Auto Distribution: Current Issues and Future Trends
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Part 4 of 4
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PANEL 4: FUTURE TRENDS

Panelists:

- **Avery Ash, Director of Federal Relations, American Automobile Association**
- **Ashwini Chhabra, Head of Policy Development, Uber Technologies**
- **Robbie Diamond, President and CEO, Securing America's Future Energy**
- **Fiona Scott Morton, Professor of Economics, Yale University**
- **Bryant Walker Smith, Assistant Professor, University of South Carolina School of Law**
- **Peter Welch, President, National Automobile Dealers Association**

Moderators:

- **Ellen Connelly, Attorney Advisor, Office of Policy Planning, Federal Trade Commission**
- **Patrick Roach, Attorney Advisor, Office of Policy Planning, Federal Trade Commission**

ELLEN CONNELLY:—everyone. I'm Ellen Connelly, an Attorney Adviser in the Office of Policy Planning here at the FTC. My co-moderator for this panel is Patrick Roach, whom you've already met a number of times, I understand, today.

We want to welcome you to our final panel of the day, which is entitled Future Trends. On this panel, we will explore recent developments in the automobile industry, such as connected cars, autonomous vehicles, and ride-sharing. How will these technologies affect the car ownership experience?

Will they require adjustments to the existing regulatory structure that governs automobile distribution? What lessons for future regulation of new auto technologies may be drawn from our experience with the current system? We have a very impressive line-up of panelists here to discuss these and other issues relating to future trends in mobility. I'll just give some brief introductions, because in your handouts, you have complete bios for all of the panelists.

First, all the way on the end there, we have Avery Ash. Avery is Director of Federal Relations for the American Automobile Association, and is responsible for strategy development regarding connected cars and electric vehicles, among other things.

He and others at AAA have spent a great deal of time thinking about the trends we will discuss on this panel, and how they are likely to affect car ownership and auto consumers. Next, we have Ashwini Chhabra. He is with us from Uber Technologies. Ashwini serves as Head of Policy Development at Uber and has on the ground experience with these new technologies, as well as with their regulation.

We have Robbie Diamond, who is Founder and President of Securing America's Future Energy. And he is also President and CEO of the Electrification Coalition. In these roles, Robbie has developed extensive experience in mobility issues and in alternative vehicles.

Over here, we have Professor Fiona Scott Morton, who's joining us from Yale University. Fiona is an economist, and she has worked on many of the issues discussed earlier today. She'll be able to help us think about the new technologies in the context of the current franchise system.

Then, we have Professor Bryant Walker Smith. And Bryant is one of the world's foremost experts in the law of autonomous vehicles. And finally, last but definitely not least, we have Peter Welch, who's president of the National Automobile Dealers Association. And Peter brings a very extensive perspective of the automobile dealers to these issues.

I'd like to just go over a few procedural things before we get started. We're going to run this panel as a structured question and answer session, so it'll be a little bit different than the other panels. We'll direct each question to a particular panelist to start us off, and then we'll be taking responses from the other panelists.

Panelists, if you would like to respond to a particular question, please just turn your name tag on its side, sort of like that. Or if I don't notice that, just sort of flag me down. We may limit discussion around certain questions just to make sure that we're able to move through all of the topics.

And finally, we will be taking questions from the audience. If any of you do have a question that you'd like to submit, please just flag down—we have some friendly conference staff around with some comment cards, and they'll collect the comment cards and bring them to us.

PATRICK ROACH: To me.

ELLEN CONNELLY: To Pat, more specifically.

So without any further ado, I'd like to just start us off by asking Robbie if he could give us some background on the new technologies. Take us through the key levels of vehicle automation. What technologies are on the road now? What will be the next wave? In two or three minutes.

ROBBIE DIAMOND: So this was a very exciting panel, because it was the most like a take-home exam I had with questions. And we only get to respond to people's comments if they mention us in a name [INAUDIBLE] response. So thank you for inviting me here.

So I run Securing America's Future Energy. And we're concerned about the economic and national security of the United States, based on its oil dependence. And so, when I look at the automobiles, I think back to 1886, when Benz put out the first vehicle. And I'd say that if you dug up a car today to the car that Benz had initially put out, the DNA of that car would be the same in many respects.

But over the 140 years, there's been this ecosystem that has evolved around it. And I think the next 10 to 15 years will see most likely the most revolutionary change in that, and then to society. And when you think about 1886, when that first car came out, to 1903, where it took 65 days to drive across country, to 1916, when you could do it in five days, to 1948, when you had your first drive-through for cars, and gas stations started appearing, and then the '50s, when we had our highway system, and all society has gone around that.

And then in 2008, you have your first electric vehicles after the EV1 experiment, but real electric vehicles come on the marketplace. And then just fast forward to 2010, when Google puts its first autonomous vehicles on the road. And in the last three years, you have over a

million miles driven on those vehicles. You have Tesla that's got a valuation of over $25 billion. You have Uber, whose valuation is—well, every day, it goes up at the moment.

You'll have to tell us in the beginning. And just because of this rapid change. It was amazing that two weeks ago, I spent my time at the Consumer Electronics Show. And while I was there, Daimler says that they have over 200 engineers that come in from Germany just to go to that show. And that just shows you the rapid changes that are going on.

And when we think about this use of the vehicles, we now have 250 million vehicles on the road in the United States. We're using over 19 million barrels of oil a day. And that has caused both economic harm, environmental issues, as well as national security.

