Ford Motor Company

Capital Markets Day (Delivering Ford+) Transcript

May 22, 2023

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Please welcome, Executive Director, Investor Relations, Ford Motor Company, Lynn Antipas Tyson.

Lynn Antipas Tyson:

Welcome everyone, especially those of you joining us on the webcast, and also those of you who came out on a Sunday to experience the products. I think the Raptor R jump was the favorite. Yeah? I think for those of you here. So I just wanted to go through run of show for you and also show you Safe Harbor. So if we can cue the Safe Harbor slide please. Perfect, you saw it. Now we can take it down, and let's go to the agenda for today, especially for those of you who are watching the webcast.

The formal part of today will start now and go through 11 o'clock. That will include one hour of Q&A for the analysts who are in the room. We will have a break in between. So again, those of you on the webcast can take a break then. Then we will go off the webcast and have a networking lunch for those of you who are in the room for 90 minutes, and then we'll reconvene to do the breakout sessions. Each one will also be webcast. Just to let you know all information's going to be archived on our website. And again, we welcome you to Dearborn, Michigan. Thanks.

Delivering Ford+: The Legacy of Tomorrow Video:

A legacy is not born. It is built, guided by a purpose, fueled by belief, underpinned by the willingness to adapt as the world around us changes. That's why we're refounding our company. It's how we will compete and win. Focusing on our customers, driving innovation, creating experiences, making vehicles that move to the heartbeat of our digital lives. Writing software for the businesses that power human progress. Harnessing data to learn from every drive you take and making the next one better. This moment in history will define us. It's a time to develop, a time to revolutionize, once again. They say we are all about legacy. Wow, maybe that's true, because the plans we make today drive the legacy of tomorrow.

Please welcome, President and Chief Executive Officer, Ford Motor Company, Jim Farley.

Jim Farley (Chapter 1):

Well, good morning, and welcome to Ford and thanks for investing all of your time with us. When you're visiting Ford, you're surrounded by history. In three weeks, our company is going to be 120 years old. Right across the street is the Henry Ford Museum, where my grandfather went to school. Down the road is the Rouge, the cradle of the Industrial Revolution.

Bill Ford works one office down from me every day. We work for all of you and for the next generation and then the one after that. Now some say history shows that companies like Ford can't win an era of technology and new competition. There's too many legacy issues, too much resistance to change inside the company. Over the past two years, this team has confronted each of those very real challenges head

on. We created a compelling plan. We've been relentless in building a world-class team and tackling the biggest problems that face forward and our industry.

A new culture is taking root one that demands focus, collaboration, and excellence. The history that matters now is the history we are making now. Two years ago we laid out the Ford+ Plan. It was a here we go moment in creating a Ford that thrives at the intersection between great vehicles, which won't change, innovation, and rapidly deploying software. And as you know, one year ago we announced plans to reorganize Ford into three customer facing businesses, Ford Blue, Ford Model e, and Ford Pro to drive speed, focus, and accountability. And this year we started to actually run our company with this new structure.

Today, we'll take you deeper into our strategy, into the big bets we're making, different bets than some others are making. Most of all, I hope you come away with a better understanding of our strategy and the potential for Ford to create tremendous value for both our customers and our investors.

Everything we're doing is centered on our educated view of what customers want and expect. What they will love, actually, in this new era of connected and digital vehicles. If I fast- forward a few years, great vehicle design, great performance, quality, they're going to be table stakes. The shopping and buying experience is going to be simple and delightful. Your car's integration to your digital life will be seamless and rewarding. The improvements to the vehicle constant and ingenious. EV charging must be fast, reliable, safe and easy to access. And sending electrons back to the grid or running your house will be as normal as flipping on the AC in your house.

Advanced data, predictive failure of components will catch most vehicle problems before they even happen or at least before they become serious. Think about a plumber whose van never breaks down. They know two weeks in advance if they need to change so much as a wiper blade. Repairs and upgrades will be handled over the air or by remote service teams.

But here's what's most exciting about that future. Your vehicle will get to know you and your family or coworkers. Customers will choose the tech features they want just as we do the apps on our phone. Imagine a beautiful Ford vehicle sitting in the Farley family driveway and depending on who gets behind the wheel, the user experience is completely customized.

No surprise to you, I would probably go for zero to 60 in three seconds, with very aggressive regenerating braking, and unfortunately for my kids probably Led Zeppelin off my phone. My wife, Lia, might choose zero to 60 in six seconds for a relaxed drive and twice the range that I want, with CarPlay and Sheryl Crow. And for my daughter Grace, streaming One Direction would pop up instantly, and if she's driving, I better be getting an automatic text message every time she breaks the speed limit.

At night back, in our driveway, the vehicle's cameras, the microphones, the lighting will provide an extra layer of security for our house. As we move to this future, brand strength will still matter and we are fortunate to be stewards of one of the greatest brands in the world. I hope you felt that yesterday when you were jumping your Raptor or drifting a Mustang. Because Ford is an American original and there are not many anymore. It's resonates in a way, that way around the world. The blue oval badge is at home

with work trucks or an $800,000 supercar, police cruisers, Mustang GTs. Ford's comfortable in the Formula One circuit at paddock as is us being comfortable at Moab.

We're as comfortable on a fashion brand or a vintage t-shirt. The opportunity we have now is to elevate the Ford brand and introduce ourselves to millions of new customers who may have never considered a Ford, to evolve and offer services and experiences that people don't want to live without.

Now, unique and compelling nameplates like F-Series and Bronco and Mustang, they create buzz and provide a platform, but here's the main point. Features that stretch horizontally across the brand safety and security applications, partial autonomy, like BlueCruise, productivity and predictive failure, like Pro Telematics those will be the difference makers.

So okay, Farley, how should I look at that as an investor? The fact is auto valuations have been constrained for decades and Ford has been stuck in a box. The industry is crowded, it's mature, and to stand out we let complexity overrun our business as we try to be all things to all people. We poured capital into fresh sheet metal in every segment cycle after cycle. We jockeyed against our competition over slivers of share in markets were growth long ago stagnated, and where demand evaporated every time we had an economic downturn.

Well, this is a new era. We're playing the game differently and we now have new tools. We set our site squarely on the things that we do better than anyone trucks, large SUVs, commercial vans. We're accelerating our use of low capital derivatives like you saw yesterday, to keep our products fresh and improve returns. We're simplifying our offerings based on how we know customers actually use their vehicle from data off the vehicle. And then we eliminate waste that are permeating our companies for decades.

We're now using software and data as a catalyst to create more value for our customers and offer personalization without complexity. And most importantly, we're using services like BlueCruise, and charging for our pro and telematics and prognostics and predictive failure and safety and security to add value to our customers throughout their lifetime with the product. And that gives us two things we've never had. Number one, it gives us profit streams that don't dry up in a downturn, and number two, it gives us a chance to grow.

Now, I'm not here to tell you that we're undervalued. You'll make your own decision. I'm here to say that as we execute Ford+ Plan, we have a massive potential to create value with a higher growth, higher margin, less capital intensive, and more resilient business. A 10% adjusted EBIT margin by 2026, it's not the end goal, it's a way point, it's a milestone on our journey. We have much higher ambitions as a team. And we're going to show you the bridges today so you could track our progress.

It starts with our commitment to customers to deliver world-class quality in every segment we compete, and to close the cost gap to the best in our industry. And to do that, we've launched a lean, disciplined operating system that reaches into every one of our plants we operate, every part we buy, every engineer that releases apart. And Kumar will get you very specifics about the Ford plan in Blue, and especially around cost and quality.

The appeal and pricing power of Ford Blue lineup is stronger than ever. I don't think people really understand the opportunity we have with Blue. We believe our combustion and hybrid business is more durable than other automakers because our iconic products, consumer profile and segments where we compete are unique. You will see a relentless discipline in capital allocation and brand management as we leverage Ford Blue to grow, profit, and cash flow. And bottom line, the business is stronger, it's strong, it's growing, and it's going to be that way for a while.

Next, we'll take you inside Model e, which is focused on three mission-critical priorities. First, developing incredible EVs and software platforms for all of our vehicle businesses. Number two, launching a new consumer experience with our dealers. And number three, building our industrial system to deliver millions of EVs super efficiently. Now, Doug will take you inside our plan to build an indescribably great second and third generation EVs that none of you have seen. We say indescribable as a team, inside the company, because these vehicles will be platforms for endless innovation and I believe offer features we can't even imagine yet.

I never expected to use my iPhone to measure my sleep and it isn't much by the way, but this is exactly what's going to happen to vehicles. The embedded electrical architecture, all the software that we design, the cameras, the sensors, the microphones, the speakers, they're going to open possibilities to software developers in areas like partial autonomy, safety and security, and productivity for Blue, e, and Pro.

Now achieving the vision comes down to two things. How deeply we understand our customer and how quickly we can iterate with that knowledge, with the data off the vehicle and deliver better and better software and products. We're going to make that virtuous circle tighter and tighter and faster and faster. And I can't wait to show you what's coming. Like a Ford electric truck, that's a technology tour de force that will transform the job site. Or a seven passenger SUV that's like your own personal bullet train.

We're matching these vehicles with a modern and simple customer experience that starts with one major breakthrough, non-negotiable price. Our dealers can be a competitive advantage as we work together to lower distribution costs. We're going to reduce physical inventories dramatically in Model e, and deploy a new marketing model that focuses on loyalty and customer communication and building a community rather than spending billions on TV advertising and broadcast media. Now all this relies on building an industrial machine that can produce two million EVs a year in just a few years from now, and that includes our diverse battery technologies, comprehensive raw material plans, and vertical integration strategy. When our new second cycle EV truck comes online in BlueOval City in Tennessee, it will be the most efficient built pickup truck in the planet. And when our new LFP battery plant in Michigan begins production in 2026, we expect it to produce one of the industry's least expensive batteries ever. Lisa Drake will tell you more.

Now let's talk about our secret weapon, maybe not so secret anymore, Ford Pro. This is one way to look at Ford Pro. Ford Pro today is a $50 billion revenue business, that would put Ford Pro by itself in the Fortune 100, just below the likes of John Deere. A great company whose market cap is twice Fords. Now,

Deere earned that valuation by capitalizing on that same intersection of hardware, software, and services, while providing tremendous value to their commercial customers. The Deere plan perfectly describes our master plan for Pro. And it won't be one easy to copy as some other automakers think.

Because as Ted will explain, we are starting with clear, global market vehicle leadership across multiple work sectors and vocations. We have unmatched physical dealer network and deep collaboration with upfitters. It would take a decade or more to get even close to what we have today. Taken together, this constitutes a wide and very deep moat for us at Ford Pro. Now we are going to integrate digital and physical experiences that maximize uptime for our customers, accelerate their productivity, and lower the cost of ownership. A superior distribution system for Pro and higher software attach rates, which we're already seeing, will drive revenue and earn loyalty.

I'm especially pleased for you to get to know the Ford team better during this event. Now the competition for talent is very real, and for the first time that I can remember, it feels we are absolutely winning at Ford. People with rare talent can work anywhere they choose and they're motivated for the chance to change the world and put their own mark on history. And fortunate for us, some of these incredible leaders have been drawn by the opportunity to revolutionize the automobile and an iconic company like Ford. With this new talent combined with the best people at Ford, we now have a team I have dreamed of working with for my entire career.

And later today, our CFO, John Lawler, will bring it all together with the financials and assumptions that support our investment thesis. But I didn't want to miss a chance to speak directly to our valued investors. I said earlier, Ford has been stuck in a box with thin margins, weak growth, and low valuations. You've been in that box with all of us and it's now time to break out.

Over the next few hours, you will see a new company come to life, a company our investors deserve. We intend to create unprecedented value through both share price growth and shareholder distribution, and that's why we develop Ford+. I want to end by thanking all of you for your time, the most valuable thing we all have. Please enjoy the day, get to know the team. And with that, I'd like to invite Kumar up to the stage. Thank you.

Kumar Galhotra (Chapter 2):

Ford Blue is a global industrial powerhouse with iconic vehicles. We're the number one selling pickup manufacturer globally. F-Series is the number one pickup in the world. Maverick is America's number one small pickup. Explorer is America's all-time bestselling SUV. Mustang has been the world's bestselling sports coupe over the last 10 years combined. And last quarter, Bronco outsold Wrangler at retail.

All of this is enabled by one of the freshest lineups in the industry. The average age of Ford Blue's portfolio is four years. The average age of our truck portfolio is just over two and a half years. And globally, between this year and next, 60% of the Ford Blue product portfolio will receive a major or moderate level of freshening.

The resiliency of our product portfolio in the face of EV adoption is remarkable. Broncos are coveted off-road vehicles. They go places where you're unlikely to find chargers for EVs. And for those who want the range assurance of an ICE and lower emissions, we have Escape and Corsair, plug-in hybrids, and F-150 and Maverick full hybrids. We expect the strength of this portfolio will deliver Ford Blue low double-digit EBIT margin by the end of 2026.

Ford Blue is also the industrial heart of our company. Over 60,000 hourly employees build approximately 13,000 vehicles every day in 16 assembly plants around the world. Our manufacturing skills have been honed over 120 years. Kentucky Truck plant builds Super Duty's, Expeditions, and Navigators. Our team installs the right engine and transmission into the right chassis, mates it to the right body, and a brand new vehicle rolls off the assembly line every 37 seconds.

But delivering great products and having great operations isn't good enough. We have a lot of growth opportunity, and we must turn our cost structure and capital efficiency into a competitive advantage. We estimate that total Ford costs are about $7 billion higher than our competition, and most of that sits in Ford Blue. Closing this gap will yield higher margins and free cash flow to fuel the enterprise growth. So Ford Blue priorities are very clear, improve quality, reduce costs, grow revenue and profits.

Let's start with growth. Let the strength of our portfolio makes Ford Blue a growth business. Our vehicles are iconic. They've become part of our cultural fabric. They have a huge loyal, global and multi-generational following. We have Mustangs for on-road fun, Broncos for offer adventures, F-Series to get all kinds of job done, Explorers and Expeditions for long haul family trips. And we're attracting new customers. Over 50% of Bronco and Maverick customers are new to the brand. Iconic nameplates like these helped forward grow its US market share by almost a full percentage point in 2022. Global Ranger sales grew 20% in the first quarter of this year. So demand continues to outstrip capacity for our key vehicles.

In the next 10 months, Ford Blue will increase its capacity by over 160,000 units. We will further strengthen our portfolio and we will use several levers to improve our returns. We're developing derivatives. We're broadening our hybrid powertrain offerings. We're increasing our share of accessories and parts sales.

So let's start with derivatives. Many of you experienced the breadth of our portfolio yesterday, including the derivatives. Derivatives are emotional products that are also highly capital efficient. We created the high performance off-road truck segment with the F-150 Raptor. We've since expanded it with Bronco and Ranger Raptors. We deploy relatively low investment by deriving these vehicles from existing vehicles. These vehicles have about 80% commonality to the base vehicle, and deliver two to three times the EBIT for each dollar of invested capital.

We have the Tremor family for our pickups. Timberline provides more off-road capability for our SUVs. Bronco, Bronco has Raptor, Everglades, Heritage all developed for different customers. And that's just the start, there are several more chapters in the Bronco story yet to be written.

And we will be disciplined and efficient as we invest in these derivatives. We will focus on growth segments, where we lead. These vehicles are an expression of our customer's passions and lifestyles. These are not commoditized vehicles. They have serious pricing power.

And our customers also love to customize. The US accessories are an $8 billion industry with very high margins. Ford customer service division, or FCSD, will unlock this growth potential. Our accessories are Ford tested and covered by our warranty. Let's take Bronco as an example. It is a canvas for personalization. If you see a Bronco bolt, it means you can replace the part being held by that bolt with a more personalized part. And the average Bronco owner spends $1,700 in accessories at the time of purchase. We plan to expand this over the ownership cycle by doubling our market share for post-sale accessories to 20% over the next three years.

Speaking of FCSD, today, FCSD captures only about 25% of the post warranty service. We plan to increase this to 40% over next three years. We will add service capacity by lowering warranty repairs, and also add mobile service capacity. An effortless customer experience is key to growing the service business.

This year we'll add over 2000 mobile service base to the entire enterprise. We'll come to the place of your choice and perform light service. Like oil changes and tire rotations, we already offer pickup and delivery to Ford and Lincoln customers in 16 countries. We will pick up your vehicle, service it, and bring it back to you. The margins on our service business are robust. And FCSD will thrive well into the future as ICE begins to decline, because we'll have a carpark of millions of vehicles around the world for years to come.

Another growth lever is software. Over the coming years, Ford Blue will benefit greatly from the software being developed by the Model e team. Of all the OT updates we've delivered to date, more have landed on ICE F-150 than any other vehicle. Close to 40% of all BlueCruise capable vehicles we ship this year will be delivered to Ford Blue customers. So clearly lots of opportunity to grow. And because of our unique portfolio, we are less exposed than our competition during this EV transition.

Truck customers travel long distances, they tow very often. They will buy our ICE and hybrid full-size trucks until EV range with towing improves and a broader charging network emerges. Mustang customers look for that unique gas powered experience both on the road and on the track. Outside of North America, Ranger is our hero. Over 70% of Rangers are sold in markets where the local infrastructure does not support significant EV adoption in the near term. Trucks, off-road, and performance segments have a long runway, but ICE volumes will clearly decline as EV adoption increases and we embrace that reality. We think this will begin for us post 2025, but the pace of EV adoption will vary by segment and geography. Europe and China are transitioning faster than the US, our biggest market. We expect strong US ICE and hybrid sales well into the next decade.

Now let's talk about how we're reducing our share of that $7 billion cost gap. Let's start with quality. We've set very specific and time bound goals to improve. For vehicles like F-150, Super Duty, Bronco, Ranger, Transit, we're targeting to be best in class by 2025. For the rest of our portfolio, the target is for each vehicle to be in the top quartile of their respective segment by 2025.

We're addressing the three key root cause areas for improvement: engineering, manufacturing, and supply chain. Let me share some examples. For near term quality, we made meaningful changes to our recent Super Duty launch. We began our software testing before we even built a single vehicle. We identified and resolved bugs faster. We hit bug peak earlier, and dramatically reduced the chaos of late software changes. We increased the number of launch vehicles we evaluated. Hundreds of drivers, drove millions of miles in launch vehicles. We tested and held vehicles for quality verification three times longer than the prior launches.

To address long-term quality, we've improved our durability testing. We're changing a lot of our testing regime from test to standard to test to failure. We used to test key vehicle systems to a certain standard that was correlated to real life usage. Once the system passed that standard test, we stopped the test. This process works, but you could miss the opportunity to increase the system life even further.

What if failure was just a few cycles away when we stopped the test? Now, for these key systems, we test until it fails. We find the eventual weak point. We can then eliminate it and prolong the vehicle life even further. Early data shows that these changes are working. Lessons learned from Super Duty are now a blueprint for future vehicles. These process improvements will lower our warranty and recall costs. This will improve Ford Blue's contribution margin and EBIT margin one point by 2026.

Let's talk about material commodities and logistics costs. We are attacking waste on current and future vehicles in three areas. First, the health of our supply base. Second, just the pure cost of our parts. And the third is complexity. We have some chronically inefficient tier one and tier two suppliers. Post pandemic, suppliers shed labor, depleted critical skills, reduced buffer stock, causing unstable supply. Unstable parts flow from these inefficiencies, disrupts our production. This causes waste for us and for the rest of the supply base.

We have worked with more than 125 key supplier sites to stabilize their operations. We've established ongoing monitoring of key indicators like quality and supply flow. If the present supplier is not on a path to a permanent solution, we're resourcing the business.

Semiconductor shortages have also driven production instability resulting in premium material and logistic cost. We are working every day to improve this. Addressing the supply base instability will improve Ford Blue's contribution margin and EBIT margin one and a half percentage points.

Next, part cost. Our team is benchmarking competitive designs and collaborating with suppliers to reduce part costs. Let me share some tangible examples. Modifying material on exhaust manifolds, mounts, and front rails will deliver $35 million in annual savings. Simplifying Explorer wiring complexity from 500 main harnesses to 14, lowers cost by $7 million a year. Eliminating a cable designed as a manufacturing aid will deliver $11 million in annual savings. There are hundreds of examples like these. So far this year we have identified over half a billion dollars in annualized savings and are working every day to increase that number even more.

These design actions plus others, including expected commodity cost improvements, will contribute an additional one and a half percentage point of margin to Ford Blue by 2026. In total, these actions will deliver four percentage point improvement in EBIT margin from contribution costs. Now let's turn to Blue's structural cost. We are reducing labor and overhead, depreciation and amortization, engineering and SGNA costs. For example, storage, shuttling, security, and repairs of incomplete vehicles cost our manufacturing almost a point of margin last year. We will eliminate this waste as we improve the supply based stability. Complexity reduction improves both our quality and material costs, but it is also critical to improving our structural costs. Less complexity means fewer parts. Fewer parts to engineer, fewer parts to tool, fewer parts to test, fewer parts to sequence. It means reducing engineering facilities, tooling, and manufacturing costs. Over the last two years, we've reduced the number of orderable combinations for Explorer from over 1900 to 23. For Expedition, from over 800 to 32. We've done this without losing sales or share, and in the process made ordering a vehicle online much easier for our customers.

