



PLUGGED IN

AN EV NEWSLETTER

Volume 2, Number 8

Editor's Note

Welcome to the October 2024 edition of *Plugged In*, in which we continue our three-part series on the role of technology and AI in shaping the future of the automotive industry. Our journey will culminate on November 19, 2024 with two panel discussions addressing the business and legal issues arising in the race to electrification and AI. Please find additional details below regarding the topics to be covered and how to register. We hope to see you there!

In this month's newsletter, Bob Weiss interviews Charles Moore, Managing Director of Alvarez & Marsal North American Commercial Restructuring, to gain his insights into the financial, operational, and strategic challenges and adaptations faced by legacy automotive OEMs and suppliers amid the industry's transition to EVs. The discussion also touches on the role of private equity, automation, insourcing, and AI in shaping the future of the automotive industry. Joe Pytel also contributes an article addressing the integration of vehicle electrification and AI in enabling advanced autonomous driving technologies. Joe also explores the future potential of AI in enhancing autonomous driving, highlighting what appear to be limitless possibilities for the future. Finally, Bob Weiss concludes this month's newsletter with his recurring column, "In Case You Missed It," in which he highlights recent news articles that address the current state of the automotive industry's transition to electric and autonomous vehicles. This month's articles address the misconception of full autonomy in self-driving cars, the growing partnerships between ride-sharing companies and autonomous vehicle developers, the skepticism among Americans regarding the environmental benefits of EVs, and a personal account of one couple's decision-making process in purchasing an EV amid the evolving market.

Heather Frayre | Member Partner

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Bob Weiss Interview with Chuck Moore

September 16, 2024

Thanks so much for agreeing to sit down with me to discuss this very volatile time in the auto industry as the industry transitions to all EV product offerings.

Question 1

Bob: Before we begin, can you tell us what you have been up to lately and describe generally Alvarez and Marsal's automotive practice?

CMoore: Financial distress is certainly picking up within the automotive and transportation sectors. Since late 2022, a lot of my clients have been dealing with two primary issues – rising debt service costs and operating losses from revenue projections not materializing. On the latter item, the slowdown in EV sales is one area, but the heavy truck sector has also been very soft during this time. Both of these issues are creating cash crunches for suppliers and there are fewer options for raising new capital right now.

As it relates to A&M, automotive is one of our key industries and our global automotive practice consists of hundreds of professionals across the major markets – North America, South America, Europe and Asia. We have grown substantially in the last five years and work with suppliers and OEMs on key transformational initiatives, such as ICE to EV transition, geographic/footprint rationalization, improved cash & working capital management, and cost take out.

Question 2

Bob: It seems like legacy OEMs are between the proverbial "rock and a hard place". On the one hand, the rate of EV sales are slowing and losses increasing (e.g., it has been reported that Ford is losing \$44k on each vehicle sold – *WSJ* article, "Auto Industry's EV Retreat Hastens", August 22, 2024). OEMs are cancelling or delaying EV programs, reducing R&D and engineering budgets, revising (lowering) EV sales projections and reportedly incurring tens of thousands of dollars in losses on each EV sold and to some extent, embracing hybrids. On the other hand, there is the imperative to comply with tough government emission rules and the need to compete with huge investment and advancements to technology quality and low cost of Chinese manufacturers and Tesla.

What are the implications on OEMs and suppliers and otherwise of, what some are describing, as a reversal of the "all in" EV strategy?

CMoore: You are right. The legacy OEMs are between the proverbial "rock and a hard place." They are losing billions of dollars in producing EVs, which losses are being, in effect, subsidized by the sale of ICE vehicles. I believe we are in more of a "pause" right now in the march towards an all-electric future rather than a reversal. That future can be seen in what several of the Chinese EV OEMs are producing, which are well-equipped electric vehicles at entry-level prices. They are able to do this because of massive governmental support and investment, along with cheap access to key resources. The current situation in North America, with legacy OEMs trying to fund EV advancements based on profits from ICE vehicles and private capital investment, will not be sufficient. Support from the federal government to help fund research and development, as well as build out infrastructure, is critical if we want to preserve global leadership and relevance for the North American OEMs. The slow pace of rolling out support provided for in the Inflation Reduction Act has been disappointing, but industry players have to keep pushing the government to do more and quicker. Support will also be needed for suppliers, who must continue to invest to support this transition.

Question 3

Bob: Does the current situation represent an existential threat to the legacy OEMs?

CMoore: As significant as the problem is, I don't think at this stage it is an existential threat to the legacy OEMs, at least in the short to medium term. The combination of relatively healthy balance sheets, some government support in terms of providing investment capital, consumer subsidies, and tariffs should allow sufficient time for the legacy OEMs to reduce costs and develop the technology to compete at all EV price points. However, if the OEMs take their eye off the ball, ultimately they will not be able to compete with others who are able to execute on their competitive strategies, especially the Chinese.

