Speaking: Tesla VP of Investor Relations Martin Viecha, CEO Elon Musk, CFO Vaibhav Taneja, VP of Vehicle Engineering Lars Moravy, Autopilot Director Ashok Elluswamy, Senior Megapack Director Mike Snyder, along with other executives and analysts.

: Transcript Below

Martin Viecha: My name is Martin Viecha, VP of investor relations, and I'm joined today by Elon Musk, Vaibhav Taneja and a number of other executives. Our Q1 results were announced at about 3:00 p.m. Central Time in the update deck we published at the same link as this webcast.

During this call, we will discuss our business outlook and make forward-looking statements. These comments are based on our predictions and expectations as of today. Actual events or results could differ materially due to a number of risks and uncertainties, including those mentioned in our most recent filings with the SEC.

During the question and answer portion of today's call, please limit yourself to one question and one follow-up. Please use the raise hand button to join the question queue. But before we jump into Q&A, Elon has some opening remarks. Elon?

Elon Musk: Thanks, Martin. So to recap, in Q1, we navigated several unforeseen challenges as well as the ramp with the updated Model 3 in Fremont.

As people have seen the EV adoption rate globally is under pressure and a lot of other auto manufacturers are pulling back on EVs and pursuing plugin hybrids instead. We believe this is not the right strategy, and electric vehicles will ultimately dominate the market. Despite these challenges, the Tesla team did a great job executing in a tough environment.

And energy storage deployments: the Megapack, in particular, reached an all-time high in Q1 leading to record profitability for the energy business, and that looks likely to continue to increase in the quarters and years ahead. It will increase—we actually know that it will—significantly faster than the car business, as we expected.

We also continued to expand our AI training capacity in Q1, more than doubling our training compute sequentially.

In terms of the new product roadmap, there has been a lot of talk about our upcoming vehicle line in the past several weeks. We've updated our future vehicle lineup to accelerate the launch of new models ahead of previously mentioned start of production in the second half of 2025. So we expect it to be more like early 2025, if not late this year.

These new vehicles, including more affordable models, will use aspects of the next-generation platform as well as aspects of our current platforms and will be able to be produced on the same manufacturing lines as our current vehicle lineup.

So it's not contingent on any new factory or massive new production line, it'll be made on our current production lines much more efficiently. And we think that should allow us to get to over 3 million vehicles of capacity when realized to the full extent.

Regarding FSD version 12, which is the pure AI-based, self-driving: If you haven't experienced this, I strongly urge you to try it out.

It's profound, and the rate of improvement is rapid. And we've now turned that on for all cars with the cameras and first computer, everything from Hardware 3 on in North America, so it's been pushed out to around 1.8 million vehicles, and we're seeing about half of people use it so far. And that percentage is increasing with each passing week.

So we now have over 300 billion miles that have been driven with FSD v12. Since the launch of Full-Self Driving, Supervised Full-Self Driving, it's become very clear that the vision-based approach with end-to-end neural networks is the right solution for scalable autonomy. It's really how humans drive. Our entire road network is designed for biological neural nets and eyes so naturally cameras and digital neural nets are the solution to a current root system.

To make it more accessible, we've reduced the subscription price to $99 month so it's easy to try out, and as we've announced we'll be showcasing our purpose-built Robotaxi or Cybercab in August.

Regarding AI compute, over the past few months we've been actively working on expanding Tesla's core AI infrastructure. For a while there, we were training-constrained in our progress, and we are, at this point, no longer training-constrained, and so we're making rapid progress.

We've installed and commissioned, meaning they're actually working, 35,100 H100 computers or GPUs—GPU's the wrong word; they need a new word. I always feel like a wince when I say GPU because it's not GPUs. "G" stands for graphics and it doesn't do graphics.

But anyway, roughly 35,000 H100s are active, and we expect that to be probably at 85,000 or thereabouts by the end of this year. And training, just for training. We're making sure that we're being efficient as possible in our training. It's not just about the number of visual hundreds, but how efficiently they're used.

So, in conclusion we're excited about our autonomy roadmap. It should be obvious to anyone who is driving version 12 in a Tesla, that it is only a matter of time before we exceed the reliability of humans, and not much time at that. And we're really headed for an electric vehicle, and an autonomous future.

And I'll go back to something several years ago: that in the future, gasoline cars that are not autonomous will be like riding a horse and using a flip phone, and that will become very obvious in hindsight.

We continue to make the necessary investments that will drive growth and profits with Tesla in the future, and I wanted to thank the Tesla team for incredible execution during this period and look forward to everything that we have planned ahead. Thanks.

Vaibhav Taneja: Thanks. It's important to acknowledge what Elon said, from our auto business perspective. We did see a season decline in revenues quarter-over-quarter, and those are primarily because of seasonality, uncertain macroeconomic environment, and the other reasons which Elon had mentioned earlier.
Auto margins declined from 18.9 to 18.5 percent. Excluding the impact of Cybertruck, the impact of pricing actions was largely offset by reductions in

per-unit costs and the recognition of revenue from Autopark feature for certain vehicles in the U.S. that previously did not have that functionality.

But definitely, while we did experience higher costs due to the ramp of Model 3 in Fremont, and disruptions in Berlin, these costs were largely offset by cost-reduction initiatives. In fact, if we exclude Cybertruck and Fremont Model 3 ramp costs, the revenue from Autopark auto margins improved slightly. Currently normalized worldwide cost per vehicle in Austin and Berlin are already very close to that of Fremont.

Our ability to reduce costs without sacrificing our quality was due to the amazing efforts of the team in executing Tesla's relentless pursuit of efficiency across the business.