The space adjacent to our assembly lines is limited. High complexity parts must be sequenced in warehouses near the assembly plant. By reducing our complexity so far, we have identified 85,000 square feet of floor space that can be freed up to enable further insourcing for cost reductions.

Later this year, we will introduce a new F-150. We removed over 2,400 parts from the bill of material for this truck. This reduced material and logistics related waste. Also reduced engineering, tooling, depreciation, and amortization cost. Our capital efficient derivative strategy, complexity reductions, and the benefits from greater cost absorption by Model E and Pro as they scale will lower Blue's structural costs by four percentage points.

Let me end with how I began. Ford Blue is a vibrant global industrial powerhouse with iconic vehicles, vehicles with a lot of runway for profitable growth. We will get more efficient with our manufacturing operations. We will improve our carbon footprint. We will design flexibility into our manufacturing system to ensure we can serve our customers with ICE and hybrid vehicles. We're improving quality, reducing cost, improving our mix, growing our average revenue per unit, increasing profits, and generating cash. By the end of 2026, Ford Blue will deliver low, double-digit EBIT margins. That is the strength of Ford Blue, an efficiently run business and an industrial powerhouse with an iconic product portfolio. Thank you. Now let me welcome Doug to the stage.

Doug Field (Chapter 3):

Good morning. Good morning.

Audience:

Morning.

It's a real privilege to be here and talk about some of the really cool work that's going on in Model E. I'll start the Model E story actually with the Ford Blue product. Ford Blue makes some really amazing products like the Expedition.

Now, if you're hauling your whole family and a boat to a remote location way away from Chargers and paved roads, this is your product. There's nothing better for that job than an Expedition. Model E isn't trying to play a zero sum game with Ford Blue. We're building white space products that couldn't exist with a nice powertrain, just as Ford Blue will keep making products that would be compromised without one. We are investing in really targeted applications where today's technology for EVs is already great, and we're succeeding. Half of Lightning customers and even two and a half years after launch, 60% of Mach-E customers are new to Ford. These are different customers who are using their vehicles in different ways. Ford's generation one was a scrappy endeavor. Low investments, really small teams, and pushing against a large organization that hadn't really endorsed or embraced EVs yet. Now, I wasn't here when these products were developed, but when I saw them I was impressed. They're not just great first round EVs, they're great products, period. They're part of actually why I came to Ford. If this is their first generation product, imagine what can be done in the future.

Ford went way beyond just taking products and converting them into EVs. The best example is the F-150 Lightning. I told you about customers being new to Ford. But what's really staggering is more than half of Lightning customers are new to full-size trucks. This is a really big deal, and it only happens if you've redefined a product category.

Ford knows trucks, and they started by making Lightning a real truck, built Ford tough to do real work. But when you engineer an EV with the capability to do this kind of work, you also get a truck that's mind-blowingly quick. Hopefully you got to experience that yesterday. This is a real work truck that accelerates like the best sports cars. That's a different proposition.

The Mega Power Frunk is a really big deal as well. It's about the size of the trunk on the best-selling sedan in the United States. You get your lockable, weatherproof storage and you get a truck bed. This becomes a different product with different trade-offs. Pro power on board provides all the power you would need for anything you can put in the frunk or anything you could bring to your campsite. In the bed, Pro power is a lot more than just a bunch of wall plugs. This has a 240 volt power source capable of even charging another EV, or running a work site, and doing it with no noise and no emissions. Then finally, Ford was also first with intelligent backup power. You plug your Lightning in to charge at home, and if you lose power, your truck can immediately switch over and run your house for days.

A few years ago back in California, I installed a bunch of Tesla power walls at my home. Now, if I had waited, I could've had the same backup capability and I would've gotten a truck for free. I have friends at Apple who told me they bought a Lightning because it's the only EV where they can fit their child seats three across in the back. We're attracting new customers to this segment and to Ford because this really is a new product category.

Now our gen two products we'll take a lot further. We'll invest in gen two only in the places and segments where we know we can win and where we know we can do something differentiated and where we're going to deliver great stuff and great products to the world. Starting with a full size pickup that goes to the next level and a three row SUV. Our gen two products will be unlike anything customers have ever seen.

That starts by not trying to be everything to everyone and make every possible flavor for every individual. As Kumar told you, that's not really what customers want anyway. Because of the connected data that we now have access to, we're much more informed on what customers want and what they don't value than any time in history. We take that information, and engineers and designers focus on a small number of very discreet configuration, and they optimize systems instead of components one by one. They pursue excellence for a specific customer and how these customers will use an EV.

Those of you who were at some of our events have seen Project T3. Project T3 is our next electric truck. The complexity goes so far in this new project that you'll be able to count the buildable combinations on two hands. That covers both Model E's retail customers, their Ford Pro commercial customers, and commercial customers.

When we commit to this kind of focus, complexity falls off in a way that completely changes the company. Kumar told you a little bit about it, but the operational impact is profound. The inventory feeding the plant, as you saw, the sequencing, everything that has to feed an individual snowflake of a product down the line. Service parts we carry, changeovers that suppliers have to do, every one of these and a whole bunch I didn't mentioned have costs associated with them, and they're unmeasured and they get forever lost in the system. But the biggest benefit is what we can do with the product with that focus. The project T3 stands for trust the truck. This is a truck people can trust not only to do work, but they can trust it in the digital age. It's fully updateable. It'll be constantly approving, rapidly learning from the moment it starts down the assembly line when its computer is alive and communicating with the factory until years after it's been a part of a customer's life.

Jim called this product a Millennium Falcon with a back porch. That's a great description of what this thing will be. We're not going to show it to you today, but it's a badass product. Our gen two three row, which is also coming in 2025, will be equally groundbreaking.

Think about a family that wants an affordable EV with amazing experience for road trips. Now, we could have converted an Expedition into an EV, but it wouldn't have made for a very good EV and it wouldn't have made for a very good Expedition. You'd have to put a really big battery in this vehicle in order to get just 300 miles of range on the highway, about 150 kilowatt hours of battery. That's a big, expensive, and heavy battery. Instead of capturing the unique and great things that we could do for an EV, this product would've been a compromised solution for a customer that Ford Blue has already got covered with a great product. That's not what the team did.

There's a bit of an arms race in the industry to shove bigger and bigger batteries into large EVs to try and make them like ICE vehicles. But the real battleground in electrification is about efficiency. Efficiency is like God's work. When we really understand the physics around energy loss in an EV, we optimize it rather than compromise it. When we set out to build our generation two three row, we started by changing the way we think about the tires with lower rolling resistance, squeezing every little drop of propulsion system efficiency out, optimizing everything in computer simulations. We took a bunch of mass out, we lowered the ride height, we changed the aerodynamics, and the result is a different product. It's a three row family vehicle with 350 miles of range that can still cover 300 miles when you're cruising at 70 miles per hour. It's got a battery that's one-third smaller and lighter, thousands of dollars

less expensive. With the same amount of scarce battery raw materials, we can bring our product to three customers instead of two. Those three customers are going to get a new and a better product.

As Jim said, we call it a personal bullet train. It's beautiful and it's unlike anything in the segment so far. It'll be affordable. It'll be longer, sleeker, quieter vehicle with amazing size and features of an interior space. We've engineered the battery and charging, so not only can you travel those distances on the highway, but you can stop for less than 10 minutes and pick up 150 miles of range.

This obsession in EVs is more than engineering. It's like a religion. The teams have put together these little pocket cards that say, "What are the trade-offs of efficiency? How much do I get for every little piece of weight that I take out of the vehicle? What do I get for better tires? What do I get for more efficiency and propulsion?"

It takes more though than great products to really win customers over, particularly new customers to Ford. It takes a buying and ownership experience that's way, way beyond what we do today. We know that most customers would enjoy the buying process a lot more if they could skip the step of negotiating on price. Starting in January, Model E customers will have flexible purchase options, online, in the store, with transparent pricing that they don't have to haggle over, and remote vehicle delivery, and later pick up as well. These better experiences make customers more likely to build a relationship and choose the same dealer again. There are benefits to the dealer.

Customers also want to get their dream vehicle, not settle for what's on the lot. Soon they'll have far more options available to purchase through their dealer from new retail replenishment centers. These centers can hold a couple of weeks of inventory and deliver the right vehicle in less than 10 days. With how we've brought the complexity of our lineup down, we can cut the system inventory in half to 50 days.

Our dealers are freed as well from negotiating with customers to sell what they have on the lot, and that's happier customers, but it's also fewer discounts. We want each of our Model E dealers to be a trusted partner for new EV customers who want to see and learn about these new great products. We've talked about how electrification changes the product and changes the business, but electrification isn't the biggest transformation going on in the auto industry, and it's not the limit of what we're trying to do in Model E as well. Model E is intended to bring tech and software to the center of all ICE, hybrid, and electric vehicles across Ford Blue, Model E, and Pro. With software, these aren't just vehicles, they're products, but a very special kind of product.

A vehicle is a space which we can design and curate in ways that no other space in your life can be. We can place the screen in exactly the right place for the experience we are designing. Not have to deal with the fact it could be in your lap, it could be on the wall, or it could be sitting on your desk. We can put cameras in precise positions inside and outside the vehicle. We can put our speakers and our microphones, more importantly, at exactly the right points relative to where we know the people are going to be in the space. We can change the lighting and we can control the experience all the way from how you're sitting to what the air quality is and what the air temperature is.

This goes way beyond what you could do with just a device with software or even a smart home. They're all different. This opens new experiences. We start with how we connect the vehicle to your digital life, and we do that with media, music, and games, but we do it in exciting new ways, leveraging that space.

Our music experience, for example, should be so great that a family says, "Hey, there's a new Billy Eilish album out. Let's go out to the car and listen to it." We'll use this space to connect you to the outside world as well, not just isolate you. You'll be able to connect with video conferences, bring people along on your trip virtually where they can see what's going on both inside and outside the vehicle. The vehicle can be a remote presence. It's a guardian. A security camera, an alarm system, a weather station, or it could even be a mobile mailbox.

We want to make these experiences so great that you could take the wheels off our products and people would still want to buy it and have it in the backyard. But it will have wheels. As we work towards this future with more and more autonomy, when you can eventually take your eyes off the road, all of this investment in those experiences, we can start to bring to people while they're traveling. But these digital interior experiences are really just the beginning. Products we make are not living rooms. They are moving, working robots. Our software ambition goes way beyond, deep into how our products move, how they collect data, and how they support people who are going to use them for real work. We call them unimaginably great products, because the best things we will make are the ones we haven't thought of yet.

If you want to design for things you haven't thought of yet, the only way you do that is with a platform, a platform on which our creative and technical people are going to build their future. Platform thinking has been around a long time in the automotive industry. But it's generally been based on underbody structures, engines, transmissions, things that take a long time to engineer, require lots of capital spending and long lead times. This is a very, very different kind of platform, and it's one that still really isn't understood that well in the auto industry.

You can start with the electrical architecture, and you'll hear a lot from the industry on this. You can find all kinds of block diagrams all over the web. Less wiring, less connectors, these are generally the things you'll hear people talk about, but it's not the most important part of the platform. The most important part is the software.

Ford, despite the challenges we have in existing vehicles with industry standard, supplier controlled digital platforms, Ford has made a huge amount of progress in moving into the new world. Back starting in 2019, Ford made a commitment to put a modem in every single car. That must have been quite a leap of faith. But with it we're learning from connected data and we're making better, more informed decisions. We've already started improving the customer experience, 11 million OTAs, over the past two years, to add capabilities and enhancing existing ones. We want to focus in a few key areas with this software where we know we can make a big impact on customers. Connection with people and data in your environment, productivity, particularly in Ford Pro, but everywhere, safety and security, and then autonomy. While we're just getting started with the vehicles we have, just imagine what we can do when we control the platform. We're building our next gen platform, software and hardware, for all Ford vehicles, and it will launch first on our generation two Model E products in 2025. When that

happens, all of a sudden a new world of possibilities opens, and a new world of businesses like L3 autonomy.

In the breakout session, I'll tell you a lot more about this platform, but we're not waiting until then to start delivering software. Ford Pro is our tip of the spear. Ford Pro intelligence launched us into the productivity space at the beginning of last year. BlueCruise we launched almost two years ago, long before I was here. It transformed the experience for customers in light or heavy traffic on divided highways. Our version 1.0 was consumer report's top-rated ADAS in the US, and it's the first hands-free system to actually gain regulatory approval for use at highway speeds in Europe. Not crawling around, stop and go, below 40 kilometers per hour.

BlueCruise is the first place where we're in the software business. With its success, we're now putting BlueCruise hardware in every single Mach-E, whether the customer ordered it or not. With no selling or marketing support, just on the strength of the product and word of mouth, we're already at a 20% take rate, and we have an even bigger opportunity with the other 80%. We now have the confidence to install BlueCruise hardware on 500,000 Ford Model E, Blue, and Pro vehicles next year, even if in some cases the customer doesn't choose to order BlueCruise upfront.

What we're seeing is revenue that we think could be $200 million here in high margin across the business, which doesn't even include future activations or extensions. That's just the start. As we build out our next gen platforms, we aspire to deliver L3 autonomy to as many customers as possible. When you can take your eyes off the road, everything changes.

My finance and business partners tell me that this is a different kind of revenue. They use these words like accretive to margins, less cyclical than vehicle sales, as Jim talked about, and it's revenue to grow without fighting for vehicle share.

Now, we're going to do this kind of software in a different way, in the Ford way. Ford is about democratizing technology. That's the history that you're seeing and hearing about today. We want to design our software for our customers and their specific use cases, not our internal technical experts. We want to give customers capability, but not complexity. We want simple products, but products that are never patronizing. I'll talk more about this in the breakout session. This all starts with people, fantastic teams composed of the most talented and passionate people in the industry, that combine decades of experience building this company, with new skills and perspectives from other industries.

This team that we're privileged to lead is led by senior leaders on my staff, on design, on product, and in technology that I believe to be the best in the industry. We're now building third generation teams and projects, and they're going to deliver breakthroughs and products and platforms that go completely beyond gen two. We'll keep going and we'll never be satisfied, but that's okay because this is what we love to do.

Now, I came to Ford because it's the opportunity to be best of both worlds, to use technology to create these unimaginably great experiences and products, but the ability to leverage a proven capability of a

legendary team with more than a century of scaling and delivering products to millions of customers. To show you how that part of the team is bringing to life the Model E plan, here's Lisa Drake.

Lisa Drake (Chapter 3):

Thank you, Doug. Okay, so to put these incredible products in millions of driveways, all we need to do is build the largest greenfield complex in Ford's history, transform Ford existing plants all across the globe to produce our EVs, build five new Gigafactories to produce batteries, hire and train thousands of workers, secure multiple contracts for a lithium and nickel, and that's for starters.

Fortunately, we have 120 years of industrial know-how at Ford, and we will lean on that. We've learned a lot about building an EV industrial system just in the past few years. Luckily, vertical integration is in our DNA. From 2022 through the end of '26, Model E will grow from just under 100,000 units to well over one million. When you add Ford Pro, our total capacity will approach two million EVs. So we are wasting no time already increasing production in our first gen EVs. That starts most recently at our Mustang Mach-E plant in Cuautitlan.

Now, our quarter one volumes were down because we shut down the plant to expand the production capacity. We built a new paint shop, a new battery pack center, a new final assembly, and we were back up building customer units in just eight weeks. By the 41st production day, we had doubled the previous hourly production. Now, Lightning will undergo a similar shutdown this summer because we will nearly quadruple its annual capacity.

Speed counts in this business, especially for time to market for our next gen products. Ford's standard of manufacturing excellence is to launch and hit full operating line rate within 55 days, and we built the capability to do this through decades of innovation and manufacturing, taking on some of the industry's biggest challenges like the introduction of the aluminum intensive F-150 a few years back.

Now some of the most radical innovation in our final assembly process will happen next year at our Oakville complex in Canada. We will introduce a production process called Zero Falls Forward, and it takes advantage of our new fully networked product capability that Doug talked about to self-test and communicate issues to the operator right on the line. We can continuously update software to the latest levels throughout the entire production process. Plus, we get to have some fun with self-driving and manufacturing too, as the vehicles will be able to move through various stages of production and testing without a driver, and we can leverage this autonomous vehicle technology both indoors in the plant and also outside of the manufacturing facility. This is going to help us increase throughput, reduce our overall space requirements, and of course enhance safety for our plant workforce.

We expect to scale this capability faster than others because we have the best of both worlds, with the vehicle electrical architecture and the manufacturing experience to pull it off. Converting our Oakville site allows us to start producing EVs about two years sooner than if we were to have built a new plant. We already have the land, the buildings, and we have a proven workforce in Canada that's ready to roll.

Now, of course, we're building a Greenfield site too. The Tennessee Electric Vehicle Center at Blue Oval City. Tennessee is the home of Project T3, the gen two EV pickup that Doug talked to you about. Our

Tennessee Electric Vehicle Center will create more than 3,200 new jobs, and it takes another significant step forward in manufacturing innovation. We'll have zero mainline operators in the body shop, a 25% smaller paint shop and final assembly area versus our Dearborn truck plant, and more than a 60% reduction in the labor to produce the battery packs versus our F-150 Lightning today.

A few examples about how we did this are behind me. The teams using autonomous mobile robots for material handling in the body shop as an example, laser-guided closure installs for the doors and the hood. In addition, we'll stack the bodies coming out of our paint shop vertically to take advantage of the volumetric space in the building, and we'll shrink that paint shop footprint 25%. And we'll have all of the connected and autonomous manufacturing capabilities, as I mentioned in Oakville in Tennessee as well. When it opens in less than two years, the Tennessee truck plant, which can flex to a production capacity of 500,000 units annually will have nearly 30% less labor and overhead cost per unit than our high scale ICE F-150.

Bottom line, scaling quickly, taking full advantage of our digital product capability coupled with our manufacturing strengths is a really big part of the foundation for our industrial plant inside of Model E. Now let's talk about the battery plants. We've announced five vertical integrated plants globally. The first two in Kentucky and Tennessee are on track to open in 2025, and we've learned a lot from our current generation EV experience on what it takes to scale battery capacity with quality.

Ramping these facilities will define our EV launch curve. These are massive, massive facilities, thousands of pieces of equipment, and really deep raw material value chains. Two of those raw materials I'd like to talk to you about briefly. We've sourced about 90% of the nickel and the lithium that underpin our capacity targets. And today, we're announcing lithium agreements with three of the top producing major global suppliers, Albemarle, SQM, and Nemaska.

Nemaska is a joint venture backed by Liven and the investment arm of Quebec, and these are some of the largest lithium producers in the world with the best quality existing capacity in IRA compliance. And our plan is significantly de-risked with these agreements versus relying on investments in junior producers or smaller entrants who are still in permitting or extraction and processing development. And while these majors give our plan stability, we're also investing in US-based development projects through agreements with Compass, Ioneer, and ESM.

We all need to continue exploring reserves, developing extraction technologies so that we can further diversify the industry, and Ford will certainly continue supporting that development. Now quickly on nickel, companies like Huayou have made breakthroughs in nickel processing and one of those processes is called HPAL, high pressure acid leaching. That process converts lower grade nickel oars that were previously considered waste, or at best maybe suitable for stainless steel applications to something called MHP, mixed hydroxide precipitate. And their process does this very economically and with very low carbon emissions. Producing battery grade nickel sulfate from this MHP instead of your typical class one nickel feed stocks saves hundreds of dollars per vehicle. Investment in processes like HPAL is growing rapidly and Ford moved early last year to combine this technology with the responsible mining practices of Valet who is an ESG leader in the mining space.

The nickel from this arrangement will be used by the second Blue Oval SK plant in Kentucky to produce cells for a lineup of Ford Pro commercial EVs. That plant will have 45 gigawatt hours of capacity, meaning this lower nickel will provide close to $200 million in annual savings. And if you didn't catch it, we have an entire cell plant dedicated to Ford Pro EVs. All of those commercial vehicles will qualify for the $7,500 tax credit. Now let's talk LFP, which is lithium iron phosphate. We are building a dedicated plant in Marshall, Michigan that will be owned and operated by a wholly owned Ford subsidiary, which will produce battery cells using world-class LFP technology. This plant will produce a single cell design that allows us to flex capacity between multiple products and it will run at world-class productivity levels only seen on a few production lines to date.

Since we announced this plant in February, we've already found efficiencies to increase its capacity to 42 gigawatt hours from the originally planned 35. And when the plant begins production in 26, we expect it to produce one of the least expensive batteries in the United States. And just to note, our LFP volume will make up roughly 15% of our portfolio in 2027. And it's also important to know that we're working hard on our NCM and we're on track to deliver a 30% cost reduction in our NCM chemistry impacts from the launch of the [inaudible 01:15:04] in December 2020 to our Gen 2 products in 2025.