Question 4

Bob: How are the OEMs attempting to adapt?

CMoore: They are adapting in a number of ways. I would highlight two approaches: (1) insourcing; and (2) automation. One of the really interesting trends that's happening right now with OEMs that isn't getting much attention is almost a reversal of what we've seen over the last 40 years. The OEM outsourcing trend, initiated nearly 40 years ago, started as a strategy to reduce unionized labor costs and conserve capital. The initial phase related mostly to individual components and then expanded to entire systems. Now, more and more of that is coming back in house, which affords the OEM more control over the manufacturing cost and process. Not only can they control that, but it also offers an ability to do it better. For example, BYD is highly

vertically integrated, which has materially contributed to the efficiency of its EV manufacturing process and cost containment. This is also largely true for Tesla, which is significantly vertically integrated.

Now, driven in large part by the high labor costs associated with the new UAW contract, the OEMs are increasing their investment in automation, which will reduce costs and enhance quality control. Automation increases the speed and accuracy of the assembly process, reduces labor costs, and provides more consistency and precision in the manufacturing process, thereby improving quality.

Question 5

Bob: What about the impact on suppliers?

CMoore: They've experienced a double hit. On the one hand, volumes haven't materialized, so the return on investment has been delayed. Now, there's also a question of whether the OEMs will in-source certain systems, causing a question of whether the return will ever materialize. Those with strong balance sheets and continuing profitable ICE business will survive. The viability of undercapitalized smaller suppliers will be in jeopardy.

Question 6

Bob: How are suppliers reacting to lower than estimated volumes, delay or cancellations of EV programs, and insourcing?

CMoore: They are responding in a number of ways. First, they are materially reducing staffing and investment. For example, it's been reported that (a) ZF is cutting approximately 14,000 jobs globally; (2) that Borg Warner will need to cut approximately \$100 million in costs relating to its EV production; and (3) Lear is cutting approximately 6% of its electrification systems workforce.

Second, it is causing them to reevaluate their business plans and strategy. I would not be surprised if we see more M&A activity over the next 2 to 3 years from suppliers. Suppliers will need to ask themselves: which segment do I need to be in, and where do I really want to invest my resources to get that return? So, while there were a lot of acquisitions over the last, call it 4 years or so, especially as these larger suppliers were bulking up to prepare for an EV future, I wouldn't be surprised to see more spin-offs coming up. By spin-offs, I mean selling EV-related divisions and product categories to third parties if we get to the point where EV sales are not picking up.

Question 7

Bob: Who will be the buyers in the consolidation of the ICE business and how will they get a return in a declining/dead end market?

CMoore: I believe private equity will see this as an opportunity and enter the space as acquirers. What's interesting about that, Bob, this is something that we talk about in our firm. Private equity tends to be very good at taking out costs and driving efficiencies, especially in declining environments. At some point, EVs at lower price points will enter the market in a meaningful way, either by the legacy OEMs figuring out how to produce them profitably or through foreign competition. At that point, EV sales will soar and ICE vehicle sales will decline precipitously. From the supplier standpoint, declining sales will materially reduce or eliminate profit margins. Although the OEMs will continue to produce ICE vehicles for many years, the volumes will be reduced to the point where it becomes, in a sense, a specialized production type of system for a niche vehicle. The acquirer should have leverage with the OEMs to obtain increases in pricing as volume declines and margins deteriorate since the OEMs will have no alternative supply of the ICE components. That will also raise the prices of ICE vehicles, further accelerating ICE decline.

Question 8

Bob: Have you begun to see private equity executing this strategy?

CMoore: I specifically have had a number of conversations with PE funds that are trying to figure out this strategy. There are some examples of PE funds acquiring large supplier spinoffs of non-strategic assets. In my opinion, this phenomenon will accelerate as large suppliers divest of their non-EV related assets.

Question 9

Bob: It seems the hottest topic in general and industry media today is AI. How is AI impacting the auto industry?