We've also witnessed that, as other OEMs are pulling back on their investments in EVs, there's increasing appetite for credits, and that means a steady stream of revenue for us. Obviously, seeing others pull back from EVs is not the future we want, we would prefer that the whole industry went all in.

On the demand front, we've undertaken a variety of initiatives, including lowering the price of both the purchase and subscription options for FSD, launching extremely attractive leasing specials for the Model 3 in the U.S. for $299 a month, and offering attractive financing options in certain markets. We believe that our awareness activities paired with attractive financing will go a long way in expanding our reach and driving demand for our products.

Our energy business continues to make meaningful progress with margins reaching a record of 24.6 percent. We expect the energy storage deployments for 2024 to grow at least 75 percent higher from 2023. And accordingly, this business will begin contributing significantly to our overall profitability.

Note that there is a bit of lumpiness in our storage departments due to a variety of factors that are outside of our control, so deployments may fluctuate quarter-over-quarter.

On the operating expense front, we saw a sequential increase from our AI initiatives, continued investment in future projects, marketing, and other activities.

We had negative free cash flow of $2.5 billion in the first quarter. The primary driver of this was an increase in inventory from a mismatch between builds and deliveries as discussed before, and an elevated spend on CapEx across various initiatives including AI compute. We expect the inventory built to reverse in the second quarter, and free cash flow to return to positive again.

As we prepare the company for the next phase of growth, we had to make the hard but necessary decision to reduce headcount by over 10 percent. The savings generated are expected to be well in excess of $1.1 billion on an annual basis. We are also getting hyper-focused on CapEx efficiency and utilizing our installed capacity in a more efficient manner.

The savings from these initiatives, including our cost reductions, will help improve our overall profitability, and ultimately enable us to increase the scale of our investments in AI.

In conclusion, the future is extremely bright, and the journey to get there, while challenging, will be extremely rewarding. Once again, I would like to thank the whole Tesla team for delivering great results, and we can open it up to Q&A.

Martin Viecha: Thank you. Okay, let's just start with investor Q&A. The first question is, what is the status of 4680, what is the current output? Lars?

Lars Moravy: Sure. 4680 production increased about 18 to 20 percent from Q4, reaching greater than 1K a week for Cybertruck, which is about 7 GWh per year as we posted on X.
We expect to stay ahead of the Cybertruck ramp with the cell production throughout Q2 as we ramp the third and four lines in phase one, while maintaining multiple weeks of sell inventory to make sure we're ahead of the ramp.

Because we're ramping, COGS continues to drop rapidly week-over-week, driven by yield improvements throughout the lines and production volume

increases. So our goal, and we expect to do, is to beat supplier cost on nickel-based cells by the end of the year.

Martin Viecha: Thank you. The second question is on Optimus. So what is the current status of Optimus, are they currently performing any factory tasks? When do you expect to start mass production?

Elon Musk: We are able to do simple factory tasks or, at least, I should say factory tasks in the lab.
We do think we will have Optimus in limited production in the factory, in the actual factory itself, doing useful tasks before the end of this year. And then, I think we may be able to sell it externally by the end of next year.

These are just guesses. As I've said before, I think Optimus will be more valuable than everything else combined, because we've got a sentient, humanoid robot that is able to navigate reality and do tasks at request. There is no meaningful limit to the size of the economy.

So that's what's going to happen.

And I think Tesla is best-positioned of any humanoid robot maker to be able to reach volume production with efficient inference on the robot itself. I mean, this perhaps is a point that is worth emphasizing. Tesla's AI inference efficiency is vastly better than anyone, any other company. There's no company even close to the inference efficiency of Tesla.

We've had to do that because we were constrained by the inference hardware in the car. We didn't have a choice. But that will pay dividends in many ways.

Martin Viecha: Thank you. The third question is, what is Tesla's current assessment of the pathway towards regulatory approval for unsupervised FSD in the U.S., and how should we think about the appropriate safety threshold compared to human drivers?

Lars Moravy: Sure, I can start. There are handful of states that already have adopted autonomous vehicle laws. These states are paving the way for operations while the data for such operations guides a broader adoption of driverless vehicles.

I think Ashok can talk a little bit about our safety methodology, but expect that the states and the work ongoing as well as the data that we're providing will pave the way for a broad-based regulatory approval in the U.S., at least, and then in other countries as well.

Elon Musk: Yeah. It's actually been pretty helpful that other autonomous car companies have been cutting a path through the regulatory jungle. That's actually quite helpful.

And they have obviously been operating in San Francisco for a while. I think they got approval for the city of LA. So these approvals are happening rapidly.

I think if you've got at scale, a statistically significant amount of data that shows conclusively that the autonomous car has, let's say, half the accident rate of a human driven car, I think that's difficult to ignore, because at that point, stopping autonomy means killing people.

So, I actually do not think that there will be significant regulatory barriers, provided there's conclusive data that the autonomous car is safer than a human driven car.

And, in my view, this will be much like elevators. Elevators used to be operated by a guy with a relay switch, but sometimes that guy would get tired or drunk or just make a mistake, and shear   somebody in half between floors. So now we just get in an elevator and press a button. We don't even think about it. In fact, it's kind of weird if somebody is standing there with a relay switch.

That'll be how cars work. You just summon a car, using your phone. You get in, it takes you to a destination, you get out.

Vaibhav Taneja: You don't even think about it.

Elon Musk: You don't even think about it. Just like an elevator, it just takes you to the floor. That's it. You don't think about how the elevators working or anything like that.