We understand the challenges ahead of us and we know that this is not going to be easy work. It's pretty exciting to see the significant progress the team has already made. Blue Oval city construction is on track and equipment is being installed as we speak. Global battery plants are hitting their schedules and well underway. Workforce development is moving ahead and no one knows the American manufacturing workforce better than Ford. And it's really rewarding to see our teams building the curriculums and the training centers for the workforce of the future. We just showed you our progress on raw materials and we're super focused on our plan and we have a world-class team to get it done. With that we'll begin our 10 minute break and then Ted Canis will come up and talk to you a little bit about Ford Pro. Thank you.

Ford Pro Video:

Grade A Construction is a woman owned business. We handle anything from the ground down to get a site ready. 100% of our fleet is through Ford. Vestus is the largest producer of wind turbines. Our fleet in North America right now is about 1,850 vehicles. Well, across the US we have about 2,500 company vehicles. Anyone who manages a commercial fleet knows that it can be very demanding. Making sure that our fleet is running effectively, making sure maintenance is done in a timely fashion, that our vehicle uptime is as robust as possible. What sets Ford Pro apart is having that all-in-one accessibility. The mobile service is extremely convenient for us. Getting the newer vehicles into the fleet is going to enable us to have a lot more data. Being able to provide us data to make better decisions at our company has been extremely beneficial for us. I was raised in a family of eight kids, we all worked hard. For me to see Ford Pro kind of have that same mindset of working hard every day just makes my job easier.

Please welcome CEO Ford Pro, Ted Cannis.

Ted Cannis (Chapter 4):

Alrighty. So Ford Pro was born out of Ford's leadership in light and medium duty trucks and vans and our long history of serving both commercial and government customers. As you saw on the video, our

customers are businesses of all sizes. They're trades like construction workers or plumbers, landscapers and electricians. You may not have noticed them or the trucks, but our vehicles are all around you driven by the people who make up the backbone of our economy and nobody is serving commercial vehicle customers like Ford Pro. We are a trusted partner who understands their complex needs and we cover every industry and every vocation. Ford Pro has the widest and most flexible range of vehicles of any brand and will have the freshest lineup. We have built relationships with hundreds of thousands of customers. Most of them are small businesses, municipalities, not just a couple last mile delivery companies.

Our customers don't just want a great tool to get the job done, they also need physical service to keep them running. And with the addition of software and connected data, we can help them solve some of their biggest challenges like uptime, safety and security, lower total cost of ownership, and increasingly environmental sustainability. Now technology is driving a paradigm shift and Ford Pro is uniquely positioned to integrate new digital solutions that build on our strong foundation of vehicle leadership and our unmatched support network. We truly offer a one-stop shop of work-ready vehicles, software, service, charging and financing solutions that make running a commercial fleet simpler and more productive every day. Because Pro stands for productivity. We already have a powerful business in both North America and in Europe, and we're going to make it even better with new growth opportunities, increased margins and reduce cyclicality.

So let's take a look at the opportunities ahead of us. In 2023, we expected nearly double our EBIT to around 6 billion driven by a strong order banks and for our new vehicles and favorable pricing. And we plan to deliver a mid-teen EBIT margin level by 2026 as we scale our integrated solutions. We have nearly $12 million commercial vehicles on the road today, and less than 30% of them are connected with embedded modems. By 2026, we expect to grow that to around 13 and a half million vehicles and almost 60% will be connected. Today, we had nearly 400,000 paid software business subscriptions for solutions like telematics and managed charging software. Our paid software attach rate at present is 12% of our connected vehicle base, and we expect this to almost increase threefold by 2026. And by then nearly a third of all connected Pro vehicles will be using our software solutions, including those powered by our NextGen software platform.

This will add even more value for our customers through features like intelligent predictive maintenance, coupled with the big advancements in Blue Cruise partial autonomy and advanced fleet controls and other safety and security capabilities. And these together, these software solutions have the potential to drive up to $2,000 per vehicle annually in subscription revenue. And when you add on non-software opportunities like connected commercial insurance, the revenue potential gets close to four to $5,000. Our software coupled with service helps reduce downtime and this will get better and better as prognostics and over the air updates grow and we expand our physical mobile service footprint. This will take our attach rate in our after sales parts business from today around 30% to over 50% by 2026. That's the tremendous opportunity we are going after, and we'll do it by executing on our growth strategy, which will extend and deepen our competitive mode.

We plan to do the following, sustain our commanding position through new product launches and freshness, strengthen our industry leading physical service network and leverage software and our new digital architecture to provide differentiated productivity solutions. That combination will lead to higher

levels of customer loyalty and satisfaction, a growing share of wallet, and a stickier Ford Pro ecosystem that will lead and fuel our future growth. So let's take a look at each of these growth areas in a bit more detail. So obviously Ford's Pro success is built upon our diverse range of built Ford tough commercial vehicles including gas, diesel, hybrid, and now electric, our newest and fastest growing category.

We've built decades long relationships with many of our customers, and in fact, nearly one in four fleets in the US are Ford only, more than 2.5 times as much as the next brand. And in the US we have the largest share of the class one through seven commercial and government full size truck and van market with nearly 41% share, double our closest competitor.

In Europe, we've been a number one commercial vehicle brand for eight years in a row with 15% share. We are seeing pent-up demand everywhere for all of our vehicles and new product launches will continue to drive our market share growth. By 2024, we'll up freshened around 40% of our lineup, including the all new Super Duty in North America. Our most important launch this year. The new model has been redesigned inside and out with unprecedented levels of technology and work capability of 5G modem over there updates, plus more towing ,payload, torque, and horsepower than any heavy duty size truck on the market. And Super Duty pickups and chassis cabs lead the markets in key segments including mining, construction, and utilities, and have double the share of their closest competitor. It's a key driver of our profitability in 2023 and beyond. And in Europe, we are launching the new Ranger followed by the all new transit custom coming later this year.

And the all electric e-transit custom and e-transit courier in 2024, which will rapidly increase our EV customer base. Transit is the best-selling cargo van in the world. And the transit customs for the Americans is not only the number one commercial vehicle in the United Kingdom, it is the number one selling vehicle there overall in that market. A key reason for the transit's success is its versatility. In North America, the e- transit offers eight configurations to suit virtually any use case, not just last mile. The complexity and use case variety in the commercial space is very different than the passenger vehicles, making our broad range of vehicles a key competitive advantage for Ford Pro. This year we plan to expand production of the F-150 Lightning and e-transit already the best-selling electric vehicles in their category since they've launched. And the United States Postal Service recently agreed to purchase over 9, 000 e-transit vans.

So our early mover advantage with these vehicles and our trusted relationships with customers position us extremely well to win more share of the growing electric commercial truck and van market. And every customer is moving to electric at a different pace. So we will offer ICE, hybrid, and electric vehicles for many years to come and we are guiding them through the transition. Now, charging is one of the greatest concerns for commercial customers. They fear EVs won't have enough charge throughout the day to get the job done. And while public charging is important, the key is depot and employee home charging. And unlike others, Ford Pro is doing it all. We provide a complete end to end offering from infrastructure consultation to applying for regional and national incentives. And our charging software can help customers optimize energy costs through applications like split billing for employees that charge at home or in public and energy rate monitoring to determine the best time to charge.

We have hundreds of customers using our charging solutions already and we're seeing an almost 30% attach rate. Now, uptime is the lifeblood for all businesses, especially small and medium businesses. We

are building our service capability to offer fast, reliable, and importantly data driven service that is essential to keeping vehicles on the road. We have the largest physical support network of any brand broadly distributed across North America and Europe. This map shows our service footprint in the US. It is a key differentiator for us and it gives us a huge moat around our business. Our network includes more than 1,400 dedicated commercial dealerships, including 800 transit centers in Europe and over 1,000 mobile service vehicles. And our customers love mobile service because they come to you and will repair a whole line of vehicles at the same location and they even service multi-make fleets.

And over the last two years, we've rolled out our data-driven Ford live command centers that help maximize uptime for customers by cutting the time of vehicles off the road through proactive fleet monitoring and issues resolution like expediting repairs and parts ordering.

In 2022, we helped our customers in Europe avoid 300,000 days of downtime equating to $150 million of savings or $500 a day. Another secret weapon is our deep collaboration with over 500 vehicle upfitters. We shipped more than 270,000 upfitted vehicles last year covering every industry. They include complex body builds, cranes, ambulances, bucket trucks and recreational vehicles, and a multitude of accessories like shelves, racks, and snow plows. We've integrated with these upfitters to drive efficient modifications with constant feedback loops. We provide convenience and speed by managing the end-to-end freight and logistics products from our plant to the upfitter, which many are located around our facilities, and then onto the end customer. And we're also adding more than 100 service elite centers in North America and they specialize in fully upfit super duties, transits, and medium duty trucks and have bigger bays and very long service hours. No other brand is doing what we are doing in physical and mobile service.

And third and most important growth labor for us is Ford Pro's software and digital experience. Software integrates with our physical service network and combines data from vehicles, charging hardware, and daily fleet activity into a digital interface that a fleet manager or business owner can easily access and integrate into their existing systems. Today, our software offering allows us to provide tailored preventive repair and diagnostics using vehicle history, data not available with plugin devices from third party providers. We can tele doctor the vehicle and order parts in advance to speed up repair times and allow fleet managers to limit the speed vehicle can drive at, a command and control functionality, again, that plugin software cannot do. We've created a curated system of Ford built applications and third party solutions that integrate all together and can even support multi make fleets. And our customers are already realizing the benefits of our Ford Pro intelligence platform in productivity gains, fuel optimization, improvements in how they run and secure their vehicles and how they manage their employees.

It also saves the money. Joint research we conducted with KPMG shows that Ford Pros integrated digital and physical services can lower the cost of ownership by up to 20%. That is a direct and measurable positive improvement to our customer's P&L, and the quality of effectiveness of our software is only going to get better with the launch of Ford's NextGen digital architecture being developed by Model E that you heard Doug talk about earlier. Ford Pro's key differentiator is our ability to integrate the software, vehicles, and services into a sticky ecosystem. And while others are trying to copy the formula, they will struggle to build the digital backend, leverage our huge scale, and form these deep customer relationships that Ford priority has. By reducing friction for our customers, we can increase their loyalty,

satisfaction, and retention. And this in turn will help us to attract new customers and we'll be able to capture more share of wallet as the economic value we provide increases.

And this flywheel effect is the foundation for our long-term growth, powering our market share expansion and driving a portfolio of products, services, and solutions. So before I conclude, I wanted to speak to the more resilient business model that we have. We are building that's less cyclical than traditional automotive. This is because we are expanding our revenue pools beyond the vehicle itself and extending it across the whole vehicle lifecycle. And by 2026, we expect nearly 20% of our profit will come from these new high margin annuity like software and service revenue streams that are just nascent today. And Jim made the comparison to John Deere earlier. They made a similar push into software and a one-stop shop services as Ford Pro a few years ago. Our next generation architecture will unlock the full potential of our software powered connected vehicle ecosystem just like Deere is doing in precision agriculture.

So no one serves commercial customers like Ford Pro. We have a huge competitive advantage. One, it starts with our strong relationships with hundreds of thousands of customers in North America and Europe built up over decades. Add to that our trusted portfolio of industry leading commercial vehicles with all new models and an expanding electric vehicle lineup.

Then add the largest physical service network of any brand with mobile service vehicles and specialized dealerships staffed by thousands of specialized technicians and our connections to hundreds of upfitters. And finally, it requires building an integrated vehicle software and charging platform leveraging data at scale, which is going to unlock even more value for our customers, more productivity, more uptime, more sustainable operations, and lower cost. This gives us a deep moat around our business that is getting wider every day. It is not replicable by pure software companies. And for new EV players, it would take them seven to 10 years and substantial capital to create. What you should take away from this is Ford Pro is building a high growth, high margin and resilient business. We have generated an even margin greater than 10% for the last two quarters and we think we can expand it to the mid-teens by 2026 even as our EV mix grows. That is the power of the Ford Pro ecosystem. So thanks a lot and I'd like to turn it over to John.

John Lawler (Chapter 5):

So at our last Capital Markets Day, we introduced our Ford Plus plan and our investment thesis to all of you highlighting the key pillars of our plan, which leverages our foundational strengths plus new enhanced capabilities to drive growth and create value for all of our stakeholders. So fast-forward to today. Over the last two years, we've developed proven capabilities in each of these critical areas, grounded in disciplined capital allocation and focused on value creation. And this year we took another leap forward by standing up our new customer focused business segments. This provides an unprecedented level of transparency and has the potential to transform the way investors value the sector. And as you've seen today, our strategy goes way beyond simple sheet metal and name plates. Ford is different and we're deeply committed to unlocking the powerful customer benefits and value creation made possible by the connected fully networked vehicles and a lifetime always on relationship with our customers.

This is a winning strategy. So let's take a look at some of the pivotal decisions that we've made since we launched Ford Plus. We de-risked our global operations by exiting manufacturing in Brazil and India. We streamlined our European operations to focus on our leading Ford Pro business and growing EV portfolio. We leveraged our iconic vehicle portfolio to develop new exciting ice derivatives like Bronco Raptor that are both very profitable and incredibly capital efficient. We wound down our investment in Argo and redeployed those key resources to focus on leading L2 plus and L3 autonomy, which we believe is the nearer term higher growth and more profitable opportunity. And finally, we monetized almost our entire investment in Rivian, generating proceeds of over $3 billion. And this is more than double our initial investment and we used a portion of it to help fund our supplemental dividend in the first quarter.

Now this discipline and willingness to make the tough choices is driving real improvement in our operating performance. Last year we delivered a record $9.1 billion in adjusted free cash flow and most of which was generated by our automotive business. Now this is in stark contrast to prior years when adjusted free cash flow was driven primarily by distributions from Ford Credit. Now we know we still have work to do in China and Europe, but we know the playbook, asset light, leverage core strengths, and key strategic partnerships to drive efficiencies. Now, before I cover our expectations for each of the segments, let me frame how we're thinking about capital allocation. Our strategic priorities are grounded in disciplined capital allocation that will drive growth and create value for our shareholders. Improving operations, free cash flow generation, and a strong balance sheet provide tremendous flexibility and ensure our calls on capital are fully funded.

Importantly, over the last couple of years, capital has increasingly shifted from restructuring our global operations to funding our Model E and pro businesses. For Model E, this includes a greater level of vertical integration as well as a new distribution model. For Ford Pro, this includes investments in industry-leading products like our all new Super Duty and e-transits as well as investments in software and services. Our balance sheet remains a priority. In fact, since we last were together, we've taken significant actions to both strengthen and improve the efficiency of our balance sheet, reducing our interest costs by about 200 basis points or roughly 500 million per year. And all of this is done to create meaningful and sustainable value for our shareholders with an adjusted return on invested capital target of about 20% through 2026. So now let me frame the numbers and provide additional context regarding what the team has shared with you so far today.

Overall, our Ford Plus strategy delivers a much more robust business model, one that collectively drives higher margins, lower capital intensity, lower cyclicality, and importantly higher growth. One of the benefits of our new segmentation is you can see exactly what's happening within each of our businesses, engage their progress we're making each quarter. In our view, this is the only way to provide real transparency and accountability by business segment. Anything else masks what's really going on under the hood. Now in Ford Blue, we're targeting an EBIT margin in the low double digits, about three points higher than in 2022. We expect lower volumes as we shift out of smaller vehicles like Fiesta Focus in Europe and other commoditized segments. And these units will be more than offset by improved mix from our high demand, higher margin products like Bronco, F-150, and Ranger. Overall, we expect lower net pricing on ICE vehicles as industry volume and average transaction prices normalize towards pre COVID levels and EV adoption grows.

Now this bridge reflects Ford Blue's focus on reducing costs, which Kumar detailed. Specifically, contribution costs improved by about four points, driven by several key factors including material, logistics, and warranty, along with lower commodity costs. Structural costs also improve by about four points as our investment profile shifts to EV and Blue focuses more on its efficient capital investments around derivatives. As Model E and Ford Pro grow, this provides additional leverage as they absorb a greater portion of our overall cost structure. Now moving to services which we define as parts services and accessories. As well as new digital services, growth here contributes another full point of margin supported by the scaling of Blue Cruise. Importantly, post 2026, we assume margins in blue will start to decline as the industry shifts to electrification and that continues. Obviously, no one can predict exactly how it's going to play out, but given our unique strength in trucks, we believe our ICE business will be around for a long time continuing to generate free cash flow and returns.

And that was quite moat Ted showed you. And we have every intention of making it deeper and wider. Ford Pro, we're targeting mid-teen EBIT margins by 2026. Volume and mix drive the margin growth with Pro capitalizing on its leadership position as our commercial customers transition to EVs. We assume improvement in industry volume along with share growth in both North America and Europe. And as industry volume in supply chains normalize, we expect net pricing to decline by about three points. Pro will also benefit from many of the same cost actions that benefited Blue and structural costs will grow in line with higher volumes as we continue to invest in a growing portfolio of EVs to serve our commercial customers. Services will deliver about another point of growth, reflecting growth in telematics and charging, as well as the expansion of Pro's dedicated network of commercial service points.

In fact, by 2026, we expect Ford Pro's digital and physical services to account for close to 20% of the segment's total EBIT. And we think looking at services as a percent of EBIT is an important measure because it's a true reflection of the higher performing, more resilient business model. And simply looking at large software and service revenue numbers, it doesn't tell the whole story, since not all revenue is created equal, and this is especially true in retail where as we've seen in other technology businesses, we accept some portion of the revenue to ultimately commoditize and become dilutive to margins.

Now turning to Model E. At the Teach-in, we showed you an EBIT bridge that highlighted the key levers the operating team is using to deliver our 8% margin target. And today, Doug and Lisa shared insights that support that target. Going forward, we will use our standard EBIT bridge to share our progress. Our target of 8% EBIT margin by the end of 2026 translates to about a 49 point improvement in margin compared to our 2022 results with 54 points of the improvement attributed to volume and mix. And this reflects the continued volume in scaling of our first generation as well as the launch of our second generation products beginning in 2025 that benefit from lower cost and higher margins and are EBIT positive in the first year. And as you would expect, net pricing falls as EV volumes increase, which is partially mitigated by lower distribution costs. We expect an improvement in contribution costs as we continue to refine design and other cost efficiencies and benefit from lower commodity costs, which is about six points on the bridge.

Discipline investments in our new EV products and expanding industrial footprint drives a 10 point increase in structural costs. This drives significant scale benefits in material logistics as well as manufacturing, engineering and DNA costs. Lastly, BlueCruise and other digital and physical services will

contribute about 20% of Model e's EBIT by the end of 2026. And we expect this opportunity to grow significantly over time, especially with the launch of our L3 technology. Model e is a unique opportunity for us, one that redefines the legacy business model and delivers new high growth businesses.

So how does it all come together? Let's look at our company target, and I hope you agree that if you look at just this bridge, you're missing the complete story. And that is, the progress we're making on each of our business segments, which serve different strategic objectives and will otherwise get lost in our consolidated results. Our plan delivers a 10% adjusted EBIT margin by 2026, an improvement of about 3.5 points over 2022. We expect volume and mix to contribute about 5 points of margin with our wholesale increasing by about 30% from 4.2 million units to about 5.6 million units. Now this assumes normalization of industry volume in the supply chain as well as share growth in EVs. Now this growth rate may sound large, but let me explain and give it a bit of context.

Last year, the last time we saw US industry volume roughly 17 million units, which is what we're expecting in this timeframe was in 2019. And in that year our wholesales were around 5.4 million units. So we've taken a very pragmatic approach on net pricing. And as you can see from the bridge, our improvement in volume and mix is almost fully offset by lower net pricing as our industry trends normalize. Contribution costs account for about a four points of margin improvement supported by the cost actions on material, logistics and quality that you heard about earlier today. We also anticipate favorable commodity costs, especially for batteries, aluminum and steel. While structural costs will be higher in absolute dollar terms, they decline as a percentage of revenue from 20% to 14% over the period.

Over time the allocation of our structural costs will shift. We will see lower structural costs in Blue and higher costs in Model e and Pro as they continue to scale. And I hope you can see that we are in the midst of a historic transformation. While the 10% margin is an important target, as Jim said, it's just a single stop on our journey to reset the run rate of the company, which sets us up for the next hundred years.

Now I want to touch on the art of the possible for services and potential impact to our company. Towards the end of our plan, we will launch the new electrical architecture that Doug had highlighted. This has the potential to accelerate and increase the amount of services we capture on each vehicle we sell, further reducing the cyclicality of our business model. And as you heard from Ted, for Ford Pro these solutions have the potential to drive up to 2000 per vehicle annually in subscription revenue and up to 4-5,000 when you include non-software opportunities like in connected commercial insurance.

If we look at total company, we have the potential to drive software subscriptions of $1,500 per unit and annual recurring revenue for features like BlueCruise, safety and security, as well as productivity solutions for our commercial customers. And the potential for connected insurance is another 2000 per unit, assuming a mix of two thirds retail and one third pro. The point here is not the exact precision of these numbers, rather it's about that with the benefit of our new electrical architecture, our TAM will grow encompassing things we can't even contemplate right now and that will further reduce the cyclicality of our business model.

