then on top of it, very low noise figure, so if you have a very, uh, high noise floor, you obviously need a lot of power as well, uh, to extract the light back. Um, all like the detector and, and demands, and several elements in the optics, uh, that are now introduced in InnovizTwo, uh, give us, uh, very, very, uh, I would say, uh, exciting InnovizTwo, uh, to, uh, product. Uh, it's, uh, it's going to be very, very high end LiDAR. And it's much lower costs as well.

Tristan Gerra:

Okay. Um, could you expand on your manufacturing process and you, uh, you showed us a slide about, uh, automation, you know, could you talk about, you know, the, the type, the, the number of components you have, relative to some other LiDAR makers, you know, some of them have hundreds of components and automated you are, yeah.

Omer Keilaf:

Oh, so we're, we are fully automated. I showed you the machines that are operating already, and we have several machines. So we have also very high capacity. Um, we are also now working on the new machines for InnovizTwo because we are getting prepared also for volume there. So part of the design of the LiDAR, we also, uh, designing all of the production tools. So, uh, the most complicated part in our design is the MEMs, and that's auto- automated for volume, um, and for testing, uh, and, uh, the active alignment, which is the machine that places, all of the optics, we only have four lasers in our, um, in our system, four 905 lasers compared to, you know, um, more than a hundred in, uh, in another, uh, solution.

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Omer Keilaf:

And we have 256 lines using only four lasers. Uh, in, InnovizTwo, we are going to have, uh, less components and, and, and much higher resolution. So, uh, and, and this is a very scalable, uh, design, uh, due to our ability to extract very, very, um, I would say very high-performance from, uh, the aperture of the, of the system and the efficiency of the detector. Um, so we have only four lasers and four silicone, uh, detectors. And again, InnovizTwo is going to be less. Um, and, uh, and we also automated all of the testing and calibration, et cetera. So, uh, you know, this is required for automotive grade, so this is part of what we do.

Tristan Gerra:

Okay. Um, what about potential vertical adoption? Um, you know, Mobileye has said that they will, uh, develop their own LiDAR technology by '25. And I don't know if, uh, some, uh, car OEMs might decide to do the same. Do you think that, uh, basically the market can be split between some large companies that will have their own technology and, and, uh, standard, um, suppliers, including Innoviz. H- how do you see the direction of the market, and also, given the number of, uh, standalone LiDAR companies coming in, do you expect consolidation at some point?

Omer Keilaf:

Yeah, definitely consolidation. Uh, there is no, uh, logic, uh, behind a specific car company to develop their own LiDAR, due to the fact that no single car maker is able to provide sufficient volume in the next 20 years, uh, to justify, uh, the, the price curve that you need for volume. And, uh, car companies rely on the fact that technologies are sourced across different car companies, so they all leverage on maturity, industrialization and cost down, cost reduction. Maybe in 50 years, uh, when there will be consolidation in the car (laughs) industry, like in the mobile industry where you have three main suppliers, uh, then it makes a lot of sense for a single, uh, car maker to develop the technologies they need to adapt to, to their, uh, platform. But not in the next 30 or 40 years probably.

Tristan Gerra:

Okay. Um, and then, uh, looking on the, the financial side, you know, how, what, uh, methodology do you use in order to project, uh, what we, for the next few years, um, you know, if you could give us some metrics in terms of perhaps, you know, the percentage of your projections that are basically, that are based on actually design wins and, and, uh, if you could also talk about the design win funnel now, and how it compares versus, you know, three or six months ago.

Omer Keilaf:

Yeah. Uh, Oren, do you want to take this or... Go ahead.

Oren Rosenzweig:

Sure. Uh, it's, it's completely bottom-up. So with, uh, we're looking at, um, pipeline of about 200 companies or so that we working with. Uh, obviously, you know, very different stages of, uh, of their words. And, um, we have in kind of the very final stages of, of the pipeline, we have about, uh, five companies that we're now in kind of negotiations of, uh, either the kind of final commercial terms or, uh, kind of working through the, the final pieces of, uh, negotiating RFQ requirements. Um, and then you've got kind of earlier stages, the seeding and that, and it kind of takes between six to twelve months to go from, uh, from one stage to the other, and it kind of, you know, w- we have some conversion rates that, uh, that we project of kind of going between the stages.

Oren Rosenzweig:

So, um, when we worked on our financial, uh, model, the revenue model, we've basically looked at the, um, entire kind of, uh, landscape of, of those companies. Uh, we, you know, in cases where they've kind of told us what their volumes are gonna be, we've kind of used that, or in other cases, uh, we had to kind of use IHS volumes with, uh, take rates that are consistent with the other accounts. Uh, we put probabilities based on the stage of, for each, each account in the, in the funnel. Uh, we put prices as we negotiated with our tier one partners, in cases where we sell through the tier ones and in other cases if the project is a project we do directly w- with the kind of the prices that we are negotiating with, with the end customer.