And something I should clarify is that Tesla will be operating the fleet, so you can think of like how Tesla, I don't know, some combination of Airbnb and Uber, meaning that, you know, there'll be some number of cars that Tesla owns itself and operates in the fleet.

There'll be some number of cars... and then it'll be a bunch of cars where they're owned by the end user, and the user can add or subtract the car to the fleet whenever they want. And they can decide if they want to only let the car be used by friends and family or only by five-star users or by anyone, and at any time, they could have the car come back to them and it'd be exclusively theirs, like an Airbnb. You could rent out your guest room or not, anytime you want.

So as our fleet grows, we have seven million cars going to nine million cars going to, potentially, tens of millions of cars worldwide, with a constant feedback loop every time something goes wrong that gets added to the training data, and you get this training flywheel happening.

In the same way that Google search has the sort of firewall, it's very difficult to compete with Google because people are constantly doing searches, and clicking, and Google is getting that feedback loop, it's the same with Tesla, but at a scale that is difficult to comprehend. But ultimately it will be tens of millions.

I think there's also some potential here for an AWS element down the road, where, if we've got very powerful inference—we've got Hardware 3 in the cars, but now all cars are being made with Hardware 4, Hardware 5 is pretty much designed and should be in cars, hopefully towards the end of next year—there's a potential to run when the car is not moving, to actually run distributed inference.

So kind of like AWS, but distributed inference. Like it takes like computers to train an AI model, but many orders of magnitude less compute to run it.

So, if you can imagine the future paths where there's a fleet of 100 million Teslas, and on average, they've got like maybe a kW of inference compute, that's 100 GW of inference compute distributed all around the world. It's pretty hard to put together 100 GW of AI compute.

And even in an autonomous future where the car is perhaps used, instead of being used 10 hours a week, it's used 50 hours a week. That still leaves over 100 hours a week where the car inference computer could be doing something else. That seems like it would be a waste not to use it.

Martin Viecha: Ashok, you want to chime in on your process and safety?

Ashok Elluswamy: Yeah, we have multiple years of validating safety. In any given week we train hundreds of neural networks that can produce, you know, different trajectories for how to drive the car. They replay them through the millions of clips that they have collected from our users and our own QA. Those are our critical events. You know, like someone jumping out in front or like other critical events that we have gathered database over many, many years. And we replay through all of them to make sure that we all net improving safety. And on top of it, we have simulation systems that also try to recreate this and test this in closed-loop fashion.

When some of this is validated, we give it to our own QA drivers. We have hundreds of them in different cities, in San Francisco, Los Angeles, Austin, New York, a lot of different locations. They are also driving this and collecting real-world miles, and we have an estimate of, what are the critical events? Are they a net improvement compared to the previous weeks?

And once we have confidence that they're building some net improvement, then we start shipping to early users, like 2,000 employees initially, that they would like get the build, and they would give feedback on like if it's an improvement or are there some new issues that we did not capture in our own QA process.

And only after all of this is validated, then we go to external customers. And even when we go external, we have like live dashboards of monitoring every critical event that's happening in the fleet sorted by the criticality of it.

So we are having a constant pulse on the build's quality and the safety improvement along the way. And then any failures that aren't alluded to, you would get the data back, add it to the training, and that improves the model in the next cycle.

So we have this like constant feedback loop of issues, fixes, evaluations, and then rinse and repeat. And especially with the new v12 architecture, all of this is automatically improving without requiring much engineering interventions in the sense that people, engineers don't have to be creative in like how they code the algorithms. It's mostly learning on its own based on data.

So you see that, okay, with failure, or like this is how a person shows us how you drive this intersection or something like that, they get the data back we add it to the neural network, and it learns from that training data automatically instead of some engineer saying that, 'here you must rotate the steering wheel by this much,' or something like that.

There's no hard input submissions. Since everything is neural networks, it's very soft, it's probabilistic, so it will adapt. It's probable to distribution, based on what it's getting.

Elon Musk: Yeah, and we do have some insight into how good the new things will be, in like, let's say three or four months, because we have advanced models that are far more capable than what is in the car, but have some issues with them that we need to fix.
So there'll be a step-change improvement in the capabilities of the car, but it'll have some quirks that need to be addressed, in order to release it. As Ashok was saying, we have to be very careful in what we release to the fleet or to to customers in general.

So if we look at, say 12.4 and 12.5, which are really, could arguably even be version 13, version 14, because it's pretty close to a total retrain of the neural nets and, in each case, are substantially different.

So we have good insight into where the models, how well the car will perform in say three or four months.

Ashok Elluswamy: In terms of scaling loss, people in the AI community generally talk about model scaling loss, where they increase the model size a lot, and then there are corresponding gains in performance, but we have also figured out scaling loss in another axis.
In addition to the model size scaling, we can also have data scaling. You can increase the amount of data you use to train the neural network and that also gives similar gains. And you can also scale up by training compute. You can train it for much longer and get like more and more GPUs or more Dojo nodes and that also gives better performance.

And you also have architecture scaling where you come up with better architectures on the same amount of compute predictable results. So a combination of model size scaling, data scaling, training compute scaling and the architecture scaling. We can basically extract, like okay, if we continue scaling based on these, this ratio, we can predict future performance.

Obviously it takes time to experiments because it takes few days to train. It takes me weeks to collect 10s of millions of video clips and process all of them. But you can estimate what's going to be the future progress based on the trends that we've seen in the past and there's generally held true plastic.

Martin Viecha: Okay, thank you very much. Let's go to the next question, which is can we get an official announcement on the timeline for the $25,000 vehicle?

Lars Moravy: I think Elon mentioned in the opening remarks, but, as he mentioned, we're updating our future people lineup to accelerate the launch of our low-cost vehicles in a more tax-efficient way.