I believe our Ford Plus plan can create unprecedented value through both share price appreciation and shareholder distributions. Higher share prices driven by improved business performance, free cash flow, and increasing investments in new growth opportunities that should expand our multiple over time. We'll continue to target distributing 40 to 50% of free cash flow to investors each year. This includes a regular dividend that is stress tested and sustainable through the cycle, supplemental distributions like we paid in the first quarter of this year and anti-dilutive share repurchases. Overall, we are targeting top quartile automotive return for our shareholders every year. And this goal has been embedded directly in both the objectives and compensation targets of the senior leadership team.

So let me close with this. Jim said earlier he wasn't here to tell you we're undervalued, and I'm not either. There's a reason automakers have been trapped in the box on the lower left, defined by low margins, low multiples, while best in class industrials have outperformed the market. Turns out that trying to be all things to all customers isn't a great business model. It drives complexity, capital waste, especially when you have a host of competitors all trying to do the same thing. But you've seen today that real change is underway at Ford. Each of our three segments has clarity and focus on one thing, efficiently delivering value to the customers that it is uniquely capable of serving. Each is a steward of capital and each has a stronger investment thesis than Ford itself has had in decades. And as Blue, Model e and Pro execute their unique strategies while leveraging the many advantages that come from being a part of the blue oval, you'll see this transformation play out real time in the metrics that distinguish best in class industrials from legacy auto OEMs.

We've talked in detail about how we're eliminating complexity and driving cost out of the business and these actions will drive improvements in our EBIT margins. We also talked about the market leading vehicles in compelling low capital derivatives, Ford Blue is developing and the disciplined where to play decisions that Ford Model e has made. This lowers the capital intensity of our business and you will see this improvement as you monitor our CapEx to EBITDA ratio over time. And today you heard about the traction we're getting with BlueCruise and how we're using software and services, particularly in Ford Pro, to deliver real value to our customers through ownership lifecycle. This not only improves their businesses but ours as well through higher margin reoccurring revenue streams. And over time this creates a business model that is more resilient and less cyclical. Again, you will see this in the contribution to EBIT margin coming from growth and services.

And lastly, you've hopefully seen that we are not the Ford of the past. We are new, more focused, with true growth opportunities across each of our businesses, including a vibrant and resilient ICE portfolio, a thoughtful, targeted and growing EV business and a powerhouse in Ford Pro. And all of these will unlock value made possible by connected fully networked vehicles and lifetime, always on relationships. So Jim opened this morning reflecting on Ford's history and our chance to make history once again, and I hope you can probably tell that this is personal for all of us.

33 years ago I had a couple offers when I came out of college and at that time I chose Mustangs and F-150s over soap and syrup and haven't looked back since then. And I've worked on three continents in just about every finance and general management job that you can imagine. My family and I owe everything to Ford and it's hard to describe to people outside Ford how much this team wants to win. If you would've asked me five years ago I didn't see a way past the automotive grind that this industry was, but today this is a different Ford. The shift we've seen at this intersection between automotive

excellence and connected technology, it's really unbelievable. You can walk across the street to the museum and look at the Wright Brothers workshop, steam engines, broadcasting, microprocessors, you name it. And think about where you would've liked to have been when all those breakthroughs started to come along. Well, there's no place I'd rather be than here at Ford in this moment. I truly believe we're going to make history again for our customers, the people in our plants, our dealers in every community, and for all of you, our investors. So thank you for being with us on this important day.

Q&A (Chapter 6):

Lynn Antipas Tyson:

Well, welcome to Q&A. For those of you who are watching on the webcast, we'll be ending at 11:00, the Q&A session, and then this group will go and have lunch and the webcast will start again at 1:00 with our breakout sessions.

So we do have people in the room who have numbers and if you raise your hand we will call on you. We do have a lot of people in the room, so I hope you can limit your questions to one or two. You'll have ample time with the leadership team at lunch and during the breakout session. But before we start, Doug, I just wanted you to clarify something that you had mentioned in your pitch about the timing of our electrical architectures.

Doug Field:

Yeah. There were a few questions about L3. Our next generation architecture lands in '25, that will be our building block and our foundation for that. But as much as I want it to, we're not going to deliver L3 in 2025. It's just too ambitious an undertaking. So we have to lay the groundwork, but you're going to have to wait a little longer for L3.

Jim Farley:

And we have some exciting steps in between.

Doug Field:

Way exciting steps, yep.

Lynn Antipas Tyson:

Okay. Thanks for qualifying that. Why don't we start in the front row and move our way back. So, we'll start with John.

John Murphy:

Great. John Murphy from Bank of America. I'll ask two hopefully kind of quick ones. There's a lot here that has to do with beyond the point of sale. We know there's a lot of revenue and profit opportunity there historically and there's a lot more potentially over time with subscriptions and services, as Ted is kind of highlighting on the pro side. But you have partners in distribution and dealers that make a lot of money off of that and there's a lot of folks in the aftermarket that make a lot of money off of it, a lot of folks in service outside of what you guys are providing right now on the fleet side. So I'm just curious how you work with those partners to get after that revenue and how that revenue will ultimately be shared. Because there's an argument to be made that they really have a closer relationship with the

customer than you do over time. And how do you benefit those folks so that they help you more? How do you rationalize it? And I noticed in cap allocation there was 5%, I think, to market efforts or something like that, looked like it was sort of a dealer rationalization plan, maybe. Just trying to understand how this is going to work because a lot of is going to impede or sort of compete with some of your distribution partners as well as maybe enhance their opportunity. That's the first question.

Jim Farley:

Yeah, thank you. So we have about 10,000 dealers around the world at Ford. We think it's going to be really different between retail and pro on the software go to market. We're in the early stages of learning about that, I would say we're in the first inning. I talked to John May at John Deere a lot about this, it's very clear on the commercial side that we can rely on our partners to sell software. And actually because of fulfillment often on the pro side is physical service like prognostics, think of predictive failure. They're going to fulfill that. So it's really critical that they're involved in the software sale.

On the retail side it's a little less clear to us. We're experimenting right now with different models of what's the best way to sell software for our retailers. I would say the jury's still out what model is going to merge on the retail side. So if the poetic answer is Ford on the retail side should be doing a lot of the selling on software, actually the jury's out about our capability to do that. So, it requires a completely different capability at the company.

On the dealer side, they're closest to demonstrate BlueCruise. I mean that moment when you click the button and take your hands off the wheel is a really scary moment that you can't do on a call center. So, we think the dealers will play a key part. Will it be more to do testing and understanding how the features will work, like we see in Apple, at the Apple stores on software, or will they actually be the ones doing the selling? On the retail side it's unclear. On the pro site it's definitely clear. Would you like to say anything? Because you're going first, Ted.

Ted Cannis:

Yeah, we're visiting a lot of dealers. We are in the middle of a 25 city tour right now and six countries in Europe as well. It's a lot of new for them. But there's a lot of pull from the customers. If they had a vehicle robbed or an employee not working or fuel missing, they have a business need. So you have a lot of pull from the customer to get solutions, but it's also a lot of training for us and we compensate the dealers for making that linkage together. Customer, us and the dealer.

Jim Farley:

So I think, like we said, visualize the industry 5 or 10 years from now where we have to set this up now. There's going to be a lot of customization, there'll be a lot of OTAs of improved software, safety and security productivity for retail as well and BlueCruise, all sorts of different kinds of software coming at the customer. We really believe that a physical place where the customer can understand all that and customize the software is super important. The industry, no one has figured that out yet.

Do you want to say anything? The reason why I'm taking a lot of time to answer your question, because it's a really important question. We're not sure the answer yet.

John Murphy:

I guess maybe just to follow up. When you think about the $3,500 opportunity you highlighted in the total bridge, and I think yours was 4,500 plus, which you said might be as much as 5,000 plus. I mean, where is the capture of that? I mean because as this business is transforming over time and you're rationalizing things and then creating opportunities for growth, that's the incremental profit pool and opportunity. And you have these partners that may step in front of that or you might have to share with, I mean not that you'd compete. But capturing that is really key to getting to the lack of cyclicality or less cyclical business and a more profitable business with higher returns. And if a big chunk of that is to those partners or other folks, then you're still creating the hardware port of sale and not benefiting from this lifetime opportunity with the consumer. That connectivity as the dealer right now. I'm just trying to understand where that ultimately is going to get shared, where it's going to land.

Jim Farley:

Those numbers is what we think will capture.

John Lawler:

That's what we'll capture.

Jim Farley:

To be really clear, no question about it. That's what we think is coming to Ford Motor Company.

John Murphy:

Okay.

Jim Farley:

But, no one's ever done this, really, outside of John Deere, CAT and other people. So how it gets, implemented at the retailer is still unknown I would say. But that's what we feel we absolutely deserve. Just remember, I should say this, we have 600,000 software subscribers today-

John Lawler:

So John, one thing you said was you saw the donut, the capital allocation donut, and you saw the amount that went to distribution. That's not for a huge dealer rationalization program. We are setting up vehicle holding centers to make speed quicker for E, and so there's capital in there for the inventory.

John Murphy:

Got it. Great. I'll pass it on.

Lynn Antipas Tyson:

Close to you right there, Joe. Ryan.

Ryan Brinkman:

Ryan Brinkman from J.P. Morgan. Thanks for taking my question. I see that you continue to reiterate the 8% EBIT margin target for the EV business by the end of '26, which is great, but wanted to ask about that. In light of the recently increased price competition in the EV market, have you maybe found additional sources of savings or do you have increased confidence in the product helping drive the anticipated tailwind from volume mix, which looked to be by far the biggest opportunity in the bridge?

Or, do you expect to maybe compete in parts of the EV market that are less subject to price competition or expect that price competition to eventually settle or normalize? So in the walk that you're expecting less headwind from net pricing and Model e than in Blue, which seems different than the existing trend. Or, what are the drivers of your increased confidence in this profitability target in light of the fact it was established prior to the intensification of EV price competition?

John Lawler:

You want me to start?

Jim Farley:

Yeah.

John Lawler:

So we tend to look at the EV space as a monolith, it's not. We want to talk about Mach-E all the time and we do because the prices did come down, but we've been pretty consistent over the last two or three quarters talking about the fact that that segment's going to get commoditized. What's not really resonating, and we've talked about it, is we've increased our prices on Lightning significantly, by more than $10,000. And if you think about what Doug was talking about and the segments we're going into, those aren't segments that are going to commoditize and we're going to create products that are uniquely distinctive and different.

And so, yes, two row crossovers is competitive. Yes, there's been price competition in there. But we're not going to follow pricing down at all costs for share relative to margins. So we think we have a way to manage this and we think that our products being distinctive and unique in the segments that aren't commoditized, which we've proven with Lightning, is where we will be able to manage this more efficiently than what you would think if you just looked at Mach-E or that two row crossover segment as the defining element of how pricing's going to unfold for the segment.

Ryan Brinkman:

That's helpful, thanks. And then lastly, can you talk about the strategy in China or what internal targets might you have or what might you expect from the operation there over time? It sounds like you're focused on finding a profitable niche, so I wouldn't expect a market share target, but does that mean you're driving toward a certain level of EBIT or equity income or return on investment? How are you thinking about China broadly and is there a timeframe you have in mind for getting where you want to be?

Jim Farley:

I think it's going to take a few years. I think we've said what we want to say about China. It'll take a few years for us to get the business to where we want it to be, just like we've done in Latin America and in India and so many other parts of the world that we've reoriented our business. I think the metric that may surprise you that you didn't ask about because everything you did ask about are really important to us. We want to put less capital at risk in China, but the metric is going to be really key is export from China too. We really believe that our commercial partner there is really good at creating products and we have an amazing distribution network around the world for commercial. And if we combine those two, we have an incredible opportunity that we've never had in China really anywhere of having a

affordable commercial or electrified commercial vehicles globally. But we don't want to go into our China strategy any more than we have. Thank you.

Lynn Antipas Tyson:

Can go right there. Yeah.

Dan Levy:

Great. Thank you. Dan Levy, Barclays. Wanted to first start, John, if you could maybe just clarify on the CapEx. In your pie chart, I think you're looking at 60% distribution, it looks like it's 60% to CapEx if that's correct. I think the implied numbers based on what you might be looking at for profit is something like anywhere from 8 to 9 billion dollars annually of CapEx, if you could just clarify that. And then that's a slight uptick, but I think we've seen from some of the other players like a very large uptick in their CapEx plans to underwrite a lot of this growth. So maybe you could give us some context on the flow of CapEx and why sort of a slight increase is enough to fund this very large transformation.

John Lawler:

Well, part of it is, as Doug explained, and Kumar explained, we're more efficient, we're going to be much more efficient with our capital. So we're 8 to 9 this year. It will up-tick again next year, think 10 to 11, in that range, as we continue to roll out. Lisa went through all that we're investing with our footprint, et cetera, the new products that we're developing in Model e, but it comes back to that $50 billion. We're comfortable with that number and the team is working every day to drive efficiencies in there. So 8 to 9 this year, it'll uptick again next year and then we'll talk about where it goes from there.

Lynn Antipas Tyson:

John, can you just clarify what goes into the 50 billion because it's not all CapEx.

John Lawler:

No, it's not all CapEx. There's CapEx, there's expense, and then there's investment in our partnerships, direct investment in the JVs, et cetera.

Dan Levy:

Great, thank you. And then as a follow-up, wanted to just clarify the view on volume, which sounds like you're looking for volume to increase back to sort of 2018, 2019 levels. I think at the time this was a very different Ford and I think what we've seen since then is much more of a focus on a rationalized Europe, asset light in China, asset light in South America and some of the other regions. So maybe you can help us reconcile the views of what seems to be a much heavier focus on mix, I think that seems to be a very central part of the story today, versus going forward with asset light as well?

John Lawler:

So we are getting out of some of the commoditized vehicles, Fiesta, Focus, et cetera, and we've made that decision, which is a good decision for our overall profitability. Go back to 2019, 5.4 million units, 17 million unit industry. We think we're going to get back to 17 million unit industries. We have in our plan rationalization on pricing, pricing coming down in Blue. As we break through the supply chain barriers and customer affordability comes back into play. So we think that'll normalize. And so then you grow to 5.6, and what that is, that's growth in EVs and it's growth in our derivatives and Kumar studies adding

160,000 units of capacity, but on higher margin vehicles where we have pricing power. So that's how all that works together. 5.6 million units we think is reasonable in a 17 million industry in the US and in Europe.

Dan Levy:

If I could just clarify, Jim, you've mentioned that the volume side, the CUV area is just an incredibly intense area. So at what point do you decide that some of the segments you need to basically pull back on, sacrifice a bit on volume and skew even more heavily toward mix? Thank you.

Jim Farley:

Yeah, we've already made kind of that decision, to be honest. I mean we've been working on the second generation product for a couple years now and we saw it coming like a freight train. I mean if your EV strategy depends on a two row crossover right now, you better have the cost of BYD to compete. So we knew that freight train was coming, one third of our volume, Mach-E, is in that segment so we feel it and we've already reduced the cost by $5,000 by the end of this year. But that's not sustainable. You can get that in the second generation, but the third and the fourth generation it'll become smaller and smaller in terms of how much you can get out of the product.

So from our standpoint, we made that decision. We made intentionally the choice to go after Conquest customers, but in segments we really know, which seems like a bit of a contradiction. How can you go into the full-size truck EV market but go after Conquest customers if you're a third of the ICE market. But what we found with Lightning and E-Transit is that there is a group of customers who don't look at Ford today or may not even look at full size truck today, but if you could change the product to a new category then you can get incremental customers. And then when you do the math of your competitor's bet it's clear that most of them are not betting on those segments. That's the math we did a couple years ago. It's a mix math, it's not a volume math. But they're large segments.

The full size truck industry's been 13% of the US industry for as long as I've been in the US industry. Then Lightning comes along and half the people have never bought a pickup truck. So could it be 15 or 16%? Maybe. Because some people want to put three car seats in their electric vehicle. So I think we've been extremely precise about where we want to compete because we knew the pricing and the overcapacity would come. We've been in the industry a long time. We know that pretty much everyone bet on two row crossovers at the same time that the ICE had the pricing premium. But by doing that, everyone arrives at the market at the exact same time with the same product written with 20% more pricing than a sedan, that usually doesn't work out.

Lynn Antipas Tyson:

The front row here in the middle, Adam.

Adam Jonas:

Thank you. I have to stand? Okay, thanks. Hi, Adam Jones, Morgan Stanley. So first, just a clarification for the Model e volume targets by exit 2026 Model e specifically what's implied in there to support that 8% margin? Which that 8% margin, by the way, apples to apples to Tesla probably better than Tesla when you think of you exclude China and when you exclude the dealers, which stacks the retail. So that's a pretty punchy margin, I'm curious of the volume there and I have a follow-up.

John Lawler:

It's over a million, 1.2, around there, 1.3.

Adam Jonas:

Is that as an annual run rate and the exit?

John Lawler:

Yes.

Adam Jonas:

Okay. Thanks for that, John. And just there's a lot of people in this room who are thinking going head to head with the Chinese and Tesla, even if you're not directly going so much your volume on the two row crossovers, it's kind of, in this environment, a pretty easy way to destroy billions and billions of capital over a three or four year period. Has the management team and the family considered funding the EV investments in any other way besides using Blue and Pro? Thanks.

Jim Farley:

Not as of yet. Not as of yet. But we don't really see ourselves competing directly with Tesla and BYD in our second cycle product. That would be maybe your characterization, but it's definitely not ours. I don't see how there's a large size three row crossover industry in their indigenous markets. It seems like actually the opposite's the case, seems like they're going down in price. That's not our strategy with the second cycle product. So we feel really confident about our approach and because the competitive landscape we feel will be quite unique. Now ultimately the company has to be cost competitive with the best and in the EV side, it looks like those two companies are among the best. You could put GLE, maybe SAIC, [inaudible 02:19:11] in there, there'd be some others that you would put in there. Ultimately that is the core capability on the cost side.

But we believe going into those segments, Adam, that are underserved, where customers actually will pay more for software because the way they use the vehicle's different is actually a quicker answer than to just try to get to the very lowest cost in the lowest cost segments. See, I think we keep framing the change in the company as electrification, but that's not what's going on in our eyes. It's pro power on board and we're just as cool as 0 to 60, 4 seconds. So for us it's the Pro software and integrated services and the retail BlueCruise and new safety and security software that no one's seen for Ford yet, that's the big change for the company. It's actually outside of the four walls of the physical hardware. That's what gets us excited. That's why in the second cycle we want to go to segments where customers use the data and the software more intensely.

Even retail customers having a personal bullet train that goes 300 miles, that's 70 miles an hour is like safety, security, BlueCruise. Those software items are perfect for that kind of vehicle concept. So I think the way we look at it, Adam, is that we aren't just going to race. We have to be competitive on cost ultimately for the EV components and the platforms.

But really what we want to learn is the fitness cycle between getting data off the vehicle, changing the software, shipping it back to the vehicle, getting tighter and faster and faster. That to us is as important as anything.

Lynn Antipas Tyson:

Why don't we come right here in the second row from the front?

Rod Lache:

Thank you. Rod Lash from Wolf Research. I appreciate what you've been saying about the revenue opportunity focusing on emotional products, services that people value. But I do want to ask about EV costs because we are hearing just so much innovation in the industry and at a speed that we had never seen before in this industry. Things like open box manufacturing, containerization of software so that you can port things over to multiple different vehicles, solvent-free battery manufacturing. I'm hoping that you might be able to just talk to us a little bit about in this mid-decade period, what are the benchmarks that you see for the industry in terms of batteries and vehicle manufacturing, and how far away do you expect to be in that kind of timeframe for Ford?

Doug Field:

So in terms of benchmarks, obviously, Tesla's done an amazing job of being the first company that really started from a clean sheet and designed a product around ease of manufacturing and cost. But ultimately, a big part of when we talk about excellence is that we don't look just at competition because you're always looking in the rearview mirror. It's four or five years ago or even more. We're taking inspiration from the limits of physics from other industries in terms of how we keep pushing ease of manufacturing and obsession over removing parts, removing steps, removing complexity.

So much to be done in EVs because it's such a new industry, but Ford's good at this, they're good at it and it's part of what I love about being here is taking the new technology which we're getting better at and there's some level of vertical integration that's required as well, but you have to be selective about it. And then a huge part of this, as you said, is in batteries and the key to low cost in batteries is to own the supply chain, which is exactly what Lisa took us through. So those are the key elements. I think you have to start with a clean sheet on an EV and not inherit the way ICE vehicles are built and constructed, and you got to own the battery supply chain.