CMoore: AI is being used in all aspects of the process. So starting off with manufacturing and the predictability of defects: figuring out how to manufacture higher-quality component parts at a lower cost. It is certainly being used to analyze and attempt to reduce warranty costs, which are such a huge expense for all automakers. How do they predict better, then address potential warranty issues? While efforts to predict issues and failures have been around awhile, what is new with AI is machine learning that allows substantial advancements beyond previous models of prediction. The sales experience certainly is one where there's going to be a lot more advancements with AI. Instead of relying on, as most people do, still needing to sit in a vehicle, a

number of OEMs are developing ways for the customer to experience the driving experience without driving the vehicle. Then, lastly, and this is probably the biggest area, is the user experience. AI is the driving force behind autonomous vehicles. As vehicles become smarter, it will completely change how we interact with our vehicles. In addition, the marketing opportunities are endless: how can AI be used to predict what products or services I want, and how can that be delivered to me based on where I am or how I'm traveling? This is the reason why Elon Musk has been so focused on AI for several years now

Question 10

Bob: You referenced the Chinese, which gives me a good segue into my next question, which is to what do you attribute the Chinese's extraordinary success in the EV space and to what extent is that a threat to the legacy OEMs ?

CMoore: There are a number of reasons that the Chinese are substantially ahead of the U.S. and the rest of the world regarding EVs. First, they started before we did. The Chinese government adopted a policy years ago to attempt to dominate the worldwide automotive market, focusing on the development of EV technology and infrastructure, and invested heavily to accomplish that objective. Second, its investment has been very substantial and direct to the Chinese manufacturers, as opposed to the U.S. government investment which has two objectives: incentivize adoption of EVs and develop a domestic chip and manufacturing supply base. I am not criticizing the US approach and recognize that the US has a significant supply chain security issue, which justifies allocating funding and resources to developing domestic sources of critical components. However, as a result, it is less focused than the Chinese on funding advanced manufacturing processes and EV technology, which had a more immediate effect on advancing manufacturing expertise and efficiency and economy, and technological innovation in China. In sum, extraordinary U.S. government funding and support of the transition to EVs has been focused more on brick and mortar (manufacturing facilities, charging infrastructure, etc.) and developing a domestic supply chain than the more nuanced and complex objective of supporting the domestic manufacturers to develop EV products that consumers want and can afford, which is a predicate for the transition.

Bob: Chuck, it has been a pleasure speaking with you. We very much appreciate your sharing your insights with us and our readers.

Charles Moore is a Managing Director with Alvarez & Marsal North American Commercial Restructuring in Detroit. Mr. Moore brings more than twenty-five years of experience in operational and financial restructuring, turnaround consulting, performance improvement and interim management. He serves under-performing companies and organizations involved in

transformative initiatives. Mr. Moore also serves as an expert witness in bankruptcy and commercial litigation matters.

Nationally recognized for his work in the automotive industry, Mr. Moore has advised more than seventy-five companies in the industry across all component parts segments. He regularly advises Tier I and Tier II automotive suppliers, along with secured lenders and equity investors, on matters such as liquidity management, cost reductions, mergers & acquisitions, negotiations with customers and unions, and strategic planning.

Mr. Moore earned a bachelor's degree in accounting and an MBA in professional accounting from Michigan State University. He is a Certified Public Accountant, a Certified Turnaround Professional and is certified in financial forensics.

Electrification and Artificial Intelligence are Driving Autonomy

It is not an understatement to say that, without vehicle electrification, there would be no autonomous or semi-autonomous driving features. For example, adaptive cruise control (ACC), while still requiring operator interaction (e.g., to provide a maximum travel speed), is capable of autonomously increasing and decreasing vehicle speed, responsive to other vehicles, and/or objects in path of the vehicle. The ACC feature is capable of doing so by using various electrified vehicle components, including, sensors, controllers, signal processors, and the like to identify, for example, a lead vehicle and control of the vehicle's propulsion to match the speed of the lead vehicle.

Indeed, as various vehicle systems continue to be electrified and software algorithms continue to advance and be applied to electrical components of the vehicle, advanced autonomous vehicle systems continue to enhance the driving experience. For example, as steering technologies have advanced from purely mechanical systems to electrified steering systems (e.g., including electric power steering assist steering systems, and steer-by-wire steering systems) controlled by sophisticated software algorithms, increasingly advanced autonomous steering features, such as automatic emergency steering, lane centering, lane keeping, and parking assist features are becoming more and more ubiquitous.

As we enter the infancy of the artificial intelligence technology boom, the possibilities for advanced autonomously controlled vehicles, implemented using onboard artificial intelligence systems or using remote (e.g., cloud computing) artificial intelligence systems, appear to be nearly limitless. Will artificial intelligence systems communicatively connect vehicles and map

complex routes for dozens or hundreds of vehicles to traverse in synchronicity? Will artificial intelligence systems detect trauma or health conditions of vehicle occupants and, not only drive the occupant to seek medical attention, but also make arrangements with the medical team in advance of arriving? Will artificial intelligence systems continue to reduce vehicle emissions by optimizing the movement and use of vehicles collectively in a region? These, and many other, questions are yet to be answered. However, as artificial intelligence systems continue to develop and learn, more and more advanced features and technologies allow vehicle engineers to explore these and other advanced autonomous driving features.