That's our mission to get the most affordable cars to customers as fast as possible.

These new vehicles were built on our existing lines and open capacity. That's a major shift to utilize our capacity with marginal CapEx before we go spend high CapEx to do anything.

Elon Musk: Yeah, we'll talk about this more on August 8.

But really the way to think of Tesla's is almost entirely in terms of solving autonomy and being able to turn on autonomy for a gigantic fleet. And I think it might be the biggest asset value appreciation history when that day happens, when you can do unsupervised, Full-Self Driving.

Lars Moravy: Five million cars. Well, little less.

Elon Musk: It'll be it'll be seven million cars in a year or so, and then 10 million, and then eventually, we're talking about tens of millions of cars. Before the end of the decade its several tens of millions of cars I think.

Martin Viecha: Thank you. The next question is what is the progress of Cybertruck ramp?

Lars Moravy: I can take that one too. Cybertruck hit 1K a week just a couple weeks ago. This happened in the first four to five months since we SOP'd late last year. Of course volume production is what matters. That's what drives costs. And so our costs are dropping. But the ramp still faces like a lot of challenges with so many new technologies, some supplier limitations etc,. and we'll continue to ramp this year just focusing on cost efficiency and quality.

Martin Viecha: Okay. Thank you. The next question, have any of the legacy automakers contacted Tesla about possibly licensing FSD in the future?

Elon Musk: We're in conversations with one major automaker regarding licensing FSD.

Martin Viecha: Thank you. The next question is about the robo taxi unveil. Elon already talked about that, so we'll have to wait till August. The following question is about the next generation vehicle, we already talked about that. So let's go to the Semi. What is the timeline for scaling Semi?

Lars Moravy: So we're finalizing the engineering of the Semi to enable like a super cost-effective high volume production with our learnings from our fleet and pilot fleet and Pepsi's fleet, which we're expanding this year marginally. In parallel as we showed in the shareholder's deck, we have started construction on the factory in Reno. Our first vehicles are planned for late 2025 with external customers starting in 2026.

Martin Viecha: Okay, couple more questions. So, our favorite, can we make FSD transfer permanent until FSD is fully delivered with Level 5 autonomy?

Elon Musk: No.

Martin Viecha: Okay, next question. What is getting the production ramp at Lathrop and later where do you see the mega big run rate at the end of the year? Mike?

Mike Snyder: Lathrop is ramping as planned. We have our second GA line allowing us to increase our exit rate from 20 GWh per year at the start of this year to 40 GWh per year by the end of the year.

There's really nothing limiting the ramp. Given the longer sales cycles for these large projects, we typically have order visibility 12 to 24 months prior to ship date, so we're able to plan the build plan several quarters in advance.

So this allows us to ramp the factory to align with the business and order growth. Lastly, we'd like to thank our customers globally for their trust in Tesla as a partner for these incredible projects.

Martin Viecha: Okay, thank you very much. Let's go to analyst questions. The first question comes from Tony Sacconaghi from Bernstein. Tony, please go ahead and unmute.

Toni Sacconaghi: Thank you for taking the question. I was just wondering if you could elaborate a little bit more on kind of the new vehicles that you talked about today. Are these like tweaks on existing models, given that they're going to be running on the same lines or are these like new models? And how should we think about them in the context of like, the Model 3 Highland update? What will these models be like relative to that and given the quick timeframe, Model 3 Highland has required a lot of work and a lot of retooling, maybe you can help put that all in context. Thank you, and I have a follow up please.

Elon Musk: I think we've said all we will on that front. So, what's your follow up?

Toni Sacconaghi: It's a more personal one for you, Elon, which is that you're leading many important companies right now. Maybe you can just talk about where your heart is at, in terms of your interests, and do you expect to lessen your involvement with Tesla, at any point over the next three years?

Elon Musk: Well, Tesla constitutes the majority of my work time, and I work pretty much every day of the week. It's rare for me to take a Sunday afternoon

off. I'm gonna make sure Tesla is very prosperous and it is. I think it is prosperous and it will be very much so in the future.

Martin Viecha: Thank you. Let's go to Adam Jonas from Morgan Stanley. Adam, please go ahead and unmute.

Adam Jonas: Okay, great. Hey Elon, so you and your team on volume, expect a 2024 growth rate notably lower than that achieved in 2023. But what's your team's degree of confidence on growth above zero percent?
Or in other words, does that statement leave room for potentially lower sales year on year?

Elon Musk: No, I think we will have higher sales this year than last year.

Adam Jonas: My follow up, Elon, is on future product: assuming that you nail execution on your next-gen vehicles, cheaper vehicles, more aggressive Giga castings, I don't want to say one piece but getting closer to one piece, structural pack, unboxed, 300-mile range, $25,000 price point.
Putting aside Robotaxi, those features unique to you, how long would it take your best Chinese competitors to copy a cheaper and better vehicle that you could offer a couple of years from now? How long would it take your best Chinese competitors to copy that? Thanks.

Elon Musk: I mean, I don't know what our competitors could do, except we've done relatively better than they have. You know, if you look at the drop in our competitors in China sales versus our drop in sales, our drop was less than theirs. So we're doing well.
I think Cathie Wood said it best: really we should be thought of as an AI or robotics company. If you value as just like an auto company, you just have to fundamentally... it's just the wrong framework. If you ask the wrong question, then the right answer is impossible.

If somebody doesn't believe Tesla is going to solve autonomy, I think they should not be an investor in the company. But we will, and we are. And then that goes from 10 hours of use a week, half a day, to probably 50, but it costs the same.