Rod Lache:

And I would mention just the competitor you referenced in their investor day said that their target was a 90% OEE, 45-second tack time, that's what we've done for years. Our standards are higher than that. And you saw Kumar's presentation that was a 37-second tack time producing trucks. The Tennessee plant, as we stated, will be 30% more efficient on our cost than even our best truck plant we have. And that's only enabled to be honest because we designed the factory and the product together, which admittedly we haven't done before at Ford. We weren't building new factories to be able to do that, but the teams are co-located and honestly, we set the footprint of the manufacturing facility before we even had most of the truck developed and we decided jointly between the product team and the manufacturing team that we had to get that much more efficient in square footage.

And then we started to pair the teams up and they weren't developing components; they were developing systems on the line, and then the complexity started coming out in an incredible fashion. I mean, it's just so radically reduced. In some cases, there's complexity of one, that's it. And when we can do that, we shrunk that manufacturing facility around that product that enabled us to get the savings that we talked about. So I don't think you have to radically change the manufacturing process. You take what's already excellent, you make it even more excellent and you do it in conjunction with the product design.

Jim Farley:

I just want to say one thing that wasn't said, which is I don't think we're ever going to really be done. I think there's a third generation we're looking at now. I don't want to a lot about it, but it's yet another leap forward. I mean we'd love to be able to figure out how to make vehicles with our paint shop. So there's always going to be in this change, more room for innovation at lower cost, and that will go on for a long time. It's like we're back in the mid-twenties when vertical integration became a thing in our industry and people started to really make big leaps. We're starting the same cycle again for the industrial system and I don't know what the answer is, but I do know enough to know that that's why we have to work on a third generation.

Rod Lache:

It may be. Just to clarify Lisa, that 30% reduction corresponds with what in terms of cost per kilowatt-hour, do you have a number that you can share for that?

Lisa Drake:

Sorry, that 30% reduction is on our labor and overhead for the full vehicle compared to Dearborn Truck ICE as an example.

Rod Lache:

So could you share a cost on the battery target?

Lisa Drake:

No. What I can say is a few years ago at Capital Markets day we talked about a 40% improvement. We're 30% of the way there. So we've got instead of 40, we're at 30. But what we also hadn't meaningfully considered is the impact of LFP on our portfolio then.

Jim Farley:

You included LP mix at 15%. You would say between those two probably pretty close.

Rod Lache:

Just lastly, John, I've asked you this question before. There's a structural cost investment that you're making to accommodate the growth that you're targeting to get 1.2, 1.3 million Model E vehicles, 5.5 million for the overall company. Still it's a big volume-growth target. I know you think it's achievable, but there's also a significant structural cost investment. What is the flexibility that you have to adjust structural cost as you get out to that timeframe in the event that maybe the volumes are a little bit different and you just want to sort of hit those kinds of margin targets?

John Lawler:

Yeah, I would say that flexibility is part of that equation, of course, that Lisa's building through. We have the ability, if the volumes don't take off, and ICE is still greater that we can flex with him some from Blue and Pro on the ICE side. So I think there's going to be flexibility there. And we're watching this and depending right on how far out in front of we see the volumes maybe not coming in as strongly, then we can adjust what we're putting is from an installed capacity base. So we do have that capability to adjust. And so I think it's important because Doug and Lisa were always talking about that.

And the other thing that Doug was talking about that I just wanted to highlight for you. For me having been here forever and seeing this cost structure and a lot of these folk can tell you that I'm real pain when it comes to cost and have been for years. The thing about Doug that's different for me is ... and it's subtle but you miss it, is this focus on excellence. Before we used to always benchmark, benchmark, benchmark, benchmark, who's the best, and it goes back to that Wayne Gretzky saying we were always skating to where the puck is.

Doug keeps talking about define where the puck is going to be with excellence. And that's why I have more confidence in that because of how they're approaching it with E, both in the design of the vehicle, design of the battery, and then how they're bringing that together with manufacturing. And all of that coming together as they're out in front should allow us to have a little bit more transparency if things are shifting where we would put that in and have the flexibility to adjust. So those two things are tied together for me.

Lynn Antipas Tyson:

John, can you just talk a little bit why you had the structural cost scaling on the consolidated bridge, why that's important?

John Lawler:

Well, because you're investing in our growth businesses of E and Pro. And for Kumar's bridge you saw, structural costs were done coming down significantly. So it's really important to understand that. As it shifts, part of that is efficiency and part of that is just the distribution of the cost between the business units. And one of the things is, we've got to be careful or think about how that's happening because we have to understand that not all that structural cost and that scaling of volume is going to be directly in our structural cost too because we're building out vehicles and electric vehicles with our partners and that comes through contribution cost. So there's some puts and takes in there and some give and take in there. And as we continue our discussions, we can talk more about that when we unpack things.

Jim Farley:

One subtlety about the flexibility we should just say is the structural cost investment is multi-energy. So that gives us a lot of flexibility. Probably one of the most important things about Ford is that we have Pro. It's like a dominant part of ours, not just strategy but our volume and our revenue. And you need to know that the investment we're making, refreshing all of the products on Pro is that on the van side, we've made a multi-energy bet. We'll have a pure EV for sure, but most of the investment we're making today like on transit is multi-energy. And so that gives us a lot of flexibility to go where customers are going to go because commercial customers don't overbuy batteries-- retail customers do so far.

Lynn Antipas Tyson:

Colin.

Colin Langan:

Oh, thanks for taking my question. Colin Lang in Wells Fargo. The Model e margin targets are a little hard to follow because you have the allocation of cost. I think it'd be helpful if you could talk a bit about contribution margin because you mentioned in your last investor event that you were losing or had a negative contribution margin. Today, I'd assume to get to an 8% margin, you need something maybe closer to a 10,000-plus type contribution margin. So how are you walking from exiting break even to getting something that gets you there? What are the main buckets of cost savings from this gen to the next-gen?

Doug Field:

Well it starts with volume. Being able to leverage the capital and just put more products through it and the efficiencies go way up when you do that. Even on gen one, I think Jim mentioned that we've found a plan to get $5,000 out of Gen 1, and Gen 2 being from the ground up is even better. So then, and when we add platforms that give you the opportunity to build software, that software has pretty nice margins, so it's all part of that journey. And having an organization that looks at cost reduction as beautiful. If you want a great example of cost efficiency being beautiful, look at the Model T, just a continual obsession over it, getting better and better after you've launched as well.

Jim Farley:

Smaller batteries, less labor content, cheaper distribution. When it comes to smaller batteries, I have no idea what's going on in this industry right now. All I hear is all these announcements of 450-mile range, a 500-mile range. There was another one today about a three-row crossover it's going to go electric. These batteries are huge. If you have those kinds of batteries, you will not make money. So we got to start talking about the size of batteries for the range, the efficiency.

The second cycle of Ford's batteries will dramatically change, as Doug said, the cost of a battery, because we're optimizing for the size, we're not going to go to 600-mile range. We're trying to make the smallest possible battery for competitive range. We're trying to get the simplicity of the product down so that we have very low labor content. We're trying to get the distribution, so we get the physical inventory out of the distribution that we don't have to go on broadcast media and spend $500 a vehicle on TV advertising.

These are the real physical things that we've designed in the second cycle product. And I don't understand why everyone is so obsessed with battery size. It's like three years ago, everyone was obsessed at how much money they were spending on EVs and you wanted to know, Hey, is Ford spending enough money on EVs? Now it's "are you spending too much money on EVs?" It's okay, but the same thing's going to happen with batteries. Right now, it's like what range can you get? But the next question's going to be, well, what size battery do you need for a competitive range? The second is a better question than the first. So the size of the batteries in the second-gen is really important on a cost.

Colin Langan:

And did I get it right on the slides that your next-gen will have a 300-kilowatt battery for 300 miles a range and that would compare to a lightning, the extended it gets like 140 gets 300 miles. Is that part of that opportunity?

Doug Field:

Well, what we showed you was a walk that went from 150 kilowatt-hours to a hundred kilowatt-hours and 300 in general to 350 mixed 300 at 70 miles per hour. But it also depends on the size of the vehicle and the mission that you're trying to accomplish. But yeah, we think numbers like 350 mixed, 300 at highway speeds plus superfast charging is a really great combination and we want to push that energy even lower. The efficiency obsession isn't in the first year of the program. It goes on and on finding every little change that you can get for aerodynamics, a mile here, a mile there. So, we're not going to stop.

Colin Langan:

And just to clarify, what about IRA, and is that baked into your targets and lithium prices? Do you have those going down in your 8% target? And will all the vehicles qualify for IRA by 2026? Because I know some of the rules change in early '25 with foreign entities of concern and stuff like that.

Lisa Drake:

Yeah, our current eligibility ... our Lightning is eligible $7,500 for the full IRA and then the rest of our suite, whether it's EV or even PHEV because we get those cells out of Holland, Michigan have the 3750, we fully believe that we'll be competitive and we'll be able to qualify for IRA. We're still doing some of our final sourcing for those battery cell plants, so we don't have anything to confirm. And we believe that the PTC will be a nice tailwind for us partially baked into the numbers that you saw. And we have three battery plants in the US that we announced with BlueOval SK, plus we get cells from Atlanta. So we believe we're really well positioned with the PTC with our volume.

Jim Farley:

One of the little-known facts of IRA is that 100% of the commercial customers get $7,500, regardless of where the battery's from, where it was built, where the raw materials are from. So it turns out that IRA for Ford Pro is a really important thing for us.

Jim Farley:

It's a differentiator because we always talk about the retail, we need to consider them. A lot of our volume is Pro.

Colin Langan:

On the lithium side.

Lisa Drake:

Yes, slight decline but not probably as dramatic as we've seen with some of the banks and the estimates.

Colin Langan:

Thank you.

Lynn Antipas Tyson:

Okay, in the back in the middle.

Itay Michaeli:

Thank you. It's Itay Michaeli from Citi. Just two questions. First, going back to the art of the possible slide for 2030 with some of your businesses already expecting to see a 20% EBIT contribution from software and services, I think by 2026, where do you think that can go roughly by 2030 as your installed base grows on the new electrical architecture that you'll be launching? And second, just to clarify, how much for 2026 cannibalization are you assuming from EV to ICE for Blue in some of your high-margin products like the F series?

John Lawler:

So the incrementality we see, today, it's much higher. As Jim's talked about that 50 to 60, that starts to come down and we think around 40% as we get through second gen in that range. So that's what we see there. The art of the possible, when we look at that, it comes back to the units in operation, all of that. And when we step back and look at 2030 and we look at the blended in the numbers we talked about, that's for the new vehicles that we're selling. But when we unpack everything, and I'm not going to give all the details on it because I know you guys are going to want it, we're just not ready to do that because we're learning here too and we're learning a lot, but we can see by 2030, for Ford, the revenue for services in the 10 to 11-billion-range-plus.

Now some of my colleagues think that's conservative and that's changing all the time because we're learning more and learning more and learning more. But that's the power of this when we get out there and the potential it has for the business model and the cyclicality issue this industry has dealt with.

Jim Farley:

The difficulty is going to be handicapping what gets commoditized. Some of the software is going to get commoditized, and which software revenues when that happens will be a key part to handicap. That's why we have a lot of debate as a team-

John Lawler:

Yeah, we do.

Jim Farley:

Because it's not altogether clear. When will hands-free level two be commoditized? Right now, it's extremely attractive for customers, but at some point, when level three comes, maybe that's as ... doesn't have the same pricing powers today.

Lynn Antipas Tyson:

There.

Mark Delaney:

Mark Delaney with Goldman Sachs. Picking up on that point around L3, can you talk a little bit more on the types of use cases you imagine L3 covering? Because some companies may have L three, but it's very

situational like a traffic jam. Sounds pretty broad, but then it's the second part on L3 beyond the use case, maybe you can talk about your visibility and confidence in being able to deploy a more comprehensive L3 because we've seen L4 at scale has had a lot of difficulties as part of your pivot I think toward L3. So now that you've been working at this, if you could give us a bit of sense on your confidence in visibility there. Thanks.

Doug Field:

Sure. Well, to start with, we want L3 to work everywhere BlueCruise works. And BlueCruise is going to expand where it works between now and when L3 arrives. And the key use cases that we see are stop-and-go traffic, which is really tedious and actually a cause of a lot of accidents because people take their mind off of what's going on. And then steady-state cruise long trips in which the same thing you can tend to get bored or sleepy. So it adds safety, but it's also ... I've taken seven, eight-hour trips and the way you arrive at that trip and how tired you are and exhausted is just completely transformational.

So we want to start by being able to do that and now take your eyes off and then gradually, once we deliver that, start expanding it past what I just said that BlueCruise can do into more and more and more areas. Downtown operation with pedestrians and stop signs and double-parked cars. That is the hardest possible place to get L3 up and going. And so that'll come last, but the reality is, it's not the most valuable place we can give customers autonomy.

Lynn Antipas Tyson:

Emmanuel.

Emmanuel Rosner:

Thank you so much. Emmanuel Rosner from Deutsche Bank. Maybe I'll be the one asking the first question about Ford Blue and essentially give Kumar an opportunity to chime in, but ... You are targeting Ford Blue margins by 2026, which are basically unprecedented for the business or for Ford. And a big piece of it comes from cost, four points from contribution margin, four points from structural cost. You've been in it for a long time at Ford, essentially trying to fix costs, improve costs. How do we get confidence from the outside that you could actually pull it off this time? And in particular, are there any specific big discrete actions that you can point us to? Is there going to be some typical restructuring headcount, capacity reductions, things like that that we could put a number next to?

Kumar Galhotra:

So let's start with the contribution part. Quality has been an uncompetitive view, and we're uncompetitive. Just fixing quality at the pace that we're fixing would be about a percent point of that 4% I talked about. And that's pretty easily calculable because we know where competition is, we know what our repairs per a thousand are, the kind of repairs we're doing. So physically, what's different is how comprehensively we're looking at quality, quality from suppliers, quality in our own manufacturing facilities, and quality of how we design vehicles. The failure mode analysis is much more robust than it used to be. Our engagement with our suppliers is much more robust, and our assembly plants, very key initiatives to reduce the error states.

To your point of we've done it before, but this time what's different is truly institutionalizing all this. And what we're using there is lean. That tool and those principles are going across every organization, PD, manufacturing.

Oh yeah. And supply chain. Also, with John's team, like I said, we've now covered more than 125 suppliers, very detailed reviews of where their processes could go wrong.

The second big part is our part cost. And in our part costs. Again, what's different is a very cross-functional level of work between supply chain, benchmarking, PD, and manufacturing. God, 30 years ago when I first started, there's somebody sitting next to me said, "We're really going to improve complexity." And it never really seemed to gain traction. Last two years have been a watershed moment for complexity in our company. We've gone from thousands of combinations, in some case millions of combinations to handful. And that saves in so many different areas in contribution cost, in quality, in structural cost, we have to engineer less. So in that entire process again, providing the teams with those tools and specifically marketing and PD, working very closely where we are reducing orderable combinations by a magnitude that we've never ever done before.

Lynn Antipas Tyson:

So Emmanuel, we're going to have to take that into the lunch. We're out of time.

Jim Farley:

I just want to say ... I think I need to say something as the CEO about your question, which is like, Hey Farley and team, how do you handicap doing this? I think a couple things I see that's changed. We spend Tuesday once a month on material cost and supplier cost. I've been here 15 years, never seen that even during Allen's period.

Number two, the comp for the team, a large part of it will be tied to getting the best-in-class quality. We've had year-over-year improvements, which we've missed by the way, but we've never tied being best-in-class in quality to cash bonuses of the company. So if we don't do that, people are going to ... they're going to financially have a big impact to them personally. But what I see differently is that cost at Ford was always something that was done to you. And now on two-stamp, I'm starting to see it to be something that we all want to do, and it's a volunteer kind of ground-up exercise. What really feels different to me at Ford after being here for 15 years is that I'm starting to see an excitement around waste elimination, not task-assigned. Like the word task is starting to leave our vocabulary. That's what Ford was for the last 15 years. You got a cost task, and that's why it never stuck. That's why it was tied to the CEO.

The most important thing is that the team does this on their own. I think that feels differently at Ford as a CEO that we have a chance to actually make it sustainable. But we'll see right, next quarter and the quarter after that, quarter after that. Is there anything else you would like to say to Kumar's point about ... because you've been here for more than my 15 years.

John Lawler:

Yeah. I think Jim's point about cost was something that was done to us people didn't own. What Doug's talked about is excellence in the design that's permeating through not only E but Blue as well. And it's a different approach. There's a tool we have now, there's a lexicon, there's a language, there's an approach. Jim, we do every Tuesday, but the other three weeks in the month, on Tuesday, Kumar and I are doing deep dives with Doug and Lisa and the rest of the leadership team driving costs because we know this is our biggest issue.

And quite honestly, Emmanuel, we've talked about this for years, you're not going to believe us until we start delivering it. I know that.

Jim Farley:

Correct.

John Lawler:

And we know that.

Jim Farley:

Correct.

John Lawler:

Because we've told you this before. That's the truth we have, and we haven't delivered, so we have to prove it. We can talk about it, but we have to prove it.

Lynn Antipas Tyson:

Okay. All right. Thanks, everyone, and enjoy lunch, and we'll reconvene in the breakouts at 1:00. Thanks.

Jim Farley:

Thank you.

Ford Motor Company

Capital Markets Day (Delivering Ford+)

May 22, 2023

Breakout Session: A Platform for Unimaginably Great Digital Experiences

Doug Field:

So good afternoon. It's great to have you all back. And what we're going to dive in here is on software. So building a software business and putting it in the middle of our products is a pretty profound change in a company. And if you're going to play in the software business, Darwin has it right, survival is going to be about agility and the ability to adapt and adapt really quickly. Competing with software is just very different than competing in the traditional automotive technologies. There's no tooling, there's no factories, and as a result, everyone else is going to move really, really quickly. But you can't hack this to go fast. Writing software is hard. It takes really, really great talent and it's different talent than the auto industry has typically had, and it takes a different kind of focus. So I've been really lucky in my career to work with some digital teams that really understand how this is supposed to work and understand that software is a craft, has a standard of excellence, and it's every bit as important as the physical work.

And that's what we're trying to build here right now at Ford. So when we were here, when I was out front earlier, I said, a vehicle can be a really great place for experiences. It would be so great that it wouldn't even need wheels to be a product. But the ability to actually deliver that vision and the vision that I told you was about things I haven't even thought of yet, comes down to a couple of things. And Jim spoke about this too. How well do you know your customer? How quickly can you learn, respond, make their lives better, and then figure out what to do next? But both of those, the learning about your customer and responding, both of them are software problems. So the first problem to solve is what happens when you put software in the center of the vehicle? That's not even what the world sees at first, and that's a connected data platform.

Ford has 120 years of experience with customers, but now we have five years of connected data, which at least for our current customers is probably more important than all of the rest of that. So it takes the way we think to a completely new level. It's real information on how the customers use the products. It's anonymized to protect their privacy, but it's super powerful. There are some easy examples. For example, we improve service by diagnosing vehicles remotely before the customer even knows anything is wrong. We're starting to do that now, and then we want to have the dealer order parts be ready. Ted will talk to you about even taking the next step in that, which is about prognostics. We know before the car has a problem, or truck, or van, and when it needs maintenance, we can make that completely invisible. We can show up, take care of it, get out.

And one of the most annoying parts of owning a vehicle can be gone basically. So if we want to have software based thinking where it's woven into everything we do, that data platform is critical. So it's really tempting for product companies of any type to make decisions based on ourselves and what we think as customers, I like to call it DFM, designed for management. But that's not how we should be designing vehicles, especially with connected data. We should meet the customers where they are. So there's a really simple example, not a glamorous one, but in a rugged vehicle like the Ranger Raptor, there are amounts that connect the body to the frame. And these need to be as soft as possible for

comfort, but then they've got to survive really rough environmental conditions. So typical industry practice is run them at the temperature that is the worst case, cold, worst case, hot, design them around that and put them in the truck.

But what we would do in connected data is we would actually look how people are using their trucks and what the temperatures are, and how often they are at these different temperatures, and how hard the loads are at those different temperatures. So the team went often did that and they made the Raptor R, the Raptor ride a lot better, smoother, quieter, and they saved a million bucks. So designing to specific requirements like that lets you optimize instead of compromising. The most important part of that whole story is I never knew it happened until I went out and started asking people, give me an example, give me an example. So this type of work is happening deep in the organization. It's not a top-down initiative. It's engineers looking for the data to solve the real problem. So this is a fundamental culture shift and it's happening all over the company.

Instead of theoretical conversations about what customers want, now you hear people say, "Hey, we can know what customers really do." And the data goes beyond just engineering and product development. You can actually use it to change customer communications. We know where customers use BlueCruise the most and what times they use it the most where it's most useful. So our customer team can go out and if they want, they can put a billboard in a location where we know everybody that's got BlueCruise tends to use BlueCruise, basically speak to them at their point of pain and say, "Hey, we could make your life better right now." And the connected data platform though bridges into customers as well. So for retail customers, that's FordPass, that's our app. And whether it's your phone is a key, remote heating or cooling, or unlocking the vehicle from afar, FordPass is already really heavily used. Our customers have sent over 1 billion commands to their connected vehicles using FordPass.