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Oren Rosenzweig:

And that, that thing basically kind of builds up to the, the revenues that we've shared and were shared publicly, uh, in our filings. Um, if, if you ask me, like, percentage-wise, like w- you know, w- what makes up this, uh, this revenue, (laughs) kind of look at, uh, if you look at 2025, then approximately, uh, two thirds of the revenue are expected to come from automotive. So either L2+ or, or L3 applications, uh, the other third from, like, kind of the long tail of other applications, including also robotic season in trucks and in shuttles, which are kind of the close adjacents to the, the automotive, and the rest is kind of, um, uh, further out kind of applications, uh, like security, like, uh, heavy machinery applications, like, like mining, construction. All from companies that we're already working with. So a- all from companies that already have put, like, uh, InnovizOne LiDAR, so previous generationso- on their platforms to, to evaluate them.

Oren Rosenzweig:

Uh, so we have pretty good visibility into kind of the funnel. Um, and then if you're, if you're asking what, you know, what is already awarded then, uh, the, the project that, uh, we've publicly shared that, that's been awarded, that's, that's the BMW account. Uh, we were, we've also said that, uh, that this is something that we project to be about \$2 billion of revenues between now and until the end of the decade. Um, and that is a percentage of revenues, let's say, in 2025, is, you know, something that, you know, depending on kind of the assumptions we use, um, can be somewhere around a third of the revenues in, in 2025.

Tristan Gerra:

Can you talk about, um, and, and that's, uh, very useful, by the way. Uh, can you talk about the, the timing when, uh, BMW- is going to stop getting really material to your top line? Is that two years from now? Is that next year?

Omer Keilaf:

Um, so I, I'll, I'll try to, I, I would just say that, you know, w- we cannot talk in, in behalf of, uh, BMW. Uh, what we can talk about- is about our availability for automotive grade, and basically when our, or the product is available for, for start of production, if BMW decides to, to launch the car, which is, uh, towards the, uh, second quarter of '22. Uh, but we cannot, uh, talk about, uh, BMW plans (laughs).

Tristan Gerra:

Yeah-

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Oren Rosenzweig:

Okay, I can also say- besides that, that if- as a, kind of as a percentage or as a contribution to our top line, uh, I would say that BMW's already, um, significant, and it will be significant in the, in the next couple years. Um, and that, besides kind of Omer's point on, like, when the cars are gonna be commercially available with, with our LiDARs, uh, and just based on the fact that, uh, even in, in the development stage, we s- well not just BMW, but other customers in their development stages, uh, BMW actually takes up, uh, kind of a significant portion of our capacity, uh, and the shipment of the LiDARs that we've shipped, you know, in 2020, and, and we will ship in, in 2021. So either way, kind of BMW is significant for our revenues, even kind of between now and 2025. 2024. 2025.

Tristan Gerra:

Okay. Great. Um, is there anything else that we have not discussed and that you would want to highlight at this point?

Omer Keilaf:

No, I, I think that, uh, you, you asked about... I mean, I know that, uh, the LiDAR space is very noisy and very difficult to understand. I think that, uh, what we usually like to talk about is about the signals that, uh, investors might, sh- should be looking for in order to understand, uh, the advantages. I think the fact that Innoviz have, um, four tier ones should give a very strong signal. A- each of those tier ones could have, uh, worked with any other LiDAR company, and most of our competitors, as you know, don't have a tier one. Um, for a tier one to work with a technology that is already sourced by another tier one, it's a very difficult, uh, decision, since when they're competing on a business they need to compete against the same technology with another tier one, which is their competitor.

Omer Keilaf:

I think the fact that we have, uh, four tier ones that chose Innoviz, and not the other, uh, LiDAR companies that went public, uh, should do, give a good indication for investors from companies that have done the due diligence on the technology and have access to, you know, BMW program and, uh, and see, you know, the, the technology, uh, to understand w- why Innoviz is the right technology for this industry.

Tristan Gerra:

Great. Well, thanks for, uh, covering, uh, you know, comprehensively all those, uh, exciting topics, and, uh, I hope at some point to, uh, have the opportunity of perhaps a, uh, analyst day, uh, on location. Um, and, uh, with that, uh, this concludes our presentation. Gentlemen, thank you very much for your time and for presenting w- w- presenting with us today.

Omer Keilaf:

Thank you. Bye-bye.

Oren Rosenzweig:

Bye-bye. (silence).