Vaibhav Taneja: I think that's the key thing to remember, right? Especially if you look at the FSD supervised, if you didn't believe in autonomy, this should give you a preview that this is coming. It's actually getting better day by day.

Elon Musk: Yeah, if you've not tried the FSD 12.3, and like I said, 12.4 is going to be significantly better and 12.5 even better than that, and we already have visibility into those things, then you really don't understand what's going on. It's not possible.

Vaibhav Taneja: Yeah, and that's why we can't just look at just as a car company because a car company would just have a car, but here we have more than a car company because the cars can be autonomous. And like I said it's happening.

Ashok Elluswamy: Yeah, this is all in addition to Tesla. The overall AI community is just like increasing, improving rapidly.

Elon Musk: Yeah, I mean, we're putting the actual "Auto" in automobile. So, a lot of people are like, sort of like "tell us about future horse carriages you're making." Well apparently it doesn't need a horse. That's the whole point. That's really the whole point.

Martin Viecha: Okay, thank you. The next question comes from Alex Potter from Piper Sandler. Alex please go ahead and unmute.

Alex Potter: Great, thanks. Yeah, so couldn't agree more. The thesis hinges completely on AI, the future of AI, Full Self-Driving, neural net training, all of these things. In that context, Elon, you've spoken about your desire to obtain 25 percent voting control the company. And I understand completely why that would be. So I'm not necessarily asking you about that.

I'm asking if you've come up with any mechanism by which you can ensure that you'll obtain that level of voting control. Because if not, then the core part of the thesis could potentially be at risk. So any additional commentary you might have on that topic?

Elon Musk: Well I think no matter what Tesla, even if I get kidnapped by aliens tomorrow, Tesla will solve autonomy, maybe a little slower, but it would solve autonomy for vehicles at least. I don't know if it would on, with respect to Optimus, or with respect to future products. But there's enough momentum for Tesla to solve autonomy, even if I disappeared, for vehicles.

Now there's a whole range of things we can do in the future beyond that. I'd be more reticent with respect to Optimus. You know, if we have a super sentient humanoid robot that can follow you indoors and that you can't escape, you know, we're talking Terminator-level risk, then yeah I'd be uncomfortable with, you know, if there's not some meaningful level of influence over how that is deployed.

Shareholders have an opportunity to ratify or re-ratifiy the sort of competition... I guess I can't say that. That is a fact, they have an opportunity. And if the company generates a lot of positive cash flow, we could obviously buy back shares.

Alex Potter: Alright, that's actually all very helpful context, thank you. Maybe one final question and then I'll pass it on.

OpEx reductions, thank you for quantifying the impact there. I'd be interested also in potentially more qualitative discussion of what the implications are for these headcount reductions. What are the types of activities that you're presumably sacrificing as a result of parting ways with with these folks? Thanks very much.

Vaibhav Taneja: Like we said, we've done these headcount reductions across the board. As companies grow over time, if you know there are certain redundancies, there's some duplication of efforts which happens in certain areas. So you need to go back and look at where all these pockets are, get rid of it.

So we're basically going through that exercise where we're like, "hey, how do we set this company right for the next phase of growth?" And the way to think about it is, any tree which grows, it needs pruning. This is a pruning exercise which we went through, and at the end of it, we will be much stronger and much more resilient to deal with the future. Because the future is really bright, like I said in my opening remarks, we just have to get through this period and get there.

Elon Musk: Yeah, we're not giving up anything that is significant that I'm aware of. We've had a long period of prosperity from 2019 to now.

So if a company is sort of, organizationally, is five percent wrong per year, that accumulates to 25, 30 percent of inefficiency. We've made some corrections along the way, but it is time to reorganize the company for the next phase of growth.

And you really need to reorganize it. Just like a human when you start off as one cell, then become a zygote system, a blastocyst, and you start growing arms and legs and briefly have a tail,

Lars Moravy: But you shed the tail.

Elon Musk: You shed the tail, hopefully. And then your baby... A company is kind of like a creature growing and if you don't reorganize it for different phases of growth, it will fail.

You can't have the same organizational structure, if you're 10 cells, versus 100, versus a million, versus a billion, versus a trillion. Humans are like around 35

trillion cells. It doesn't feel like it, it feels like you're one person, but no. You're basically a walking cell colony of roughly 35 trillion, depending on your body mass, and about three times that number in bacteria. So anyway, you've got to reorganize the company for a new phase of growth or it will fail to achieve that growth.

Martin Viecha: Thank you. Let's go to Mark Delaney from Goldman Sachs. Mark, please go ahead and unmute.

Mark Delaney: Yes, good afternoon. Thanks very much for taking the question. The company had previously characterized potential FSD licensing discussions as in the early phase and some of the OEMs really had not been believing in it.
Can you elaborate on how much the licensing business opportunity you mentioned today has progressed, and is there anything Tesla needs to achieve with the technology in terms of product milestones, in order to be successful reaching the licensing agreement in your view?

Elon Musk: Well, I think it just needs to be obvious that our approach is the right approach, and I think it is. I think we're, now with 12.3, if you just have the car drive you around it is obvious, that our solution, with a relatively low-cost inference computer and standard cameras, can achieve Self-Driving. No Lidars, no radars, no ultrasonics, nothing.

Lars Moravy: No heavy integration work for vehicle manufacturers.

Elon Musk: Yeah, so it'd really just be a case of having them use the same cameras and inference computer and licensing our software. But once it becomes obvious that, if you don't have this in your car, nobody wants your car. It's a smart car.

I just remember like back when Nokia was king of the hill, crushing, and then I saw them come out with a smartphone that was basically a brick with limited functionality.