Joseph J. Pytel | Member Partner | Software Group Chair

In Case You Missed It

(1) [Autonomous Driving. A Misnomer?](#)

We have come to think of autonomous driving, as the name implies, in its ultimate creation, as a vehicle engineered to traverse the roads without human direction or involvement. "Autonomy" is defined as "undertaken or carried on without outside control" or "existing or capable of existing independently." (*Merriam-Webster*)

In a fascinating (at least to me) article appearing in the September 3rd edition of the *New York Times* entitled "How Self-Driving Cars Get Help From Humans Hundreds of Miles Away," the authors explore the substantial human intervention in the autonomous driving process and note that, outside of those companies directly involved in providing that human intervention, "few realize that autonomous vehicles are not completely autonomous." The authors suggest that keeping the public in the dark is intentional. "For years, companies [involved in the development of autonomous driving] avoided mentioning the remote assistance provided to their self-driving cars. The illusion of complete autonomy helped to draw attention to their technology and encourage venture capitalists to invest the billions needed to build increasingly effective autonomous vehicles." As one pundit noted, "There is a Wizard of Oz flavor to this." The authors continue on to describe scenarios where human intervention is critical and the industry's secrecy regarding the extent and cost of such intervention. The authors quote Thomas W. Malone, a professor at MIT's Center for Creative Intelligence as saying, "It may be cheaper just to pay a driver to sit in the car and drive it" rather than fund the infrastructure and operating expenses of remote intervention.

(2) [Autonomous Driving Teams Up With Ride Sharing Companies](#)

In an article entitled "Waymo to offer Self-Driving Cars Only on Uber in Austin and Atlanta," appearing in the September 13th edition of the *Wall Street Journal*, the authors describe the growing alliances of ride-sharing companies with self-driving car companies. "Uber and Lyft have doubled down on signing deals with driverless-car developers after the newfound adoption of the technology. Waymo says it is handling more than 100,000 paid rides a week across San Francisco, Los Angeles and the Phoenix area."

(3) [EVs Are Cleaner Than Gas Cars, But a Growing Share of Americans Don't Believe It](#)

There has been a lot of back and forth over the last few years as to whether EVs are really as environmentally friendly as they are purported to be by their proponents. The primary rationale for the hundreds of billions invested in the transformation of the auto industry from ICE to EVs has been the environmental/climate benefits of switching to non-fossil fuel propellants. In the NPR article of September 23rd, the question was posed: at the end of the day – after taking into account the harmful effects of mining critical minerals (such as significant carbon emissions, water pollution, habitat destruction, etc.), generating electricity through coal and other dirty technologies, battery waste, among other factors – are EVs a net plus for the environment?

The author's conclusion: "The answer is yes. But Americans are growing less convinced."

The author goes on to explore the basis for their conclusion (that EVs are more climate-friendly than the alternative) and explore the reasons (culture wars and otherwise) as to why that conclusion is not shared by a significant portion of the consuming public.

(4) [An EV Offer I Couldn't Refuse](#)

Finally, one couple's journey through the process of deciding whether to purchase an EV, rather than an ICE vehicle, and the state of the EV market today.

Robert Weiss | Of Counsel | Co-Chair, EV Initiative

The Convergence of Electrification and AI – An Evolving and Uncharted Business and Legal Landscape

In Person Panel – Please Join Us!

The global automotive industry embarked on a rapid and unprecedented transformation in its race to EVs. Although the electrification pace has slowed in the U.S., total electrification seems inevitable. AI's rapid rise is already affecting the electrification transformation, and its ultimate effect is likely to be significant.

As the convergence of AI and EVs accelerates, it will create stress on automotive suppliers and require new legal paradigms to address the significant legal issues this convergence raises.

We are excited for you to join us on November 19, 2024 for two complimentary, fast-paced panel discussions of the business and legal issues arising in the race to electrification and AI. Topics include:

- An update from Steve Wybo of Riveron on the health of automotive suppliers and how that impacts electrification and AI.
- Moral and legal Issues implicated in AI decision-making.
- Uncharted and developing legal-liability issues.
- Cybersecurity considerations.
- Privacy and regulatory considerations.

A cocktail reception will follow immediately after the panel discussions.

To register, and for further information, [please click this link](#). Please note that registration is limited. We look forward to seeing you.

To learn more about our EV practice, visit our website at <https://www.dickinson-wright.com/practice-areas/electric-vehicles?tab=0>.

All views presented in this newsletter are those of the authors and do not necessarily reflect the views of Dickinson Wright.

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