



Texas Trend Talks

Navigating the Future of Mobility: Adapting to a Changing Landscape

In this episode Joshua Galvan discusses with Angie Gildea and Gary Silberg the future of mobility and its impact on the automotive industry. They explore various aspects, including the role of software in mobility solutions, charging infrastructure, and the emergence of alternative fuels like hydrogen and hybrids.

Joshua Galvan:

Hello everyone. Welcome to our Texas Trend Talks podcast. Today we are talking the future of mobility. I'm your host, Josh Galvan, and today I'm joined by two special guests from KPMG, Angie Gildea and Gary Silberg. They'll be sharing their insights on this exciting topic, bringing to bear their depth of experience in both automotive and energy. Angie is the national sector leader for energy, natural resources and chemicals, and Gary is the global head of automotive industry for KPMG. It's great to have you both with us. Thank you so much for being here. I know you're busy and you have a lot of people vying for your time, and I'm grateful to have a bit of it today. We know technology continues to shape the automotive industry, and today we will explore some notable aspects of this, namely the role of software for mobility solutions, charging infrastructure, and range of the related mobility solutions out there today and that might be emerging for tomorrow and alternative fuels like hydrogen and hybrids, not to mention the energy requirements for serving mobility solutions. So, Angie and Gary, as we dive into the discussion, I'd like to table an interesting statistic or two. First, according to the KPMG American Perspective Survey of 1100 American consumers, only one fifth

of American consumers surveyed say they'd opt for an EV over a gas powered or hybrid vehicle if the prices and features were comparable. Regional preferences do vary, with hybrids being favored by 43% on the west coast. And standard gas-powered vehicles are the preferred choice for 40% in the Midwest and 37% in the northeast. That's quite a revealing set of statistics to me. So, given these numbers, what are your initial high-level reactions to what would appear to be regional differences in consumer preferences, and how do you think this impacts the future strategies for the automotive industry? Angie, you want to go first? Any initial reactions?

Angie Gildea:

Sure. You know, there were a couple of components to this American perspective survey that you mentioned, and I'll hit on a few of them. One is the given all things equal price and features, 20% prefer EV's, and then the regional differences that you see in terms of the type of automobile that folks would prefer based on their geography. The second one, to me, just underscores how we see the energy transition playing out. It's not a one size fits all, Gary likes to say. It's a mosaic of solutions. We certainly see that. The one thing that was a little

surprising to me, and this will be interesting to dive in with Gary was a lot of what is out there is that it's the price of the EV's that are too high, so if it was equal, then people would be more apt to purchase an EV. That was really telling to me, because if it was equal, we still only had 20% that would prefer EV's. To me, that speaks to what we say in the energy sector, that consumers want reliability, affordability, and sustainability. And you have to have all of those. It's not just about affordability, it's also reliability and then, of course, sustainability. So that was a little bit surprising to me, and I'm interested to dive into that more, but I'll pass to Gary to get his initial perspectives as well.

Gary Silberg:

Well, thanks, Angie and Josh. It's great to be an honorary Texan. By the way, I do love Texas. What I would say on this, I think, Angie, you hit the first point, which is the affordability. This question was all else equal if they were the same, and I think in the consumer's mind, and this is very important, the first innings, if I were using a baseball analogy, were very expensive. And not only were they expensive, they didn't deliver outside, primarily of Tesla and some, maybe some of the new startups, what they promised to deliver. So I think when you have a new product come out, that is the second most expensive purchase you'll make as a consumer outside your home, you are vary of doing something you've heard some, perhaps not great things about. There's a little bit of trepidation out there. Even if it was all else equal, that the consumer, or I should say it this way, the automakers are going to have to change that perception, and that's not easy to do. It will take time to do that. The other comment I thought was interesting, and Angie, you hit on it all of it, it's 20% would prefer an EV. But today's market right now is around seven to 8% of new EV sales are battery electric, which would say that your ceiling could double to 20. But that's a long way out, right? I mean, perhaps we'll see what people think about 20. But if government studies and a lot of projections in terms of investment from automakers and planners thought it was going to be close to 50% of the market by 2030, and this is this massive disconnect, I think. You have originally the affordability issue these were expensive toys for rich people, quite frankly, they are, and they're coming down in price. The perception of the first inning

quality, and then you have planning that was way out here. So there's a disequilibrium in the market. And I think, as we say, those consumers are quite smart and you can call them pesky or what you want, but I think the market is speaking loud and clear. And I'm not surprised at all by the survey, quite frankly. Not surprised at all.