And then the iPhone and Android, and people still did not understand that all the phones are going to be that way. There's not going to be any flip phones, because they will be a niche product.

Lars Moravy: Or home phones.

Elon Musk: Exactly. When's the last time you saw a home phone?

Lars Moravy: I have no idea. In a hotel. Sometimes in a hotel.

Elon Musk: Yeah, the hotels have them. So, people don't understand that all cars will need to be smart cars, or you will not sell, nobody will buy it. Once that becomes obvious, I think licensing becomes not optional.

Lars Moravy: It becomes a method of survival.

Elon Musk: Yeah, so it's "license it or nobody will buy your car."

Vaibhav Taneja: One other thing which I'll add is, in the conversations which we've had with some of these OEMs, I just want to also point out that they take a lot of time in their product lifecycle. They're talking about years before they will put it in their product.
We might have a licensing deal earlier than that, but it takes a while. So this is really the big difference between us and them.

Elon Musk: Yeah, I mean really, a deal signed now would result in it being in a car in probably three years?

Vaibhav Taneja: That would be early.

Lars Moravy: That'd be an eager OEM.

Elon Musk: Yeah, so, I wouldn't be surprised if we do sign a deal. I think there's a good chance we do sign a deal this year, maybe more than one. But yeah, it would probably be three years before it's integrated with a car, even though all you need is cameras and our inference computer. It's like, not a massive design change.

Vaibhav Taneja: And again, just to clarify, it's not the work which we have to do, it's the work they have to do which takes the time.

Mark Delaney: Very helpful, thank you. My follow up was to better understand Tesla's approach to pricing going forward. Previously, the company had said that the price reductions were driving incremental demand.
With how affordable the cars have become, especially for vehicles that have access to IRA credits, and some of the leasing offers that Tesla has in place, do you still see meaningful incremental price reductions as making sense from here for the existing products, and can the company meaningfully lower prices from here, and also stay free cash flow positive on an annual basis with the current product set? Thanks.

Elon Musk: Yeah, I think we can be free cash flow positive meaningfully.

Lars Moravy: I think Vaibhav said it in his opening remarks. Like our cost down efforts, basically we're offsetting the price cut. That's our goal, like we're trying to give it back to the customers.

Elon Musk: At the end of the day, like for any given company, if you have a great product at a great price, the sales will be excellent. It's true of any arena. So, over time, we do need to keep making sure that it's a great product at a great price. And moreover, that that price is accessible to people. So, it's not… you have to solve both the value for money and the fundamental affordability question.

The fundamental affordability question is sometimes overlooked. If somebody is earning several hundred thousand dollars a year, they don't think of a car from a fundamental affordability standpoint. But vast majority of people are living paycheck to paycheck.

So, it actually makes a difference if the cost per month for lease refinancing is $10 one way or the other. It is important to keep improving the affordability and to keep making the price more accessible. The price more accessible, the value for money better, and to keep improving that over time.

Lars Moravy: But also to make a kick ass cars that people want to buy.

Elon Musk: Yeah. It's got to be a great product and at a great price, and the standards for what constitutes a great product at a great price keep increasing, so, there's like… you can't just be static. You have to keep making the car better, improving the price but improving the cost of production, and that's what we're doing.

Vaibhav Taneja: Yeah. And in fact, like I said in my opening remarks also, like the revised, the updated Model 3 is a fantastic car. I don't think people fully even understand the amount of engineering effort which has gone in, and Lars and the team have actually put out videos explaining how much the car is different.

I mean, it looks and feels different. Not only it looks and feels different, and we've added so much value to it, but you can lease it for like as low as $299 a month.

Lars Moravy: Yeah. Without gas.

Vaibhav Taneja: Yeah.

Martin Viecha: Alright, the next question comes from George from Canaccord. George, please go ahead and unmute.

George Gianarikas: Hi. Thank you for taking my question. First, could you please help us understand maybe some of the timing of launching FSD in additional geographies, including maybe clarifying your recent comment about China? Thank you.

Elon Musk: You mean like new markets? Yeah, we are. There are a bunch of markets where we don't currently sell cars that we should be selling cars in. We'll see some acceleration of that.

Martin Viecha: And FSD new markets?

Elon Musk: Yeah. So, the thing about the end-to-end neural net-based autonomy is that just like a human, it actually works pretty well without modification in almost any market. So, we plan on, with the approval of the regulators, releasing it as a supervised autonomy system in any market that, where we can get regulatory approval for that, which we think includes China. So, yes. It's just like a human, you can go rent a car in a foreign country and you can drive pretty well. Obviously, if you live in that country, you'll drive

better. And so, we'll make the car drive better in these other countries with country-specific training. But it can drive quite well almost everywhere.

Vaibhav Taneja: The basics of driving are basically same everywhere, like car is a car, the traffic lights, a road is a road.

Elon Musk: It understands that it shouldn't hit things, no matter where it is.

Vaibhav Taneja: Exactly. There are some road rules that they need to follow. Like in China, you shouldn't cross over a solid line to do a lane change. In the U.S., it's a recommendation, I think. In China, you get fined heavily if you do that.
We have to do some more actions, but it's mostly smaller actons. It's not like the entire change of stack or something like that.

Martin Viecha: Hi George, do you have a follow-up?

George Gianarikas: Yeah. So, my follow-up has to do with the first quarter deliveries and I'm curious as to whether or not you feel that supply constraints that you mentioned throughout the release impacted the results, and maybe can you help us quantify that? And is that why you have some confidence in unit growth in 2024?