And in the commercial space, of course Ford Pro Telematics and the ability to control a vehicle connects things back to the fleet owner. And Ted talks about just how important this is to a commercial customer for running their fleet safely and efficiently. So another fundamental ability in your connected platform is changing the vehicle without bringing it back. Everyone takes that for granted now on phones, but it's actually way, way harder in cars. So in 2019, Ford put modems everywhere, which was a leap of faith. And now after just a few years, we've started Ford Powerups, which is what we call software updates, and we've delivered at 11 million OTAs. And the pace there is actually accelerating. I've heard that in the last couple of weeks. We've already done a million updates, so it's accelerating dramatically.

And we're the only traditional automaker that's actually gone in and made a major user interface update where we changed the experience for Mach-E customers. So that really great UI, which was based on what we learned for customers, what are they actually doing with the UI, what should be upfront on the first surface and what do they rarely use? And we can put back in the settings menu. And we've brought that all the way back to vehicles that were launched in 2020. So these customers are thrilled, they feel like they get a new car. And next, lightning will get it. And then a really big deal is we start pushing it out to F-150s, and Explorers, and Expeditions, Navigators, aviators, huge numbers of customers in our Ford Blue portfolio. About half of the updates we do are customer facing features. Things like in Model E, we improve the accuracy of range prediction.

People were commenting that the car was too pessimistic on range. We pre-condition the battery so that as you're heading to a fast charger, we bring the battery temperature up so you can charge at full rate. Even little things like the smoothness of a Mach-E when you get on and off the accelerator in one pedal driving, we improved dramatically over an OTA. We didn't even make a big deal of it, but you could go on social media and say, wow, my car's operating a lot more smoothly. We also of course use it for rapid response to quality issues. We can detect them quickly and make changes before they've really turned into big issues. So this has been going on for quite a while at Ford and they're building a lot of success here, but it's really, really hard. Today when we want to do an application for the customer, we've got to go deep, deep down into the fundamental architecture of the vehicle.

So the pile of parts over here that Jim was talking about, and I'd love you to pile through it when you have a minute. Every single one of those comes to us with software in it. Software that's not written by us, it's written by a supplier, and it's in there to try and control something in the vehicle, and then it comes in and gets integrated into the rest of the car. And you can imagine what it's like to try and develop software on a platform like that. It's slow. Changes are really hard. You have to coordinate across all these different companies. So when the team actually went out and said, "Hey, we want to get BlueCruise now to version 1.2, which is what you got to experience if you were on the ride from the airport, we have to change code on seven of those different modules for BlueCruise and five of them we don't even write the code for.

And then we have to go through and do five separate updates. So we have to do one, wait, do a second, do a third, do a fourth. And the fifth one is what finally changes everything in such a way that you're ready to go. And customers have to wait longer of course. And then you can imagine the engineering resources for teams that have to prepare each one of those updates and each piece of code. So we've got to move beyond that. So the next generation architecture that we talked about this morning is changing things in a really big way. So we're moving to much more of our software being in a centralized high performance compute where we control the software, and that brings infotainment, and our autonomy software also into two internally controlled modules for both the physical design and the software. And then we're doing things like upgrading the communication buses. You need to talk over ethernet, not just CAN. We're using high speed connections like that.

We're designing and developing a lot of other key modules in-house as well, which gives us that control over software, that also actually fundamentally changes the supply base. So when we design a module, we pick the silicon, we start managing the supply chain way beyond just whoever makes that box and hands it to us. And that's really, really important when there's a chip crisis, it's really, really important when you want to get onto the latest silicone. And it's really important for managing cost and quality. So that's a big part of why we are vertically integrating in some of these key spaces as well. And we can't just delegate our future to tier one suppliers. So you can hear about industry transitioning in this way broadly, and you can go online, you can see different block diagrams of central compute plus zonal control.

But the really big change is not just dropping the hardware and it's okay, now we build a software platform on top of it. And that's what we're trying to build right now. What we are building and will build. So this will be a modern, stable, secure platform, and we will have the ownership of the critical software at all the different layers we need. So applications that used to come down and be woven all

through different modules out here will sit on top of a platform where a programming interface will go between that and the lower parts of the software platform that we don't change as often. And that we can work with suppliers to get nailed down. So the applications then can access sensors, actuators, and the other modules really down deep, but the applications themselves can be updated really quickly and really easily. This is a really crucial enable for agile software development for teams that must iterate, learn, redeploy.

And again, it's something that you would expect from a phone where you can get an app very quickly, but your updates to your iOS actually happen much more slowly. But it's a fundamentally new way to think about cars. And the software down deep is a different kind of software. It changes infrequently, it has to be validated. That's where you put your safety critical software, and it actually becomes even more stable in some ways than the hardware. It's kind of counterintuitive. So you can spin the hardware, spin the boards, upgrade to the latest processor actually faster than you would actually go down and change this low level platform software. So it really changes the way we work. So this platform first lands on our gen 2 EVs and then it will start rolling out across Ford Blue and Ford Pro, and really be the basis of how we start to build our future software business and software centric vehicles.

Platform thinking actually extends into a lot of different areas. And we want to focus a lot of these different areas into four pillars. Connection, safety and security, productivity, and autonomy. So when you try and develop software across a horizontal, you have to drive out complexity. And this is not the traditional definition of how things are done in the auto industry. So we want great human interface experiences. And when we started, this shows you the kind of range of different display sizes and form factors. And each vehicle program got to pick its own. And so the design was completely fragmented and every vehicle required its own design problem. Digital design was not really a discipline, it was a service you sprinkled around across the software teams. So going forward, if we want these fantastic experiences, we have to standardize. And so now the programs get to pick, they get to pick from three different combinations of how we want to set up display configurations, and then we can focus our engineers, and our designers, and our product people all on making these great across the different vehicles.

It doesn't mean every bit of the software is going to be exactly the same, but you leverage the capabilities of the basic platform over and over. So these three will be used across every Ford, every Lincoln vehicle. So we can optimize our products across the fleet as well. So when you go to update, we can bring along the whole fleet. If you spread all this complexity into your installed base, you can't bring your customers along. So looking at things as installed base rather than annual sales is also a big part of this transition. How many products can we put into customers' hands that we will ship software to, and that will improve over time. And that's a key part of this complexity effort too, is in the world of software and post-purchase, it doesn't matter how many cars you just shipped this year, it matters what your installed base is and how many customers you can basically meet.

So ADAS is another one of our most important horizontals that extends across the whole portfolio. And this is an entirely different kind of software to what I was talking about before. We talked about robot software. This isn't a device like a phone or a laptop. This is a robot, it moves and the software actually controls motion of mechanical systems from simple stuff like doors and mirrors, but most importantly deep down into things like steering, and breaking, and acceleration. And that's what makes it possible to

do autonomy. So level three autonomy where you're able to actually take your eyes off the road is going to launch on our gen 2 EVs, not right at the point that we land our platform. But as soon as possible later after we can get it right. And that's when you start getting giving time back to customers. That's their most valuable commodity.

And all of these experiences that we've talked about developing for when the car is stationary, all of a sudden they become experiences and things you can do, including productive things like doing a video conference with work while you're moving. This is going to be a complete game changer. But BlueCruise today, even before we get to this new platform, is already a really big deal. It's risen to the top of recommendations from publications like Consumer Reports, and we can already lean on it and start using that to build the future. Connected data we looked at said, number one reason people leave BlueCruise is turn signals and a lane change. So if you experienced 1.2, one of the biggest changes is we put in lane change assist. And that update is not only already in 23 Mach-Es, but it's going to over the air back to vehicles in the fleet, and it's going to do that starting this year.

Now the number time people that leave BlueCruise is now down by about 25%, but we want to keep working. So the next round of data has come in. And in our internal testing, this isn't a release that'll take a little longer than 1.2, but we're already seeing the data that says we can take it down by 85% now. So the evolution of autonomy is a journey. There's not some gigantic breakthrough where all of a sudden you can turn on L3. This learning, even though it's on our old platform, is really, really critical to us building the base of what we need to know. Suppliers can't hand you this capability, they can't do it, and learn, and be in contact with the customers the way we are. So we will use suppliers in autonomy, but there will be key pieces of technologies, whether that's sensors, or maps, or things like that. We will integrate the platform and we will develop it.

So we need the best talent in the world to do this. Autonomy is a really hard problem. So this desire to build the best team is really focused in what we did with Argo. So Latitude AI is our new team. It's already up and running and it's formed from the best and brightest minds at the former Argo AI. And they're building the technologies that will allow us to do this. So when we say unimaginably great, as I mentioned this morning, it's a very intentional choice of words because a great platform is only a great platform if it's ready for all the things you haven't thought of yet. We love to generate ideas that challenge the platform. We do this in brainstorming session, come up with an idea even if it's a stupid idea, and see whether the platform can support it.

But even those ideas we know we'll change them a hundred times before we launch them, and we'll change them a hundred times more as we learn from our customers and put it out. So we'll just show you some simple brainstorming ideas of what's possible instead of the relatively mundane ways you might think of. Well, let's start with trip planning. So trip planning, you can bring together a whole bunch of information and do things that you can't do just by tacking your cell phone on the dashboard. We can look at weather, but now look at this as sort of a journey through space and time, and say maybe it's more important to know when it starts raining based on where you are in the trip. It's going to start raining when we get to about here. Maybe we want to know when it gets dark, not based on the time, but based on where we are in the journey.

We can identify a scenic view before you get there. You could zoom in, you could see it, decide whether you want to stop. We can keep track of where your friends and connections are, show you where they are, show you where you stop, where BlueCruise is available. So you may want to route your trip in a way where BlueCruise or L3 is most available, even if it's slightly longer. And then I mentioned bringing people along the trip. Grandma can log in, get on the inside camera, and sing karaoke with the rest of the family, or they can look outside the car and look at all the cool scenery that's going by. You can play games at a charging stop. Obviously, there's just many, many ways that we can do this. So what about safety and security? What are some brainstorming and kind of crazy ideas around that?

So let's say you have a Bronco and you go camping. So a Bronco can now be your game camera. It can watch, identify, video, and record animals that are around the vehicle and around your campsite. We might see a deer and record it, so you could watch it on FordPass later, or maybe we identify that it's a bear, not a deer. We've got the capability to do that with our autonomous systems recognition. And maybe that makes the lights flash and the horn come on. So even safety and security can be a lot more than just putting a ring camera on the front of the car, which is what a lot of people are doing out there. And then a commercial driver, Ted can show you really detailed examples on this, but they can lock, they can unlock from remote, they can attach very specific workers to very specific vehicles, and give positive feedback when the employee actually drives in a way that they know is safer, and puts less wear on the vehicle, give them positive feedback.

And all of these examples, they're not unique and given enough time, others could build these experiences out. Although with our design teams, I'd like to think they're not going to be anything as useful and as cool as ours. But what's important is that we understand what the customers are doing with this, and we use everything that we can possibly know about the customers as well as the connected data. And that we can develop these features in weeks rather than months. Deploy them, find out right away whether people even use them. And if so, how? And then make them better, and better, and better. And the best features, the best productivity, the best safety and security will deliver our those we haven't thought of yet. So ultimately the hardware platform won't be what differentiates. Our competitors can tear our vehicle down and figure out what kind of hardware platform you are. The key is this software platform. And that's what we have to set up to be able to move more confidently than anyone else, and more quickly.

I'm into airplanes. My favorite airplane is the SR-71, designed in the fifties, still holds all the records for speed. And it was designed to spy and not get shot down. There were no defense systems on it at all except for one, if a missile was fired at you, you push the throttle forward. And that is really what we're talking about in the software world is speed is what becomes your competitive advantage. Speed's the only defense. And to do that we have to set up this kind of platform and this kind of organization to be ready for the future. So I have time to take a few questions at this point.

Tom Narayan:

Tom Narayan here. But you talk about speed, right? That's the thing with software and there's a very high profile European OEM that's tried to do speed with doing software internally, and have had issues doing it. So much so that you could say someone capitulated and are using a supplier to provide them with level three. To what extent, we heard also from Jim earlier about how some of the ADAS is eventually going to get commoditized. So maybe you don't make as much money off of it. So if

everybody's going to have the same product, why not outsource it? What is the need to distinguish yourself, and wouldn't it be quicker to use somebody else?

Doug Field:

So it's a good question. So if you want to have the same software as everybody else, there's no better way to do that than to outsource it. So if you want to preserve the option to have something differentiated, you're going to have to do it inside. But the other piece of this is if you are starting to change your product to be different than the rest of the industry, outsourcing the software, it doesn't work because of that right over there, where they've got to get in and now start working with your suppliers through your channels. And I have not seen with a product of the complexity of an automobile, the ability to actually outsource that level of work and have it land and get integrated in your product and integrated well. So the way a lot of auto companies have tried to manage software is the same way they do supplier hardware. So what can happen is what were design engineers inside the company become program managers.

And the program manager supplier who actually has the CAD and engineers and designs the product. And once you do that, you're at the mercy of the supplier. But the main question of where is your differentiation going to be? I mean, you could ask the same question of some very successful companies today, other people have exercise services, other people have cameras. The difference is in, I think how we connect them to our customers. People respond to really, really well done software. They respond to companies that pay attention to latency, to beauty in the system, to ease of use, to the ability to learn and know what you want. Software can be very personalized, and people can love and be loyal to software in ways that are just as strong as hardware. So it would be a complete delegation of our destiny to hand over this kind of core software to a supply base. And I don't think it would be faster actually. I think it would be a lot more complex, and we'd end up with something that we couldn't change. It would be really hard to change in the future.

It's great to see all of you. Enjoy the rest of your day.

Thanks.

Ford Motor Company

Capital Markets Day (Delivering Ford+)

May 22, 2023

Breakout Session: Insights into EV Industrialization

Lisa Drake, Erica Rannestad, Katie Wang, Peter Wilson

Lisa Drake:

Okay. Good afternoon everyone. How are you?

Audience:

Great.

Lisa Drake:

Okay. I think before we get started, Lynn, did you want to make one small announcement on questions?

Lynn Antipas Tyson:

Yeah. Just during Q&A, we're going to limit it to analysts because we know there's also media in the room. So, thanks for your cooperation.

Lisa Drake:

Yep. And if you could please, there will be microphones for you to ask your question because it is broadcast, so we want to make sure that the folks online can hear you as well. So if you could oblige, that would be great. So this is going to be a little bit lighter in format this afternoon. We had a lot of announcements this morning on our raw materials strategy and our lithium deals. We talked a little bit about our EV industrialization plans and manufacturing. Although given the limited time, we couldn't go into a lot of detail. So this is your opportunity to ask us any questions that you might have.

I have with me some of our fantastic team members and I will do a quick round of introductions. First we have Erica Rannestad. Now Erica leads our lithium team and needless to say she's been pretty busy the last six months on all the lithium deals. 15 years of experience in the commodity industry. Everything from commodity pricing, forecasting, valuations, and she came to Ford by way of Rio Tinto.

We also have Katie Wang. Katie started at Cisco. Fifteen years of experience in supply chain. She spent 10 years at Apple and Tesla buying batteries and worked on iPhone, Apple Watches and of course EVs. A lot of expertise all the way down to the tier four and five levels in battery cell raw materials and she leads our global battery cell and raw material team inside of Model E.

And then Peter Wilson. So one of our manufacturing veterans. He leads our manufacturing teams for all the battery cell plants and then all the battery pack plants as well. Twenty-eight years at Ford. He has helped us build four major plants in Mexico and China, seven major existing transformations, great

depth in manufacturing expertise in technology, and again, he's dedicated to us on our battery cell team.

So with that, we wanted to actually spend most of the time, we actually ran out of time in our first session. So, we want to turn it over to you to ask us any questions you might have. Again, raw material strategy, battery cell strategy, and anything around the industrialization plan.

Colin Langan:

Colin Langan, Wells Fargo. Maybe to kick it off, you have the EPA rules imply about 67%, or at least the proposal is implying 67% BEV by 2032. Since we have lithium and supply chain experts here, do you think there's enough lithium that's going to be available by those timeframes? Obviously, it's pretty important since you just locked in a lot of big deals this morning. What are your thoughts as experts on that? I'm kind of curious.

Erica Rannestad:

Yeah, so lithium is actually an abundant material in the ground. Doesn't mean it's abundant economically and at the timeframe that the market wants it. It's also not abundant in that there's not a lot of know-how or capability in the industry. Just five years ago, the lithium market was 200,000 tons. It needs to grow to over 3 million globally to meet demand within the next, 'till 2030 or so. So the real bottleneck is time and mining lead times and development timelines are a lot longer and there's a lot more work because you are agitating the earth. You have to really plan that out.

So I guess my quick answer is that there is enough lithium, but at the timing that everyone wants it, I would say no. There is a supply demand gap. And so in the past several years, you have seen a lot of OEMs recognize that bottleneck and go into direct sourcing the material. And those suppliers, those lithium producers, they want to be connected to the OEM directly so they can understand really where demand is going, rather than sort of hearing it along the grapevine of the value chain. So in the long run, there could be enough lithium, it's just going to take a long time. But to grow at that pace is also pretty unprecedented for a commodity industry in and of itself. I mean when was the last time you saw commodity growth of supply increase at 20% a clip, chronically? It's not very easy.

Colin Langan:

Thank you.

Tom Narayan:

One of the things was mentioned, actually and yesterday, one of the sessions yesterday, we were learning about LFP and how the ranges doesn't go down actually as much as maybe a lot of people were fearing. It was like 320 miles just goes to 270. And we heard also from the presentation this morning from Jim about how kind of the 300 mile is the sweet spot. But then you guys had also said that you were targeting I believe only 15% of the portfolio to be LFP. Am I understanding that right? Why not go higher?

Lisa Drake:

Well, so that's a great question. So it's 15% in '27 and we start the ramp of production of the LFP facility in Michigan that we're building right about the middle of '26. So in '27 we're still on that ramp curve. In

'28, '29, you're going to see that LFP capacity really start to then peak. I think it'll be higher than 15%. My guess is probably in the 20, 25% range. But that was just our first full year production and if you know battery cell plant capacity, it takes some time to actually ramp to peak.

Tom Narayan:

And then on the lithium topic, there's alternatives to lithium right, too. Like where they're probably still in the development stage now, but how realistic are some of those?

Lisa Drake:

So I would say our Ford Ion Park team does a lot of that advanced research. I mean they're constantly innovating... I think you're talking about sodium ion is probably my guess. But we don't see that being at a commercial scale anytime before the end of the decade. And so based on the first question that was asked, what we needed to do was make sure that we actually had supply capacity for not only the lithium hydroxide, but I think it's important to note some of that would be lithium carbonate for LFP batteries locked in so that we had our plan de-risked through at least the backend of the decade.

You know when we launch these gen two products, we want to make sure that for the first few years we are not supply constrained. If there's anything we've learned about the first launch of the Mach E and the Lightning, we were manufacturing capacity constrained and supply constrained because we just didn't understand the demand. So now we're actually unlocking that on those gen one. We've learned our lesson. And now for gen two we don't want to be in a position where we don't have the lithium that we need, hence the agreements that we announced this morning.

Chris Ceraso:

Thanks. I'm interested in your take on the dry electrode process, whether or not you looked at that and thought about that for Ford. And then I guess the same question on the 4680 form factor. Have you kind of thought about that, tested it? I know it's not just Tesla that's talking about it, but some suppliers as well, maybe at the behest of Tesla but it’s uh so those two things.

Lisa Drake:

So maybe Katie just light touch on dry electrode?

Katie Wang:

Sure. Maybe, let me start with the form factor discussion. I think there's different types of form factor. 4680 cylindrical form factor is one that a lot of folks are interested in. And I think it takes a different type of skill set to manufacture cylindrical cells and also be able to assemble cylindrical cells into packs. And I think that's where everyone, they look at different form factor to say which path we're on. And where we are, I think we're fairly onto the pouch and prismatic cells. And that's where our development, that's where we put our research and all that into. And It's just a different technology option that we're choosing.

So the dry electrode is more the chemistry portion of the battery, so that's the inside of the battery. And also where we have gone is where we are at the beginning of our EV stage where we're looking at the NCMs and LLPs that we are familiar with that are well known, that we have partners we can work with and actually be able to produce this. So in the short near term we're looking at within the decade, this is

all within the game that we're growing our EV strategy, this is the right thing. And what Lisa was mentioning for Ion Park and other research, we are looking at different types of chemistries and different options out there. And that's probably going to be a little bit towards later of the decade and even forward to bring-

Chris Ceraso:

Are [inaudible] sort of behind the curve in cost?

Katie Wang:

Not really. Well, not behind the curve. So if you think about battery strategy, generally EV's growing, so all the chemistry is going to continue to grow, and you are not going to, individual chemistry is going to grow, oh, if the overall pie is going to grow, maybe the percentage of that particular chemistry might change between LOP over time trading for potential US sodium and other ones. But overall, the pie is still going to grow. And where are we setting up today is going to set up for the foundation of our EV strategy where the battery's coming in. As we continue to grow, maybe there's new chemistry that will pick up and then that continue to grow with our EV strategy. So you're going to have to trade out, but your pie is still growing overall. And that's in the near term, you have to go for something that's really proven that you can actually deliver today.