Angie Gildea:

Gary, To me, one of the opportunities that I saw was a better education for consumers of perhaps some of the secondary features or benefits that you might get from an EV. And I'll give you an example, Josh, and I live in Texas. It's very hot in the summertime, and one of the most miserable thing is to come out to a hot car. Now, with an EV, you can actually set your settings to where you have a consistent climate temperature of 72 degrees. You can't really do that with a combustible engine because the engine's got to run. But with an EV, the battery can just come on and cool the car. I don't know that the consumers really understand that that's a potential feature that an EV has. There's another feature around perhaps not having to stop at nighttime and fill up. And as a female, that's something I know women are very potentially concerned about. Again, I'm not sure that those features, secondary features of EV's are really out there for the American consumer. So I'm curious on your thoughts of that.

Gary Silberg:

No, I think you're right. In fact, to the contrary, I think most people are worried about ranging. I mean, that's what people anchor on, because, you know, when you buy a car that is so expensive that you have to rely on, you know, the worries come out. And I agree with you on the educational side and the software side of what these vehicles can do for you. The one you mentioned in Texas, obviously, with the heat, is the cooling factor of that. What I would agree with you, Angie, is from for sure, on the educational side of this, with the software within the vehicle, what is it capable of doing? Which you said you can even do that remotely, right? You can do it on your phone, you can push a button, and you can decide what you want the temperature to be when you get into the vehicle. There are so many other tremendous opportunities from the AI and the music within the car. Within my EV, I won't name the brand, but it's a pretty phenomenal EV, where I can

talk to my car, and I can say, turn on the windshield wiper, turn off the windshield wiper, take me here, take me there. And it does, it. It's really an unbelievable experience. And the power of the software and the computer within the vehicles, primarily right now is amazing. But most consumers don't see that. Most consumers don't see that at all. I completely agree with you.

Angie Gildea:

There's another aspect around the maintenance. I was talking to an individual. I, too, have an EV, and I've had a few of them. I had a guy come out and service my car. And that's the other potential benefit, is you don't necessarily have to take your car to a dealership. So the individual's in my driveway, and I'm asking him about the service of an EV compared to a gasoline powered car. And he said he used to work for a major automotive dealership, and when someone would bring their car in, they would plug it into the computer. That told them problems. And he said there were over 700 permutations of what the problem could be. And he now works for an EV and he said there's 15 different possibilities, all but about five of them we can reset online with the software reboot. The other five we actually have to come out and visit. So I think that back to your features, you've got to get the reliability. People want the reliability absolutely for sure. But just from an overall maintenance standpoint, there are some potential benefits as well.

Joshua Galvan:

Yeah, and on that, Angie, it's a good point, actually, because when I think about the advanced software, to use the term that we've used, that must exist or be installed in these machines for them to work. Maybe the software is to thank for being able to quickly diagnose what might be going on with the car. Maybe it's that the engine that drives the machine is simpler, but how do automakers compete on creating that more cutting edge, innovative, feature laden, but also kind of tightly tuned into the vehicle software? Now, when they're not really software makers, how are the automakers staying apace of this?

Gary Silberg:

Well, Josh, and I think that question, going back to the original question of when I gave the analogy of this first innings vehicles, they haven't done a good job. To be honest with you, certain automakers, and I don't want to name names, have been phenomenal at it, and they're the ones who've been at it the longest that designed the car from the ground up. With hardware and software working together, others have done it for the first time. And this, I think, goes back to the original survey, I have heard some horror stories about the software not working well. For example, I've heard two different automakers at the end of last year give over the air updates. And I guess the electrons didn't move properly. When the cold weather in certain areas and the over actually did not work, it stopped in a certain part of it. And you know how you get an update on your PC and says, you know that big warning, do not turn off your PC, right? You know that big scary thing? Well, imagine this is your car, and all of a sudden it freezes. Okay? The entire vehicle didn't work. And this was happening not just for one automaker, but a couple automakers, and then one, when they just designed the vehicle, had so many problems that the rating agencies, said that it was the worst, worst recall they've ever seen in the history of the auto industry, and they were all software problems. I don't want to name names, but, I mean, these were some very, very bad stories. And you think about it, if you're driving a vehicle, it's 60 miles an hour or 70 or 80 or however fast you're going, your car may have to reboot while you're driving. And you go online and read these stories, people get scared. And I think this is what I meant early on, is that there were some problems, and are still some problems, certainly with the software within the vehicle that are scaring consumers and rightfully so. There are certain automakers who have gotten this down and have a phenomenal lead on their competitors. And I think it's really the legacy players with the lack of talent or learning versus the ones who have started from scratch that are really computer focused from the very, very beginning.