Vaibhav Taneja: Yeah. I think we did cover this a little bit in the opening remarks to you. Q1 had a lot of different things which are happening. Seasonality was a big one, continued pressure from the macroeconomic environment.
We had attacks at our factory. We had Red Sea attacks, we are ramping Model 3, we're ramping Cybertruck. All these things are happening. I mean, it almost feels like a culmination of all those activities in a constrained period.

And that gives us that confidence that, hey, we don't expect these things to recur.

Elon Musk: Yeah. We think Q2 will be a lot better. Yeah.

Lars Moravy: Just one thing after another. So crazy.

Elon Musk: Yeah, exactly. If you've got cars that are sitting on ships, they obviously cannot delivered to people. And if you've got the excess demand for Model 3 and Model Y in one market, but you don't have it there. It's quite a — it's extremely complex logistics situation.
So, I'd say also the — we did overcomplicate the sales process, which we've just in the past week or so have greatly simplified. So, it became far too complex to buy a Tesla, whereas it should just be you can buy the car in under a minute. So, we're getting back to the — you can buy a Tesla in under a minute interface from what was quite complex.

Martin Viecha: OK. Thank you. Let's go to Colin Rusch from Oppenheimer. Colin, unmute, please.

Colin Rusch: Thanks so much, guys. Given the pursuit of Tesla really as a leader in AI for the physical world, in your comments around distributed inference, can you talk about what that approach is unlocking beyond what's happening in the vehicle right now?

Elon Musk: Ashok, do you want to say something?

Ashok Elluswamy: Yeah. Like Elon mentioned, like the car, even when it's a full robotaxi, it's probably going to be used for 150 hours a week.

Elon Musk: That's my guess, like a third of the hours of the week.

Ashok Elluswamy: Yeah. It could be more or less, but then there's certainly going to be some hours left for charging and cleaning and maintenance in that world, you can do a lot of other workloads, even right now, we are seeing, for example, the LLM companies have these batch workloads where they send a bunch of documents and those are run through pretty large neural networks and take a lot of compute to chunk through those workloads.
And now that we have already paid for this compute in these cars, it might be wise to use them and not let them be like buying a lot of expensive machinery and leaving to them idle. We don't want that.

We want to use the computer as much as possible and close to like basically 100 percent of the time to make full use of it.

Elon Musk: I think it's analogous to Amazon Web Services, where people didn't expect that AWS would be the most valuable part of Amazon when it started out as a bookstore. So, that was on nobody's radar.
But they found that they had excess compute because the compute needs would spike to extreme levels for brief periods of the year and then they had idle compute for the rest of the year. So, then what should they do to pull that excess compute for the rest of the year.

That's kind of... yeah, monetize it. It seems like kind of a no-brainer to say, OK, if we've got millions and then tens of millions of vehicles out there where the computers are idle most of the time that we might well have them do something useful.

And then I mean if you get like to the 100 million vehicle level, which I think we will, at some point, get to, then... and you've got a kW of useable compute and maybe your own Hardware 6 or 7 by that time. Then you really... I think you could have on the order of 100GW of useful compute, which might be more than anyone, more than any company, probably more than any company.

Ashok Elluswamy: Yeah, probably because it takes a lot of intelligence to drive the car anyway. And when it's not driving the car, you just put this intelligence to other uses, solving scientific problems like a human or answering dumb questions for someone else.

Elon Musk: We've already learned about deploying workloads to these compute nodes.

Ashok Elluswamy: And unlike laptops and our cellphones, it is totally under Tesla's control. So, it's easier to distribute the workload across different nodes as opposed as opposed to asking users for permission on their own cellphones would be very tedious.

Elon Musk: Well, you're just draining the battery on the phone, so like technically, I suppose like Apple would have the most amount of distributed compute, but you can't use it because you can't get the... you can't just run the phone at full power and drain the battery.
So, for the car, even if you're a kW-level inference computer, which is crazy power compared to a phone. If you've got 50 or 60kWh pack, it's still not a big deal whether you plugged it or not. It could be plugged in or not like you could run for 10 hours and use 10 kilowatt hours of your kilowatt of compute power.

Lars Moravy: We got built-in like liquid-cooled thermal management. Yes, it's exactly for data centers. It's already there in the car.

Elon Musk: Exactly. It's distributed power generation. Distributed access to power and distributed cooling. That was already paid for.

Ashok Elluswamy: Yes. I mean, that distributed power and cooling, people underestimate that costs a lot of money.

Vaibhav Taneja: Yes. And the capex is shared by the entire world. Sort of everyone owns a small chunk, and they get a small profit out of it maybe.

Elon Musk: Yeah.

Colin Rusch: Thanks so much, guys. And just my follow-up is a little bit more mundane. Looking at the 4680 ramp, can you talk about how close you were to target yields and when you might start to accelerate incremental capacity expansions on that technology?

Elon Musk: You know, we're making good progress on that. But I don't think it's super important for at least in the near term. As Lars said, we think it will exceed the competitiveness of suppliers by the end of this year. And then we'll continue to improve.

Lars Moravy: Yes. I mean, I think it's important to note also that like the ramp right now is relevant to the Cybertruck ramp. And so, like we're not going to just randomly build 4680s unless we have a place to put them. And so, we're going to make sure we're prudent about that.
But we also have a lot of investments with all our cell suppliers and vendors. They're great partners, and they've done great development work with us, and a lot of the advancements in technologies and chemistry, they're also putting into their cells.

Elon Musk: Yeah. I mean, a big part of the 4680, Tesla doing internal cells was a hedge against what would happen with our suppliers because for a while they are it was very difficult because every big carmaker put in massive battery orders. And so, the price per kilowatt hour of lithium-ion batteries went to crazy numbers, crazy levels.