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## Forward Looking Statements

This document contains certain forward-looking statements within the meaning of the federal securities laws with respect to the proposed transaction between Innoviz Technologies Ltd. (“Innoviz”) and Collective Growth Corporation (“Collective Growth”), including statements regarding the benefits of the transaction, the anticipated timing of the transaction, the services offered by Innoviz and the markets in which it operates, and Innoviz’s projected future results. These forward-looking statements generally are identified by the words “believe,” “project,” “expect,” “anticipate,” “estimate,” “intend,” “strategy,” “future,” “opportunity,” “plan,” “may,” “should,” “will,” “would,” “will be,” “will continue,” “will likely result,” and similar expressions. Forward-looking statements are predictions, projections and other statements about future events that are based on current expectations and assumptions and, as a result, are subject to risks and uncertainties. Many factors could cause actual future events to differ materially from the forward-looking statements in this document, including but not limited to: (i) the risk that the transaction may not be completed in a timely manner or at all, which may adversely affect the price of Collective Growth’s securities, (ii) the risk that the transaction may not be completed by Collective Growth’s business combination deadline and the potential failure to obtain an extension of the business combination deadline if sought by Collective Growth, (iii) the failure to satisfy the conditions to the consummation of the transaction, including the adoption of the business combination agreement by the shareholders of Collective Growth and Innoviz, the satisfaction of the minimum trust account amount following redemptions by Collective Growth’s public shareholders and the receipt of certain governmental and regulatory approvals, (iv) the lack of a third party valuation in determining whether or not to pursue the proposed transaction, (v) the occurrence of any event, change or other circumstance that could give rise to the termination of the business combination agreement, (vi) the effect of the announcement or pendency of the transaction on Innoviz’s business relationships, performance, and business generally, (vii) risks that the proposed transaction disrupts current plans of Innoviz and potential difficulties in Innoviz employee retention as a result of the proposed transaction, (viii) the outcome of any legal proceedings that may be instituted against Innoviz or against Collective Growth related to the business combination agreement or the proposed transaction, (ix) the ability of Innoviz to list its ordinary shares on the Nasdaq, (x) the price of Innoviz’s securities may be volatile due to a variety of factors, including changes in the competitive and highly regulated industries in which Innoviz plans to operate, variations in performance across competitors, changes in laws and regulations affecting Innoviz’s business and changes in the combined capital structure, and (xi) the ability to implement business plans, forecasts, and other expectations after the completion of the proposed transaction, and identify and realize additional opportunities. The foregoing list of factors is not exhaustive. You should carefully consider the foregoing factors and the other risks and uncertainties described in the “Risk Factors” section of Collective Growth’s Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, and other documents filed by Collective Growth from time to time with the U.S. Securities and Exchange Commission (the “SEC”) and the registration statement on Form F-4 and proxy statement/prospectus discussed below. These filings identify and address other important risks and uncertainties that could cause actual events and results to differ materially from those contained in the forward-looking statements. Forward-looking statements speak only as of the date they are made. Readers are cautioned not to put undue reliance on forward-looking statements, and Innoviz and Collective Growth assume no obligation and do not intend to update or revise these forward-looking statements, whether as a result of new information, future events, or otherwise. Neither Innoviz nor Collective Growth gives any assurance that either Innoviz or Collective Growth will achieve its expectations.

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This communication is not intended to be all-inclusive or to contain all the information that a person may desire in considering an investment in Innoviz or Collective Growth and is not intended to form the basis of an investment decision in either company. All written and oral forward-looking statements concerning Innoviz and Collective Growth, the proposed transactions or other matters and attributable to Innoviz and Collective Growth or any person acting on their behalf are expressly qualified in their entirety by the cautionary statements above.

#### **Additional Information and Where to Find It**

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Investors and security holders can obtain free copies of the registration statement, proxy statement/prospectus and all other relevant documents filed or that will be filed with the SEC by Collective Growth or Innoviz through the website maintained by the SEC at [www.sec.gov](http://www.sec.gov). In addition, the documents filed by Collective Growth may be obtained free of charge from Collective Growth's website at [www.collectivegrowthcorp.com](http://www.collectivegrowthcorp.com) or by written request to Collective Growth at Collective Growth Corporation, 1805 West Avenue, Austin, TX 78701 and the documents filed by Innoviz may be obtained free of charge from Innoviz's website at [www.innoviz.tech](http://www.innoviz.tech) or by written request to Innoviz at Innoviz Technologies Ltd., 2 Amal Street, Rosh HaAin, 4809202, Israel.

#### **Participants in Solicitation**

Collective Growth and Innoviz and their respective directors and executive officers may be deemed to be participants in the solicitation of proxies from Collective Growth's stockholders in connection with the proposed transaction. Information about Collective Growth's directors and executive officers and their ownership of Collective Growth's securities is set forth in Collective Growth's filings with the SEC, including the registration statement and the proxy statement/prospectus. Additional information regarding the interests of those persons and other persons who may be deemed participants in the proposed transaction may be obtained by reading the proxy statement/prospectus regarding the proposed transaction. You may obtain a free copy of these documents as described in the preceding paragraph.