Joshua Galvan:

And speaking of road trips and extended ranges of mobility, let's switch to this range of anxiety concept in charging infrastructure. What can we anticipate in terms of the innovations around charging

infrastructure, let alone batteries? Battery life, battery size, battery weight. Sorry for all the emphasis on battery, but we know there's limits there. But what can we anticipate is evolving tomorrow, let alone three to five years from now, around charging infrastructure?

Angie Gildea:

Well, I think there's two parts to this range anxiety and you hit on, and one is the size of the battery, the capacity of the battery. The other is the charging network and charging infrastructure. From a battery side, we're seeing batteries continuing to evolve and have higher and higher range as part of those. I think you know, the Inflation Reduction act, that was part of the government incentives, a bipartisan act passed by Congress to provide incentives on alternative energies, clean energies. There was a component there around batteries. So I think as we see investments continuing to be made in this area, you're going to see batteries continue to get larger and larger. So that's not from a capacity size. So I think that's going to potentially sort itself out over time. The other question is around the charging infrastructure. And there's a couple of different challenges there. First is, do you have the chargers in the right places where you need them, when you need them? And I'll tell you, having a network covering west coast of California is a very different problem to solve than having a charging infrastructure that covers Wyoming to Nebraska. I mean, it's just a very different mindset. So back to this. The energy transition is going to evolve in different areas, different geographies, at different paces. That might be one reason for that. There is an aspect around where you put the chargers, connecting the chargers. That's a challenge for power utility companies. And it's a challenge because we have to evolve our US electrical grids. And we have three main grids in the US. We have to evolve those to modernize them. Not only to handle excess energy capacity, not just from EV's, but from supercomputing demand, et cetera. But we also have to evolve our grid to handle things like more severe weather events. And so if you have a limited set of capital as a power utility company, you have some decisions to make. Do you bury power lines and make your grid more resilient from wildfires and hurricanes? Do you put your resources towards building EV chargers? You've got to

interconnect. We've got renewables coming online. So it's a very complicated question and you have to make sure you're doing it in a way that's the best use of capital and the best use for your community. And that you're doing it in ways where everyone benefits. To focus just on the economic areas where there's more EV's doesn't necessarily address some of the challenges that other communities have. When there's power outages due to storms, it's a complicated problem that's going to have to need a lot of thought and effort put into it over time.

Gary Silberg:

It's an interesting perspective, especially, I think, with the constraints of capital that they have and where they have to invest. Especially with AI and supercomputing and what you described. I think specifically, though, in automotive. One of the tricky things is today's EV ranges are, as we talked about, a few manufacturers are not very good, but the next generation product are pretty damn amazing. And the range that you will get in three years from now that you get today will be significantly better, and will get better over time. So we're on the cusp of having longer range battery electric vehicles. We don't have them today, at least not on all brands, but we will over time. So when you think about where do you need to put your charging stations? How many do you need? This is a tricky question because battery chemistry is changing the supercharging and how quickly you can charge. We've never done this. It's certainly not on the electric side so I think it's a very complex question from a utility perspective. The other thing I would say, and you mentioned early on, Angie, where you were saying as a woman and where you charge, and reliability software in this area really matters, too. And first of all, can you trust your software today to tell you what your actual range is going to be when you actually get to point a, to point b? I hate to break the news to our listeners here, but a lot of the software out there is not very good. And you can have massive variability in terms of what it holds. Why? Because the software was wrong. They didn't understand the topography. It didn't understand the heat or the cold. I mean, there's a lot of variability that goes into this that I think, again, going back to consumers and charging stations, the software really matters. And then lastly, I would just say on that point is, even if you get to the charging station, can you trust it that it will actually work? And today's answer is no. And