Vaibhav Taneja: Bonkers.

Elon Musk: Yeah, just bonkers. So, like, OK, we've got to have some hedge here to deal with cost per kilowatt hours of numbers that were double what we anticipated. If we have an internal cell production, then we have that hedge against demand shocks, we have too much demand. That's really the way to think about it.
It's not like we want to take on a whole bunch of problems just for the hell of it. We did the cell program in order to address the crazy increase in cost per kilowatt hour from our suppliers due to gigantic orders placed by every carmaker on Earth.

Martin Viecha: Okay, thank you. And the last question comes from Ben Kallo from Baird. Ben, go ahead and unmute. Ben, you're still muted.

Elon Musk: Well, I want to say again, we'd just like to strongly recommend that anyone who is, I guess, thinking about the Tesla stock should really drive 12.3. It really... you can't... it's impossible to understand the company if you do not do this.

Martin Viecha: All right. So, since Ben is not unmuting, let's try Shreyas Patil from Wolfe Research. Final question.

Shreyas Patil: Oh hey. Thanks so much. Elon, during the Investor Day last year, you mentioned that auto COGS per unit for the next-gen vehicle would decline by 50 percent versus the current 3 and Y. I think that was implying something around $20,000 of COGS. About a third of that was coming from the unboxed manufacturing process.
But I'm curious if you see an opportunity that some of the other drivers around powertrain cost reduction or material cost savings, would those be largely transferable to some of the new products that you're now talking about introducing?

Lars Moravy: Yeah, sure. I mean, in short, yes. Like the unboxed manufacturing method is certainly great and revolutionary, but with it comes some risks because it's new production lines and not.
But all the subsystems we developed, whether it was powertrains, drive units, battery improvements in manufacturing and automation, thermal systems, seating, integration of interior components and reduction of LV controllers, all that's transferable, and that's what we're doing, trying to get it in their products as fast as possible.

And so, yeah, that engineering work, we're not trying to just throw it away and put it in a coffin. We're going to take it and utilize it and utilize it to the best advantage of the cars we make in the future.

Shreyas Patil: Okay, great. And then just on that topic of 4680 cells, I know you mentioned it, you really thought of it more as like a hedge against rising battery costs from other OEMs. But it seems even today, it seems like you would have a cost advantage against some of those other automakers.
And I'm wondering, given the rationalizing of your vehicle manufacturing plans that you're talking about now, if there's an opportunity to maybe convert the 4680 cells and maybe sell those to other automakers and really generate an additional revenue stream. I'm just curious if you have any thoughts about that.

Elon Musk: Great. What seems to be happening is that the nets are missing something, the orders for batteries from other automakers have declined dramatically. So, we're seeing much more competitive prices for sales from our suppliers, dramatically more competitive than in the past. It is clear that a lot of our suppliers have excess capacity.

Unknown executive: Yeah. In addition to what Elon said, this is saying, by the way, in addition to what Elon said about 4680, what 4680 did for us from a

supply chain perspective was help us understand the supply chain that's upstream of our cell suppliers. So, a lot of the deals that we had struck for 4680, we can also supply those materials to our partners, reducing the overall cost back to Tesla. So, we're basically inserting ourselves in the upstream supply chain by doing that.

So, that's also been beneficial in reducing the overall pricing in addition to the excess capacity that these suppliers have.

Elon Musk: Yeah. No, I mean, this is going to wax and wane, obviously. So, there's going to be a boom and bust in battery cell production where production exceeds supply and then supply exceeds production and back and forth kind of like, I don't know, DRAM or something.

So it's like what is true today will not be true in the future, there's going to be somewhat of a boom-and-bust cycle here.

And then there are additional complications with government incentives like the Inflation Reduction Act, the IRA... which I always found it like a funny name or a comical name. Yeah, it is like Irish Republican Army, the Internet Research Agency from Russia.

Lars Moravy: Independent retirement account.

Elon Musk: Yeah, exactly. Roth IRA. It's like a four Spiderman situation, which IRA wins. But it does complicate the incentive structure. So, there's the stronger demand for cells that are produced in the U.S. than outside the U.S. But then how long does the IRA last? I don't know.

Lars Moravy: Which is why it's important that we have both in-house cells and other cells to hedge against all of this.

Martin Viecha: Okay, thank you very much. That's all the time we have today. But at the same time, I would like to make a short announcement.
I wanted to let the investment community know that about a month ago, I met up with Elon and Vaibhav and announced that I'll be moving on from the world of investor relations. I'll be hanging around for another couple of months or so. So, feel free to reach out at any time. But after the seven-year stint, I'm going to be taking a break and spending some good quality time with my family.

And I wanted to say that these seven years have been the greatest privilege of my professional life. I'll never forget the memories… I started literally at the beginning of production hell and just watching the company from the inside to see what it's become today.

And especially super thankful to the people in this room and dozens of people outside of this room that I've worked for over the years. I think the team's strength and teamwork at Tesla is unlike anything else I've seen in my career. Elon, thank you very much for this opportunity that I got back in 2017. Thank you for seeking investor feedback regularly and debating it with me.

Elon Musk: Yeah. Well, I mean, the reason I reached out to you was because I thought your analysis of Tesla was the best that I had seen. So, yeah, thank you for helping Tesla to get to where it is today over seven years. It's been a pleasure working with you.

Martin Viecha: Thank you so much. And yeah, thank you for all the thousands of shareholders that we've met over the years and walked around factories and loved all the interactions, even the tough ones. And yeah, looking forward to the call in the next three months, but I'll be on the other side, listening in. Thank you very much.