Peter Wilson:

And I'll just build on it a bit too that in a manufacturing process, there's a lot of different things to look at to optimize the processing. Dry is one, but the formation methods, the way that we build an array or a cell to pack in the future, or even the way that we design our systems. We design our systems built on our digital manufacturing methods and we've used those methods very successfully in our history, in our ICE facilities. But also as we've launched our lower volume battery systems, those methods that we've developed have been very successful. Lisa touched on a 90% run at rate efficiency and that's where we combine all of the equipment in a facility, all the yield rates at 2% or so and put them all together. All of those make it an efficient manufacturing system. And so we've really been optimizing our systems and with the new facilities that come online, we've got an even better methodology coming in for those ones.

Lisa Drake:

I would just add on form factor, there's a little more flexibility than I think people recognize. We launched the Mach-E with an NCM pouch, but within 18 months we're now launching an LFP prismatic in that. And we're doing the same thing in the Lightning. So when there's an opportunity, we can flex if we need to. Our LFP facility at Michigan obviously won't be a pouch facility, so we do have an opportunity to bet on different form factors. It's not the 4680 obviously, but it's not also only pouch.

Dan Levy:

Thank you. Dan Levy, Barclays. Not within the battery specifically, but maybe you can talk about some of your efforts on battery components or E-powertrain components to help drive efficiencies. Specifically what's the level of vertical integration you're looking at? And then within the inverter, how much work are you doing there? Is there any efforts to bring any of that in house? And what are your efforts on sourcing silicon carbide, if any?

Lisa Drake:

Thanks, Dan. So first, let's just start at macro level with E-drives, we have huge capability just because of the fact we used to build our own engines and transmissions. So when it comes to E-drives, we're converting a lot of our transmission plants to E-drive plants, and that includes in-house motors. That's a given. We've been making our own hybrid transmission for quite some time. So it wasn't new for us to actually make our own E-drives for EVs. That's table stakes. And that includes all the in-house E-motors.

Inverters are the next step. And we're really excited about that next frontier on in-house inverter. And that also includes power module and silicon carbide sourcing. One of the things that we've learned through the chip crisis for sure is that we want to control component supply. And so when we created Model E last year, we also created an organization that will now do component buying for certain components in our electrical system. Whether it's the fully networked architecture that Doug was talking about in building our own modules and controlling the component supply there, but also in our EVs with silicon carbide. I can't go into a lot more today, but I can tell you, when we think about vertical integration, that's the depth of vertical integration that we're working on.

Adam Jonas:

Hi, it's Adam Jonas from Morgan Stanley. I want to go to a comment that Mr. Farley was talking about battery size. Remember the movie Wall Street, Michael Douglas on the big cellphone out east on the beach in the Hamptons, and kind of looking back at that right now, but when I see a lot of the battery metals forecasting, they have battery size getting bigger, which just seems odd to me if you have chemistries that can charge faster and you have charging ubiquity. So I'm curious if you have an idea in terms of where optimal battery size would be for your vehicles, whether that could be maybe perhaps lower than some are forecasting. And then I have a follow-up.

Lisa Drake:

So my guess is it's probably lower than some are forecasting and it's going to vary by vehicle segment. The three row crossover that Doug was talking about, three row SUV, 300 miles, going 70 miles an hour, an ability to charge 150 miles in 10 minutes probably doesn't need a larger battery size. And he showed how we're looking at that because it's really a fundamental shift in not chasing after bigger batteries for range. And it really is all about that efficiency discussion. For our trucks, there might be one or two different applications depending, because our truck customers, as you know, they do varying degrees of work. Some are retail, some are pro, and then LFP. LFP will play a really vital role for us because there's a certain use case for that technology, especially in a commercial application or an application that might be more cost sensitive.

So I can't comment on why others are designing the way they are, but battery capacity is expensive and you don't want to use it inefficiently. And we're really training our muscles at Ford that that is the number one thing you have to think about, whether you're the tire engineer, the weight engineer, the aero engineer, the front end engineer is that it all comes down to dollar per kilowatt-hour of the size of the battery that we're putting in. And that's also why we want to take the inverters in-house because now we have one step further control of the power electronics. We write the software today for that, but now we have control of hardware and software and we're taking that design to the next level. So I would think you're probably going to see maybe smaller batteries in Ford products, but equivalent performance or better trade=offs.

Adam Jonas:

Okay, great. And Lisa, as a follow-up, if there was a superior battery technology that was provided by a competitor, would Ford rule out licensing that technology or outright buying it over time?

Lisa Drake:

Oh, I think we did. So we're licensing an LFP technology. We'll be the first to scale it at significant volume in the US. We're building it ourselves. It's a wholly owned Ford subsidiary. We will operate it, that'll flow through the full $45 per kilowatt-hour PTC credit to Ford Motor Company. We'll have significant scale. One of the lithium announcements that you saw, SQM has lithium carbonate that will supply the facility. So we have control of the raw material value chain of that facility as well. So I think where appropriate, absolutely we would.

Adam Jonas:

Would you draw the line at buying or licensing a technology from Tesla or another OEM?

Lisa Drake:

I don't know. I really wouldn't draw any lines to be quite honest. We're at the beginning of a really big industry transformation. And no, I wouldn't draw a line.

Jim Irwin:

Just a couple of follow-ups, Jim Irwin at Moon Capital, in violating the sell side only policy. Sorry.

Lynn Antipas Tyson:

Questions are for all analysts not just sell side. Sorry for any confusion.

Jim Irwin:

Sure. Couple things, and maybe this is a question on the manufacturing side. Scale, a lot of commentary coming out of Asia about good luck catching up to BYD and Tesla with a vertical integration all the way back to batteries in some degree. Can you kind of share with us your thinking about as you hit 500,000, a million units pretty soon, just how much differential do you see from a cost standpoint and scale in terms of that battery cost, assuming kind of similar chemistries and form factor? I'm trying to get my hands around that issue because obviously those companies have ambitions to grow to much higher levels very quickly as well. So that's the argument. I just want to kind of hear a counterpoint.

Peter Wilson:

Sure. The first part is when you scale up, you have to design a system that's going to run efficiently. So the way that we're scaling up, we're creating systems that have multiple parallel paths so we can assess and analyze our bottlenecks and constraints. These are things that we do really well by taking all the data and running a facility very efficiently and we're experts at that. We've proven it in the past. We know how to manage systems like that. Also, you know, we're vertically integrating everything in the system. From the raw materials through the cell manufacturing process, through the pack system, we've got control over all of those systems. So then you start finding things like what's the best way to buffer the systems completely, right? And then our labor efficiencies, some of our new systems that we bring on, we're using, as Lisa had said in the earlier one, about 60% less labor to run the facilities because we've been able to optimize and automate the right areas.

Just one example, when we build our next generation pack systems, we're going to be loading one array every six seconds in those packs. And to do that, you have to know how to automate. You don't want to automate just for the purpose of adding it in. You have to have very targeted methods of doing it and ones that are going to be successful. Because if you don't automate properly your overall equipment effectiveness, your OEE as we use in the industry, that's what makes or breaks you. Those are the things that we're doing within Ford to automate at scale.

Jim Irwin:

And it was asked in the bigger session about per kilowatt cost. And I know you kind of held off on putting out a target, but I did have a question and a follow-up on the material cost. I know you're securing supply with your partnerships, but you're also building in lower material cost into your midterm outlook, including in the battery cell area. Can you share with us the confidence or visibility you have in that, not in securing supply, but in projecting lower costs? Because every battery manufacturer I talked to three years ago was wrong on where they thought material costs were going, or at least the volatility because they're coming down fast now too. But can you share with us a little bit of the visibility and why you have confidence making that comment about material costs for key elements going in the batteries are coming down in the next three years, not going up.

Lisa Drake:

Yeah. So, first of all, we have transparency and visibility now that we never had before. So when we started out with Mach-E and Lightning, those are buy-sell relationships with the suppliers and you have a contract between the two. And other than indexing on some key raw materials that you do as a commercial agreement over time, you don't really have deep insight into the full value chain. And as you know, there's many layers. They're marked up over different layers and that's just not the relationship we had. But we were only sourcing tens of thousands of units at the time.

We made the first choice is, okay, when we really lean in, now we want to have a JV relationship where full cost transparency is there. And that's what we now have with BlueOval SK. We have the same thing in Turkey with our JV with LG. And then an even step further on transparency, when we own the facility and we operate it in Michigan for LFP. We're as close to a cell manufacturers you can be by knowing all the equipment costs, knowing the labor costs, knowing the bill and materials, getting to source those bill and materials ourselves with our contracts and our Ford leverage. So the level of transparency and where we play in the value chain is much deeper than it was before. Which is why we have more confidence in where we know the cell cost is going to go because we control some of it.

Now, we don't have a crystal ball on pricing, but I can tell you it's probably a conservative estimate on where we have lithium hydroxide, carbonate nickel in the plan and those are backed up again by some of the contracts that we've negotiated and I can't give you the terms of those, but obviously we know what they are. We know whether or not there are discounts or where we are at market, and that's all baked into the forecast.

But transparency is key. Control is key, and that's something we talked about in the prior session. We now have control of our value chain. There's lithium hydroxide, there's carbonate, there's some intermediates, and instead of relying on a cell supplier to give us what they want to give us we can move

our material around where we need it. If we want to flex more into LFP and use more lithium carbonate, we have an opportunity to do that. If we want to flex more into NCM, hydroxide, we can do that. If we don't like where the prices are moving and we want to flex some of our intermediate material, we can do that. We now own that material, not necessarily our cell suppliers.

Itay Michaeli:

Thanks Itay Michaeli from the Citi, just a couple follow-ups from some of the last few questions. First, what do you think is the right amount of range for a three row SUV and a full size pickup? 'Cause obviously part of what you have to make a call on is the appropriate range, not oversize, maybe the battery relative to demand. I'm sure you're getting a lot of data from your current EVs.

And then just secondly, how do you benchmark just the miles per kilowatt hour efficiency that you're targeting in the next few years relative to what you think your competitors might be able to do as well?

Lisa Drake:

Those are probably great questions for Doug Field, I'm not sure he will answer your first one. But I think those are conversations probably better for the engineering team and Doug.

Any last questions? Otherwise, we did have a couple that were pre-submitted, so I just wanted to touch on maybe one and a few of you asked a question similar to this:

We announced a few deals with some of the key lithium major producers today. How has Ford been able to do this and how would you look at those deals relative to vertical integration, for example, that some of our competitors are doing on their own lithium hydroxide?

Erica Rannestad:

Yeah, so I think through this whole EV transition, you've got OEMs coming into the market direct source raw materials, and that's not a typical activity. So for many OEMs it's very new. You can't approach raw material suppliers the same as you would typical purchasing agreement. You have to approach them as commodity producers. So, we take a supply chain approach to working with those suppliers.

The other piece is that they have to build a lot of capacity. You really need to understand what their needs are, what the risks that they're taking on, and just know them very intimately. So we take that approach. We have people in our entire team that have really deep experience along the entire value chain, so understanding these perspectives. And I think our suppliers have really identified and appreciated that approach.

And then as far as level of integration and all that, last year we did announce a deal with Liontown, which I think is a good example of going further into the value chain and buying an intermediate product. The intent there was really that there's a recognition of a supply demand gap in the lithium market and that you have to enable and accelerate the development. So, we took a position where we would buy intermediates and help solve for the refining piece as well. So the way that we would approach that, you know, we know how hard it is to make battery grade raw material products, and a miner skill set and a refiner skill set's very different skills. Miners don't always have those skills right

away and they need to focus on bringing the mine online. So, the way we would approach it is actually through partnership with the ones that are experts in refining that have built the capability that we've already been working with in various activities. So, that's kind of been our approach is through partnership.

Lisa Drake:

Any last question as we have about a minute left in the session?

Trevor Young:

Hi, Trevor Young at Barclays. I was curious if you had an updated view of what part of the supply chain is the scariest for you at this point. Where's the concern lie in terms of shortages in the near term and then into the long term?

Erica Rannestad:

So, I can touch on raw materials. I think the battery supply chain is still so young and immature and I think Benchmark Minerals quoted that you need 300 new mines to build to support the battery supply chain. That's kind of a scary thought. And, so, you need it very fast. So, you don't want to bring a bunch of mines online irresponsibly, mines that haven't done the work to make sure that they have a really robust plan around the entire cycle of their project. So, that is a scary thought.

And even in the US if you think about it, Americans are not really familiar with mining anymore. The mining industry has dropped to, I think it's a fraction of what used to be 30 years ago. There's not the capability that exists anymore. So, it is scary because you need to rebuild that industry. And you need to do it responsibly, but also you want to do it fast. So I think that that is really scary. That's why it's so important to really understand the need of the suppliers. They have the needs and if we want to develop and accelerate that development, you have to recognize that risk that they also have to take.

Lisa Drake:

Yeah. And I would say it's not necessarily a constraint because we do have arrangements and you saw today carbonate from Chile, hydroxide from Australia, some from the US, some from Canada, but US domestic is probably what would keep me up at night. We've got it from IRA compliant countries and that solves for one thing, but it doesn't solve for ultimate closed loop recycling and reuse of this material. We want it to be close to where these vehicles are at end of life and we can get those batteries back. And for me, I love thinking about the future about we have all these dealers and they're concentrated in the US where we sell and have these vehicles, and these EVs will be at end of life there.

And ultimately, their nirvana is getting those batteries out, putting them back through black mass, back into processing capability in the United States near that and then back into the cell plants. So, while there might not be a current capacity issue and we've sourced to solve for that, we haven't necessarily solved in any of the industry in the US the full closed loop. And I think that's the next big frontier that we have to take on.

Jim Farley:

Hi, it's Jim. For me, I just wanted to say one thing about this question. For me, where the vulnerability is the geopolitics of the processing. That to me is what keeps me up at night. What percentage of the processing will be done in China for lithium and nickel?

Lisa Drake:

Oh, probably 80%. But the agreements that we have today help de-risk us there because it will be processed in Australian hydroxide, Canadian hydroxide and Chile carbonate. But to go further than that, we really have, there's not enough that's non-China to Jim's point, to service everybody. That's the fear. There's not enough non-China processing to service everybody. Which is why the agreements today were so pivotal for us because we've been able to manage our lithium supply chain now without necessarily relying on that processing in China. But we can't scale it. It won't scale for everybody and it won't scale forever and it's certainly not domestic. At some point, all of that has to be domestic to close the loop.

Okay, thank you very much. I'm getting the wrap up sign here, so I really appreciate it. Great questions and thank you all for attending today and yesterday driving the products. I really appreciate it. Thanks and have a good evening.

Ford Motor Company

Capital Markets Day (Delivering Ford+)

May 22, 2023

Breakout Session: The Future of Ford Pro

Ted Cannis, Wanda Young, Muffi Ghadiali, Alex Purdy

Wanda Young:

My name is Wanda Young. I'm the Chief marketing and experience officer for Ford Pro, and we're happy that you're joining us for this breakout. So we're going to dive in, we're going to get into a series of questions, and then we're going to have open Q&A as we move through the questions. So I'd like to welcome you and then we're going to have our panelists introduce ourselves. Alex, would you please introduce yourself?

Alex Purdy:

Sure. I'm Alex Purdy. I'm the head of Digital Product for Model e, which means that I help Ted make sure that all of the vehicles are fully networked and develop software applications for Pro customers on both the vehicle and in the cloud.

Muffi Ghadiali:

Hi everybody. Muffi Ghadiali, General Manager for Ford Pro Charging. My team's responsible for hardware, software, and services as it relates to Ford Pro Charging.

Ted Cannis:

Ted Cannis, CEO Ford Pro. I'll just add a little bit. So Alex and I have been working a couple years now, so Alex also spent some time at John Deere. Sound familiar? In precision agriculture and the similar sciences. So leveraging a lot of that knowledge and a couple other folks on the team. And Muffi Ghadiali here. If you might remember, we acquired his company a couple years ago, Electriphi that was dedicated doing commercial charging for all sorts of customers, not just Ford obviously. And he had previous background also at ChargePoint doing their DC charging. So he has a longer history in this space than most in a lot of tech space. And Wanda was on the team for similar reasons when she came from Samsung, but she'd also launched ESPN to ESPN Plus as we are trying to move a business into the digital place. Similar when she was at Walmart, rolling out digital and social media across many, many thousands of stores. Something of the same challenges and opportunities that we have linking physical and digital properties. So all part of the plan, I would say.

Wanda Young:

That's right. All right, so here's the way we're going to facilitate this. There's three topics, we're going to bounce around. We want to make this interactive, and so I'm going to funnel a few questions over to the guys and then I'm going to bounce out to the audience. And so we're going to have a lot of interactive dialogue, ok?

So number one, I want to jump into software and innovation. So let's talk a lot because you know that there is a lot of change happening. What we talked about yesterday, some of you went through our garage and interactive experiences. We talked about what Ford Pro is doing across software, charging, innovation, all of the applications that are helping drive our platform forward. This is going to be a key differentiator for Ford Pro. And as we talk about the quality and effectiveness of our software platform, this is really going to set us apart. Model e is a center of excellence within Ford Pro.

And so Alex, I want to jump over to you. Help us understand how Ford Pro intelligence as a platform. We've got a lot of connected vehicles that are offering telematics, other applications, and services that use the data coming off the vehicles that are helping vehicle health and our customers keep their vehicles on the road. So it's going to get exponentially better. Help everyone understand what does this mean for our things like uptime.

Alex Purdy:

Yeah, so the next generation platform that Doug talked about is tremendously better. One, it's integrated. It has a wide variety of sensors. It has centralized compute, has low latency over the air updates. It has the ability to do remote prognostics and diagnostics, and a modern software stack and architecture with layers of abstraction between hardware, middleware, and application layers that allows for fast and secure deployment of applications for our commercial customers. You know, we're not waiting for that next generation of architecture to continue to build this moat that Ted talked about. So we're delivering a number of features even just this year. Things like in-vehicle driver coaching, fleet-start-inhibit, and speed limiter that we know we're going to have really material impact on our commercial customers' profitability. We are going to continue to focus on areas like safety and security, productivity, and ADAS that we know we're going to eliminate and lower costs for our commercial customers, eliminate downtime, and give fleet managers more control of their operations.

Wanda Young:

So Ted, chip in on that. So sometimes people may not associate what are the business benefits. You know commercial customers - they're going to pay more for some of these new enhancements. What's ultimately the business benefit for the customer? What's that going to mean for us and our financials?

Ted Cannis:

Yup, and we'd love to hear questions from you guys as well. So for me, one of the easiest things is to look outside our business completely and think about your home. So if you're at home and you've started to go into the digital world, you've got a Nest and you're adjusting the thermostat, you're controlling it when you're on vacation, different rooms, you're saving money and you're also becoming more sustainable.

You might have a Ring in front of the house, a camera that's monitoring people deliver packages, things going on for security. They tend to be bolt on additional pieces of equipment that you've put in there to do a service, safety, and security.

I have a sprinkler system that's good at taking information from the cloud about the current weather. So it's doing water when it needs to and not doing water when it needs to.

Again, saving money, using cloud-based information for control, etc., lighting, and goes on and on. That's what we're doing with these vehicles. If you're a commercial business, that is your day of your life. You're trying to save your utility bill, you're trying to reduce fuel costs, manage your employees, your fuel costs, all of that is what we're doing with an integrated suite. And for them, therefore it's a real, it's just like your business. They got Excel spreadsheets, they file taxes. They know what they paid on fuel because they're deducting it. And so they have this information, they know how far they drive. It's not a guessing game like retail, if I might want to use this. You know what it is. And that's what makes it a lot easier is to do a business proposition that works.

Wanda Young:

Okay. So I want to go back to something that Jim said earlier. So Alex, he mentioned John Deere, you were at John Deere. I think it's really instructive for everybody. If you think about how do we have a corollary, you were helping develop the digitization of their business model. You know, take us through something like that. There was a change in services the before and after of what was happening there. Give us the same corollary for our Ford Pro business. Help everyone understand what's coming in this lineup, that's going to be similar so that we can take a similar exercise.

Alex Purdy:

Yeah, the Deere transformation obviously was tremendous. It digitized the farm. But more importantly than that, it changed the habits for what buyers were growing, what type of equipment mattered. It changed economics for OEMs. It created incredible powerful economies of scale. We needed big data elements to be powerful, to be able to prognose things. And our solutions got better, and better, and better over time because we had these economies to scale.

At Ford, we've done extensive primary research and it suggests that we can have an equal kind of payback opportunity four or five times for a customer on some of our solutions. Creating valuable propositions for customers that drive up their profit and loss statements. We have really good information to suggest that even with today's architecture, we can have tremendous productivity improvements. Something like 44% reduction of idle time, 70% reduction in parts or gear theft, and a 40% reduction in energy costs. I can prove this to customers with their own data. I can show them their data and prove it to them. And when that happens, we are able to extract value and it can be pretty transformative.