you're like, oh, my gosh, I only have this amount of range left and it doesn't work. I mean, these are the things that scare people. And I think the utilities, the infrastructure, it will get better over time. I'm very confident that one thing I'm the most confident is the market to solve this. But it's very expensive. It's unclear when you get a return on invested capital because it's unclear how many vehicles are going to be purchased, when they're going to be purchased, and there's a lot of variability and risk in terms of this equation. So, it's something that at the end of the day, people will invest, but not everywhere, all the time. And it just makes it more difficult for a consumer to make a choice.

Angie Gildea:

That's something I'm really going to be watching how this evolves is the maintenance and reliability of the charging stations. Who owns that? Is that an EV company, a car company that has their own charger? We see that model out there and they've actually then licensed some of their chargers out to other automakers. Is it a electrical provider, a power utility that owns and maintains the charging stations? Or is it a third party? So I think there are different business models out there that will probably evolve over time. So that'll be something to definitely watch going forward.

Gary Silberg:

Yeah, I agree with that. I'm an optimist, by the way, and I love all these new business models. I think one of the great mistakes the auto industry made over the years is they compartmentalize themselves as selling a cars alone. And they could have done gas stations and oil, but they gave that to the oil industry and they don't sell insurance. They gave that to the insurance industry. And you can think about the compartmentalization of different industries. And I think going forward we have a chance to see something completely different. Tesla, for example, as you were probably alluding to, is the one that has created the charging stations and license it out. Are they going to be the new standard Oil of EV charging? Right. They're also doing insurance now and we'll see if they license other software. So I think the future will look significantly different than it does today. I'm actually quite optimistic. I think the new business models, the new players, it's going to be pretty damn amazing, to be honest with you.

Joshua Galvan:

Thank you both for those perspectives. Before we shift to hydrogen, I just wanted to ask a question, which is we've talked about charging stations, which is an installation of a piece of equipment where you plug in and it's plugged in and it's plugged into sources of electricity, et cetera. How far fetched are other mechanisms for recharging batteries on the highway, on the freeway, at a stoplight with a magnet, or PV cells? I'm just curious, how far fetched is any of that as alternative mechanisms for charging?

Gary Silberg:

Well, I can tell you that just with regenerative braking, the innovation within the motor, reversing the motor, is unbelievable. And in Europe, they're trying to do this. There's parts of the United States I know different highways will allow you to charge, actually, while you're driving on the freeway. So there's a lot of quite fascinating technologies that people are looking at in this area. This is my personal bias, as Angie alluded to in the beginning. I believe there's going to be a mosaic of power trains going forward. You're going to have electric vehicles, you'll have hybrids. The internal combustion engine is not going away for the next 10, 20, 30 years. So they're all going to live together, and we'll talk about these other ones, like hydrogen and perhaps others. But to me, you could even have fusion. Nuclear fusion is not necessarily that far out. If we get a couple things, we saw what happened, or we can maybe talk about the national laboratories and we've had positive net fusion, and there's a lot of startups. So I think in 5,10, 15 years from now, we may look at power change and like, wow, okay. There may be different combinations that we never thought about, especially with artificial intelligence and what compute power might bring us in the future. So I think it's dangerous to anchor in on just EV's. I think that's not the right way to look at the world. I think a mosaic, and that mosaic will continue to grow with different types of powertrains and different types of technologies, one of which might be automatic charging. You probably charge your phone when you put it in your car. Now you don't plug it in anymore, right? I mean, we got a lot of innovative people in this country and in Texas especially.

Angie Gildea:

Technology and the feasibility I don't think is going to be the barrier. I'm confident. As Gary's mentioned, there's prototypes and things out there already. The real question is going to be the commercialization and the cost, because remember, reliability, affordability, sustainability. So whatever we do, we have to get it to a cost that's palpable to the American consumer.

Joshua Galvan:

So any brief final views on things like hydrogen, we'd love to hear where we think that might be heading and what are the industry dynamics to consider?

Angie Gildea:

I think hydrogen, from our perspective within KPMG, hydrogen is certainly a possibility. It's probably more of a solution for the industrial usage and for trucking and things like that. The challenge with hydrogen is the cost, particularly when you're talking about a green hydrogen. So that's the challenge with hydrogen. Hybrids are a wonderful alternative, although there are some that feel that that's not going far enough, that we need to do much more than hybrid, but hybrids is an alternative. But hydrogen, I think it's more for the large, the trucking, the industrial use. That's just my perspective right now, given where we are from a cost and a commercialization standpoint.

Gary:

You know, I'm. It's interesting on hydrogen, it's. It's the first element in the periodic table. It's the lightest, and it's very hard to manufacture it. We have to take it from H₂O. We got to get rid of the '2O's'. It's very expensive to manufacture hydrogen, although it's abundant. And as Angie was talking about, to make green hydrogen is not so easy. That said, I think it will be one of the mosaic powertrains that we will have in the future. I'm very confident about it. And I think the industrial side trucking, as Angie, you just said, I agree with that. You're already seeing that happening today. I was in Japan six or seven weeks ago. Massive amounts of investment has gone on in Japan, in hydrogen, in Korea. And they've made some very nice advancements. And what I think in terms of, and there's a couple fabulous Israeli startups making

green hydrogen that I've seen. And I think you got to realize that in five to ten years from now, especially, like I said before, with massive computing power that we're going to have access to, we have artificial intelligence. We're on the cusp of really using to help model these molecules. We may even have quantum computing that will help us. 5, 10 years from now, there's no reason why the market won't be able to create a hydrogen solution. As Angie, you like to say in a sustainable way, but an affordable way that you can rely on going forward. I think the answer is an absolute yes. It will be part of this mosaic of power trains going forward.

Angie Gildea:

And I think it would be remiss also not to highlight the progress we've made around sustainable fuels and biofuels. I mean, this is something that for the last several years, many of the energy companies of today have been working hard on creating a lower carbon, more sustainable fuel source. And you have refineries right now that are producing biofuels, sustainable diesel fuels, things like that. So really what we want is products that have a lower amount of carbon. And if you can get low or zero carbon diesel. That's okay, too, perhaps from a solution standpoint.

Gary Silberg:

I was in Brazil. And if you've been to Brazil, you'll see sugarcane everywhere. And they use sugarcane for their flex fuels. And it is unbelievable how they use that. And that's their sugar ethanol. I mean, that's how they have their flex fuels there. And it's incredibly reliable. It's very affordable and customers love it. And I heard India might go that way. I mean, it's a big world we live in. Like I said before, I think this idea of mosaics, of powertrains, and the last comment I'll make is, I think you'll see even combinations come together that we can't really foresee, where you could have, like a flex fuel working on with to power an electric battery, or you could have hydrogen, obviously now that makes electric vehicles. So you could have different permutations and even combinations that we can't even project today with the different types of power chains and fuel. So it's pretty cool.

Angie Gildea:

So, Gary, it strikes me, just as the energy companies, an oil and gas company, for instance, or a power utility company is having to plan their business based on different sources of energy, you know, putting in lower carbon solutions along with their traditional businesses and kind of planning for that future, it strikes me that automakers might have to do very much the same. I mean, for how many years they have been building a product based on a consistent input that you use in an ice combustible engine, like now, how are automakers thinking about variability among that aspect? I'm sure it's a challenge from a planning standpoint.

Gary Silberg:

It is the most difficult challenge. Not enough money on planet Earth to be able to invest in all of it and be awesome in every one of those technologies. They were monolithic. They had one for 100 years, and now they're faced with, wow, what do we do? Do we do battery electric only? Do we do partly? Do we do hybrid? What about hydrogen? What about flex fuels? I mean, it is very complex. I think what you will see in the auto industry, you'll have your pure players do specific, especially your startups and your battery electric. And I think what you'll also see with the other automakers and their suppliers, by the way, because the supplier network was set up essentially to do for 100 years to support the ice engine, I think you're going to see a lot of consolidation in the industry. You're going to see partnerships that will surprise you. You're like, whoa, these two companies are getting together. Why on earth were they? And then you'll think about it. They'll need to get together for economies of scale. They'll need to get together for technology reasons. I even think you could see battery electric startups that may need capital. And lo and behold, you'll have somebody, even from outside the industry that may buy into this, you know, who the heck knows? But there's not enough money on planet Earth to pay for all these technologies. It is the most difficult planning decision because these companies have to get a return on invested capital and they don't know what demand is going to be and they don't know the timing of when these technologies are going to be affordable, reliable, et cetera. And it's going to be. I think it's an exciting