Wanda Young:

All right, let's take a pause. I'll jump out to the audience based upon what we've had so far as conversation, we'd like to jump in microphone here, please.

Wes Brooks:

Wes Brooks from HSBC. Talking about this, I guess the value you can add and how do you think about pricing that value? I know the agriculture guys often like Deere would take a third of the incremental value or 50%. What are the limits on how much of that value you can take? And kind of where you are today versus where you can be?

Ted Cannis:

So first of all, obviously we're looking over the life cycle of those costs, like a SaaS business like you would. And in this case, most of our competitor, in fact, all the competitors that matter are not OEMs. They're big companies that are in the software only business. So there is pricing out in the marketplace that we have. Now, if you're a giant company, big fleet, just like in-vehicles, you can get better pricing. But generally there's established pricing and our product is competitive and it's super competitive because we have the embedded modem in the vehicle. So no plugin device required to get the extra signals and we can integrate it into our service backend, which you couldn't do with the other plugin device.

So, we have advantages that the third-party software guys don't have. So the model holds up pretty self. The main variable cost is of course, cell phone costs is passed over GPS signals, but there's nothing else there other than the cost to build and construct. And we have the scale, because we are so big in the marketplace across our vehicles in this space, commercial, and full-size vans and trucks for both government and the commercial business, we can scale that software very well across all the business units.

Wanda Young:

Great. Thank you. That was a great question. All right, anything else?

Ted Cannis:

Ryan, or Itay, or Tom?

Ted Cannis:

Who's first?

Wanda Young:

Microphone goes to the-

Ted Cannis:

Itay.

Wanda Young:

Thank you. Itay.

Itay Michaeli:

The last question. To that point, how many more parameters can you extract now and on the next electrical architecture versus some of those third-party competitors with the plugin solutions?

Ted Cannis:

So, I think the key thing in here is one of the things, even right now, where we're going to more is command and control over the vehicle. That is the big differentiator. If you have a third-party device,

what OEM is going to let you in there to control the speed and capabilities of vehicle for thefts through the security wall? So, where others can make a descriptive thing like, you guys experienced our vehicles, the nagging in cab coaching, and you can go back to the office, and they say you went too fast. In our case, we can set the speed limit. You will not be able to drive the vehicle more than five miles over. You will not at certain times of day where the vehicle is located, be able to operate the vehicle. If you say, "I don't want to work from Saturday to Sunday on the weekends," it is not operable.

So, because we have control over those settings, driver assist settings, you cannot turn them off. We've got them a certain way. Some drivers like to get rid of their driver assist settings if it's an employee driver. That's a big, big difference in the competition. And where we're going - is the integration of all that equipment. If you imagine a cell phone, you say, "I'm going to have a plug-in device for the camera, and a plug-in device for the gyrometer, and a plug-in device for accelerator hanging with cables," that is what the industry is today. Plug in everything. In the next gen, they're all integrated. You don't have to get double the cost of the hardware, you don't lose them during service, you don't have the wiring and the quality issues. They're all integrated, all on the platform, and not a bunch of third-party applications done by the supply base in 80 modules. You have control over the software so you can make the changes in new functionality immediately. Night and day.

Wanda Young:

Right. So I'm going to keep us moving. Did you want to...

Ryan Brinkman:

I was just curious about-

Wanda Young:

Sorry. Well, let's hold. Let me just grab the microphones so that we can pipe that into the stream.

Ted Cannis:

Ryan?

Wanda Young:

Thank you, Ryan.

Ryan Brinkman:

Ryan Brinkman from JP Morgan. Thanks for squeezing me in. I was just curious how much of the business model is kind of taking a Ford created, more standardized fleet management software solution and bringing it to small businesses that don't have any fleet management system, and because you could amortize the cost, they couldn't afford to create their own solution, versus maybe a larger business where you created more like a customized approach for their needs?

Ted Cannis:

So, right now, it's primarily smaller businesses and how can we do that? Which is great for us because there's hundreds, thousands, and we know them already from the dealerships in Europe and North

America. So, I saw rolling in before this, we just picked up 35 transits in Berlin. And the guy had, they were trying to manage your GPS for billing on movement. Their service of construction was they bill for the amount of movement to a site and back from the site, and they needed that. One of many, many examples. But we have a lot of functionality coming through this year that takes us up where we're moving from, let's say, fleet size of 15 to 20, to much bigger. There are certain features that we needed to add along the way. They love our platform, and they love the integration, and they love the dashboards. Probably the easiest in the business. But there's a few things that we need to add, and that lets us scale to bigger quickly.

Wanda Young:

And I'm going to go ahead and move us forward. Go ahead, Tom. Can I go ahead and pass you...

Ted Cannis:

One more there.

Wanda Young:

Take the mic right over, and I'm going to move us into charging solutions conversation next.

Tom Narayan:

Okay, yeah, just one more in software. So, ADAS, specifically level three, I would think that there's a value to your pro customers from for having that, but at the same time, maybe they want their drivers to know how to drive and all that. How do you look at that as is it an opportunity or do your customers not want that?

Ted Cannis:

So, what we are seeing, I would say, is a couple different viewpoints. Some small businesses with less legal liability, they would love to be on the 401 or some other city in the traffic and not... Have you ever seen the vehicles coming into London? The stacks of transits coming into London to do work, plumbers, et cetera, all coming on the highway, just waiting in line. Perfect case for even BlueCruise capabilities that we have now in launch in the UK.

Going forward, that is the big save. It's the high density. It's the same reason why certain applications and other competitors did so well in California in the first place. It's that I'm going to be sitting in traffic and employee paid time. I can do great things. Other companies who are more litigation concerned, they need the use case, and this ties into our insurance stuff as well, it says you've built up evidence over time that this is going to do the safety, and it's going to improve my driver's safety, reduce the collision and insurance costs. And then, those two match together great. But you have to have that enough data and enough proof case over time. And as we go into the insurance space and we are the ones providing the data, then we have our own evidence, which is one of the reasons we're rolling out commercial insurance.

Wanda Young:

Yep. Great question. So I'm going to keep us rolling so we can cover a lot more ground, and I think that's going to continue to drive our questions. Let's talk a lot about charging. I know that there's a lot of interest here as we talk about what does our charging solutions future look like. Mufi, I want to get you involved in this conversation. A lot is happening as our software platform is continuing to innovate. And I know that you are having a lot of customer conversations. What are you seeing out there as we talk about what innovation is happening, and what are you involved as we talk about the future of this platform?

Muffi Ghadiali:

Sure. So, if you think about what we do right now, our software sits between the fleet and the utility. And what we are doing right now is just controlling charging. So, we are looking at when the vehicles are coming in, when they're plugging in, what's the best time to charge? But if you zoom out, really what we are building, and not to overuse the word platform, but it's a platform that sits at the intersection of energy and the fleet. And this has not happened before. And so, one of the things that we have going, which is a new muscle that we are building in inside of Ford is I have a dedicated team, and all they do is wake up and work with utilities. And so, they're going out there working with utilities, figuring out how we can work with them and our customers.

To give you an example, as these fleets scale up, it's going to be interesting because the load scales up on the grid as well. And if you look at it from the vantage point of a utility, what they're looking for is can you tell us how the fleets are electrifying, where they're going to show up on the grid, what's the demand on the grid? And oh, by the way, can you give us control on the demand? So, there's this notion of what they call demand response, is if there is a grid event, can we send you a signal so you can turn down charging? And by the way, we can give you economic value for that. So, this is really an example of showing you the art of the possible of what we can do. But really, building first, the first step is to build a platform, get the data and the connectivity.

Wanda Young:

All right. I'm going to pause. Questions here from the audience.

Ted Cannis:

Charging questions. Crickets now. I have to tell you-

Wanda Young:

That is actually shocking.

Ted Cannis:

Of our customers, that is their number one.

Wanda Young:

That's exactly. They want to keep rolling.

Ted Cannis:

But how am I going to do that charging?

Wanda Young:

Well, of course. Go ahead, Tom.

Ted Cannis:

Or Dan. Tom already had one. We'll send one back to Dan in the back.

Wanda Young:

Dan, let's go. Throw the microphone to the back.

Ted Cannis:

We have confused the gentleman with the mic.

Wanda Young:

Dan, can you catch the microphone?

Dan Levy:

Great, thank you. There's a lot of dedicated charging entities that this is all they're doing. Maybe you can just clarify on the charging side, how much is in-house versus in partnership? I know you came from a charging entity yourself. How much is in-house versus partnered with someone, and what's the benefit to doing this in-house versus leveraging the resources of a charging entity, whether it's a hardware player or a service provider that this is literally all they're doing?

Ted Cannis:

I'll, as maybe Mufi, you'll add on a couple. Typically, the motives are very different. When we go talk to a commercial customer, one of the three that was in the video, the charging company is trying to sell them charging. And preferably, you need a DC fast charger, 10 grand and up. And most of their time is really trying to put in the public charging network where they can make the most money. Big DC chargers, huge installation projects. Ours is completely different. I am trying to get the most efficient solution, a bit like the credit company actually, to get the customer all of their systems working. So most of our cases, almost all of them, you'll know the percentage, that is an AC charger that's overnight, maybe an 80 amp AC charger that's pulling 19 kilowatts, and they can charge three and a half hours, four hours, five hours.

And they can balance time a day charging to do it at the lowest cost. Much different than going in and selling them a DC charger, because my role is to sell DC chargers. Because we are getting the data off that software charging and manage if we can balance loads between the vehicles as they come into the night, with the grid, usually they have a facility as well that they're trying to load and manage the whole facility and the chargers. And we facilitate the whole processes there and the whole planning process, because you don't put in chargers unless you have vehicles, and the time to put in chargers these days, even residential, is a long time for zoning, construction, or whatever the project's going to be. And if it's

a big depot, you're talking months and months. You need chargers, you need vehicles, you need trenching, you need permits, and you've got to work with utility.

Muffi Ghadiali

Yeah. And just to build off of Ted's response, if you see the real value in charging, it's going to be about the data and the software. And all of that is in-house. So we have a full stack engineering team that looks at firmware on the charger, how it connects into the cloud, all of the engineering, all the roadmap is all managed inside of Ford, so we have all of the IP and of course the data and the insights.

Ted Cannis:

I would say one other thing we do, which is pretty important, so when you're bundling these together as a company, it tends to be the charger supplier, the software supplier, and the vehicle supplier. And in our case, a lot of vehicles have upfits too. We bundle those together and we are doing 100% of the customer success on the back end. So if the charger's down for whatever reason, utility, maintenance issue, whatever it is, we are the last stop. The other guys, they have to solve problems. They got to call somebody and the same somebodies aren't working for the same company. In our cases, it's end to end on the back end and on the front end.

Wanda Young:

That's right. So all right. Let's talk about the concept of what you call the lifeblood that is uptime. The holy grail of uptime would be a hundred percent. Vehicles are never broken. They are never down. So in order to have that kind of holy grail, we would have to know a hundred percent that every sensor, everything is working in this integrated vehicle architecture, that we know that the vehicles would never be down, right?

So Alex, that would mean that this magic is coming through your world. I'm going to throw this to you. Talk about how you would achieve that there is never downtime for our commercial customers. Why don't you describe what this future world could look like? What would it take for that to happen so that everyone would understand that this would be magic?

Alex Purdy:

Yeah. So the concept like you described is easy to describe, hard to execute. It starts with a really clear understanding of what unplanned downtime is. Some of those issues are wear issues like oil life, or some of those are brake issues and they take very different approaches. But the concept is be able to get lots of data off of a vehicle and be able to predict in advance when something's happening. It requires new sensors. It requires a deep understanding of which prognostics are likely going to lead to downtime issues and the combination of our ability to forecast and predict whether that downtime issue is something that's really going to happen.

It takes, it's really kind of complicated because sometimes in Northern Alberta where it's freezing cold versus southern Florida, the signals that are coming off of that vehicle look very different. Different use cases. Someone that drives 100,000 miles a year versus 30,000 miles a year, the data that's coming back is going to give different signals. If you want a prediction with low type I and type II errors, we have to have lots of data in order to have that confidence. And so this is one of these areas where there's significant increasing returns to scale, where being large helps us predict an item much better. And if we

can predict it, I can get it serviced in advance or I can give a customer two weeks notice, "Hey, we think this is going to come down," and we can get out there and solve it for them.

Downtime is a huge issue for our commercial customers. Imagine if you're a plumber and all of your equipment is in your van. Your van being down is not your van being down. Your van being down is your business being down. So that's the kind of real impact that this can have. At Deere, this was a transformative element of the business model.

Ted Cannis:

And one of the things in our next generation vehicles in the platform that we talked about as we go to our EVs in the next world was putting in the sensors and equipment additionally that we needed, either taking two or three different sensors to fuse them together for insights. So we mapped out here's all the top areas of downtime. Which additional actions do we need to take in the future vehicles to do this? But the sensors obviously is not enough. Then you need a service network to do it.

That's why we have this extensive survey. You still need breaks, you still need to take preventive action to cause an unnecessary downtime. And why we did mobile service. Just like when we were looking at the Class 8 guys in Deere, we go to you guys so that you are minimizing downtime. I know it's coming, I have the right parts in the truck, I can take them over to you and I can knock it off the line before it ever becomes a big problem. I think a bit to this distribution question we had before, I think it's not coincidence that Apple still has Apple stores and they're flocked with people. Ours is not just a pure software product just like the camera and the rest of the equipment in that cell phone, but the vehicles are held much longer. If you buy a super duty for 40 grand and put a $50,000 bucket truck on that, you're running that thing as long as possible and trying to keep it moving.

Wanda Young:

So much today that happens for commercial customers is much more about reactive and what we're talking about is moving to predictive or OTA. Right? So when you're talking about this physical network, the way that a business customer would like to be able to run is more about being onsite or the mobile service going to them or them being able to workflow parts and that's where the future of this could be able to go. Right? So that way we're removing the pain from the commercial customer's lives.

Ted Cannis:

Chris?

Chris Ceraso:

Thanks Ted. I think this morning, tell me if I got this right, I think you said that 12% of pro customers are currently paying for software or subscription. A: is that right? And then B: what have you found as kind of the sticking point for that number to not be higher? Is it that the offering is not complete yet? What don't they get about it? And then what gets you to the 30% target that I think you had for 2026?

Ted Cannis:

Yeah, good question. So a couple things. We really escalated a lot since we formed up Ford Pro two years ago. So the last 18 months been the growth on. One was a change in the team, one was a change in the platform. We re-platformed the product into the cloud. We needed to make some changes in the

architecture, and this is the benefit of some awesome new team members. So, we really improved the capability, the quality, and the functionality of that product. That got us to the fleet sizes, let's say, 15 to 20. Rapid, rapid growth. A lot of the people aren't talking to these, although I see a lot of replacement. I was just looking at yesterday's and at Plainfield, Illinois, 80 vehicles. You know, Red Deer, Canada, some oil company. That's why. Because people are having problems with their PIDs and they don't get all the reporting on it and they know they already have a modem in the vehicle and they would rather buy it from us than pay for extra devices and costs.

But this year we roll out a lot of features that let us get to much bigger customers. There are particular products, so this is not like 2026 I wonder what's going on. Right now, the second half of this year, there's a lot of new functionality coming on the vehicles. Plus we have new capabilities like the OTA and the upgraded networks that we have on the new Super Duty and the new Transit Custom. So it's new features, new connected, upgraded vehicles that offer a lot both in North America and Europe.

Alex Purdy:

I guess maybe just to add, I think a lot of what Ted described was closing tech debt and getting to parity with some of our ISV competitors. What we're adding and what we're seeing this year is our ability to do integrated things like vehicle inhibit, like speed limit limiter. These are things that an ISV can never do and it is transformative. It really helps the selling story.

Wanda Young:

So increasing prognostic capability, increasing service capabilities.

Ted Cannis:

Yep. I see Jim has a question. I have one other thing to build. We have something called Telematics Essentials, which is also free, that comes with the vehicles. It does odometer, engine idle hours, engine hours, trouble codes and recalls. Just that, because it doesn't cost us a lot because they don't send out a GPS signal, very, very infrequently at key on and key off, just that is offering something and it connects them into our entire service platform. That's many more customers that are not in, let's say, that 400,000 subscribers. And we also obviously are building on those customers first. We get them there and we can up upsell them to the other product. Jim?

Jim Irwin:

Yeah, thanks. My question was similar to Chris's, just a follow-up since he asked it. I was a little bit confused on 12 million vehicle, installed fleet, 12% modems, 30% of those are connected. Was that-

Ted Cannis:

Other way around. 30% of them have modems, 12% are connected.

Jim Irwin:

30% have modems and that's the 12 million vehicles. Some of those are probably 15 years old. Who knows how old?

Ted Cannis:

Many are old.

Jim Irwin:

Of the new vehicles, they all have modems, and they all, when you sell that new truck or new van it's got all these great features. So you have an opportunity for everybody buying a new truck to say, "Oh, by the way, let's turn on this and here's the..."

So I want to just get a sense of what's happening with the new vehicles, the take rates, and how that translates into a $50 billion revenue. I think that's the number you threw out there for your Ford Pro.

Ted Cannis:

We had the number that we showed out this year. Yes, not the $45 billion that was before because we reformed the segment.

Jim Irwin:

What is the service revenue today as you're kind of tying into all these wonderful features? And then how do you project that in five years? And I'm trying to kind of figure out how much of it is getting take rates up of the existing fleet that's already out there versus getting people to buy in on the new features. Have you kind of sliced and diced it that way? So we have a conversation a year and a half from now saying we are ahead of our expectations on this metric. I'm trying to figure out-

Ted Cannis:

I think we're probably not going to share where we're starting it from Jim, but I'll give you the pieces of the bridge to our 20% of software and sales.

So part of it is these new capabilities and features that Alex meant, these command and control features and other ones that we're rolling out this year. There's a wider pool of telematics features that we currently don't offer. So even with the 400,000 subscribers, we can offer a lot more of that. And then when we get to the connected vehicle and all those sensors and cameras are integrated, we can do even more. So there's a huge pool of that.

But the other thing that's kind of hard to forget is in our space, when a guy comes in, let's say you have 10 vehicles, and the average fleet splits 10 to 15% a year, they're coming in for the one. But when they come in for the one, I can go get the other nine, including the older Fords and the non-Fords. Because we have multi-make and the mobile service is multi-make and the charging is multi-make, so they come in and we put in plugin devices for the old Fords. And so when they're coming back in, I'm going for the whole thing. So it's not quite linear to the number of sales and we are getting a lot of multi-make business.

Wanda Young:

Got it.

Jim Irwin:

Can you share any numbers with us on that, in terms of how you think internally? We know you want to come 10% to 15%, mid-teens, you gave us the big picture bridge, but is this software take rate that's

right in front of you and you're flagging all the wonderful benefits into your customers, save some money?

Wanda Young:

Let's still follow up.

Jim Irwin:

Can you give us that element?

Ted Cannis:

Not yet, but we will be.

Wanda Young:

We'll do a follow-up. We'll take a question right here.

Ted Cannis:

Let's see, Itay and Adam.

Wanda Young:

Thank you.

Itay Michaeli:

Just a one more follow-up on the last few questions. Do you offer or will you offer free trials to certain fleets six months, they can see the benefit of uptime, maybe give even more pricing power into Jim's question, increase a take rate further?

Alex Purdy:

I would ask the question maybe slightly differently. Is there some products that you might give away for free forever? And there's a whole bunch of prognostics items that lead to great service opportunities, really profitable service opportunities. Might we consider giving away that feature forever? And the answer is yes, we would.

And so the nice thing about software is it's a bunch of ones and zeros. We can bundle it in many ways and we can change it over time, and we can move one thing from one bundle to the other bundle as something moves and we can add to that bundle. So I think we're doing a lot of experimentation around it and the freemium offering works pretty well for commercial customers.

Ted Cannis:

So I think our telematics essentials product is pretty much doing that, low cost to us, very select features, but the features they have direct link to service. So we can see the benefits in service and then it's easier to upsell. I have a regular contact with a customer, they're getting value of how far my vehicle is driven a day. Some guys are surprised about the number of engine idle hours they've got. And we can cross-sell them or upsell them. And then we constantly are testing does a complimentary,

complimentary, the challenges is they don't always appreciate what they've got. So if I'm giving it for free, I may never look at the software. It just came. So generally we're pulling back from complimentary.

Wanda Young:

So thank you so much for that. I want to thank all of our panelists here because these insights have been great. I hope that it's been helpful for you to dig in a little bit deeper to the Ford Pro product set and all of our great insights here. Thank you all for participating in the panel. These have been fantastic questions.

So as you've heard, Ford Pro is absolutely obsessed with our commercial customers and serving them. It's been great to have you all here. We just scratched the surface today with this particular panel. We've made great progress laying out the right foundations and early adoption rates for our software and services. And these are extremely strong. But the real unlock is going to come for our next gen commercial vehicles in 2026 and beyond. We were excited to share that vision with you today. We thank you for participating.