time. There's already going to be a shakeout in the industry. And we haven't mentioned the Chinese at all on this, but the Chinese automakers in EV's have a massive cost advantage, massive cost advantage, excess capacity that will cause draconian, potentially issues around the globe in terms of being able to make profits in these areas, which creates a whole other group of tension. So this is not for the faint hearted. It's exciting, it's fun, but you'll see a shakeout in the auto industry. You will.

Angie Gildea:

We're seeing something similar for energy companies, and I think the winners, those that are leading the pack, we're seeing them do a couple of things that are distinct. One is they've got some investments in order just to learn. They're putting some bets in some areas where they think the technologies could advance and they're really trying to learn. They're doing partnerships, like you mentioned, and leaving really that innovative aspect to the partnership, but trying to develop those so they can take advantage of some of the learnings. And then we're seeing companies really make decisions around where they think they can be differentiated. So rather than sort of spreading the peanut butter and trying to place your bets across the board, could you really be a leader? Given your current capabilities, your strengths, could you really be a leader? And solar or wind, or are you a leader in hydrogen and carbon capture or maybe geothermal? So those are how we're seeing the energy space play out. And the strategies are different for different companies.

Gary Silberg:

It's beautiful to hear that, and I hear that in the auto industry, too. Executing that and making it happen is so hard for legacy companies. It's very very difficult. And my bet, similar to the auto industry, is you're going to have clear winners and losers like you just described in the energy sector too. I think that's what's going to happen. The ones that figure this out, learn, adapt, partner, etcetera will be the winners. And it's definitely going to be a different world. It's very cool. They're almost like mirror opposites of each other at the same time, having to grapple with all this change and transformation.

Joshua Galvan:

So where can listeners find more information on a few of these topics? I know KPMG is constantly doing research and issuing points of view, doing surveys, sometimes in collaboration with other market research companies.

Angie Gildea:

Yeah, from an energy standpoint. I referenced the 'American Perspective survey' that was just released by KPMG. So I think you'll put links to your listeners there. That's a really good one to get a sense across all sectors where consumers are, feelings and insights are. The second one that I'll highlight is the 'Energy Institute' is releasing this 'Statistical Review of World Energy' that will be released on June 27. And so that is something that KPMG is a partner with the Energy Institute that was formerly BP's statistical review of World energy that they did for over 70 years and is a very trusted source around how the mix of energy is changing over time and what the outlooks are.

Gary Silberg:

And from an automotive perspective, I'll give you a few to read. One I think is very important and salient to this discussion is titled the 'Future of Power Trains', place your billion dollar bets wisely and it's a description of a future role 5,10, 15 years from now, which is this mosaic of powertrains and what your strategies need to be in that area. The other one I would ask you to read is called 'Automotive's New Ice Age'. It's a play on words from the internal combustion engine to the internal computing engine.

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And it's a story about supercomputers on wheels and computing power and why those electrons going at 50 trillion operations per second will change the world and how it will change the auto industry and certainly powertrains. And lastly, we do our annual automotive executive survey. You can click, you can play with the data. It's super fun to hang out with the data if you're a geek like me, and I think many of you love data, it's 1100 executives from around the globe. It's 40 questions. The auto survey is fun, interesting, and it addresses many of these topics that we discussed today.

Joshua Galvan:

Well, Angie, Gary, thank you so much for being here today for an information packed 30 plus minutes about the future of mobility. Clearly, it's going to be a convergence of a lot of different things that get us to the next stage. I heard about innovation and technology and partnerships and economy and global competition and all of these things that I guess make business fun. Really grateful for your time today. I know you're both very busy. I know our listeners will be grateful for this time listening to the podcast as well. And so those of you tuning in, please join us for the next Texas Trend Talks. We look forward to issuing another episode later in the summer of 2024. So be well and have a great day.

Speaker A:

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