And so this total dependence on oil is incredibly deep seated in our society. Now it's funny that I say this on a day when oil is only priced at $28. Gasoline is now under $1 in many states. And SUV sales are at an all-time high, because the population forgot about 2007, when the price went to $147.

But at the same time, I do think that the accelerated trends are here. And you see that with autonomous vehicles. And for the first time, as I said, Benz, when it put out its car in 1886, the car essentially does the same thing, and it's built in many ways the same. It gets you from point A to point B.

And most people don't care if they fill that up on gasoline, diesel, biofuel, natural gas, electricity, fuel cell. They just don't care. That is, I think, what we've discovered, for the most part. I mean, there's a few who do. And really, autonomous vehicles, for me and why this trend will accelerate, are offering the consumers a value proposition that's very different. It's offering them a value proposition of time and especially safety.

And that will drive it. It's like your smartphone. Everyone has a smartphone. You don't really buy it for the phone. You never go into the store and say, give me the best phone you got. No, you say, what's the operating system? What apps can I get? And that's really what the vehicle is likely to become, which can accelerate these trends.

And I think one of the other trends I would bring up is watching this ride-sharing. And when I started say, 12 years ago, it was really a question of fuel economy standards, and how do you reduce your oil dependence, and it's a mile a gallon a year, and it takes 15 years to turn over your fleet.

Then comes along car-sharing companies that really completely changed people's habits quicker than I think anyone would have ever suspected. So in my mind, those three trends are coming together, which is a trend of ownership and value proposition, a trend of electrification of transportation, as cars become more electrified internally, and then ultimately, potentially a change in its entire system, not just hybridization. And then finally, this ride-sharing question. And that's all accelerated by this autonomous future.

ELLEN CONNELLY: Thank you. Ashwini, is there anything you'd like to add from the ride sharing perspective?

ASHWINI CHHABRA: Sure. Yeah, no. I think a lot of these trends that Robbie is describing are ones that we've seen and have applauded over the last few years since Uber's been in existence, and the trends that had been going on even before we came along were, there was sort of a reduced dependence on direct car ownership.

You notice trends over the last 20 years in reductions in people getting driver's licenses. A lot of that is tied up in the livability of cities, and the fact that more people are living in cities. They're more walkable. Transit options have improved in some places. The licensure requirements have become stricter for younger drivers. So there's a lot of criteria, and a lot of elements to some of those trends.

And I think we play some part in that. Ride-sharing generally—mobility services that you'll find in cities do generally. And so, the two things that I take away are you're going to see different patterns in urban and non-urban areas. And you're going to see a variety of factors. Some of it's going to be behavioral changes, and this sort of reliance on the automobile I don't think is going away. I think perhaps it's lessening. I think people are, especially millennials, are not focused on what car they own so much as if they can get from A to B. But I don't think that's a, by any means, a sort of a monolithic change. I don't think it's across the board.

So I think what you're going to see is trends continuing to the extent that cities can take advantage of this to improve transit, and sort of tap into these movements. That's going to be to the benefit of those cities. And so ride-sharing and the development of new technologies and vehicles can help accelerate that. But I do think it's important to look at this in the context of the last few decades.

ELLEN CONNELLY: Thank you. We've had some pretty interesting recent announcements coming out of the CES a couple of weeks ago. Lyft's partnership with GM. Google and Ford announced a partnership. And I also read a report that Ford announced it was planning to triple the size of its driverless fleets.

I'd like to talk a little bit about and get some perspectives on the trajectory for the more widespread adoption of these technologies. How do you see the trajectory towards commercialization happening? What is the timeline that we're talking about? Bryant, maybe you could start us off there?

BRYANT WALKER SMITH: Sure. I'd be happy to. And I appreciate your questions, because it's essential to start a discussion of the legal and policy issues surrounding these technologies with a clear understanding of the technologies themselves. And I'm not going to do that. Sorry.

But what I will say—and I speak as both a lawyer and as an engineer—is that the assertion that the technology is "ready" is incorrect. It's been incorrect for several years. It will continue to be incorrect as it relates to the vision of the fully self-driving vehicle that is capable of going anywhere and doing anything a human can while that human is asleep in the back or asleep at home.

So the question that you posit is, even as a technical matter, before we get to the commercial matter, how do we move toward that vision? And there are two leading approaches, both of which represent incrementalism. The first is what I would call something everywhere. It's the traditional notion of a car that can automate the easy stuff, or can assist the driver with the expectation there is still a human driver reasonably well awake in order to intervene as necessary.

These are the kinds of systems that automakers have announced, that companies like Tesla, and Daimler, and Nissan offer on vehicles today, and that will get better and better in the intervening years. Now, this mushy middle of automation, where the human does some things, and the computer does other things, raises all sorts of difficult questions that are lumped into the category of human factors.

That's a nice way of saying that humans aren't perfect. Actually, we're kind of lazy and kind of stupid sometimes. So other companies, most prominently Google, but not limited to Google, have said, well, what if we could just jump over this whole human problem and go straight to the truly driverless car? The kind of the vehicle that has no technically, if legally identifiable driver.

Now the challenge there is that the technologies have not yet reached the point where they can maneuver all the ridiculously complicated situations we have over the 3 trillion vehicle miles traveled every year in the United States. And that's before you add in the snow.

And so this is an everything somewhere approach. Yes, it's truly driverless, but the conditions are quite limited under which these systems initially operate. They might be slow. They might operate in very simplified environments. Perhaps some roads in some communities. And as the systems get better, they expand, and they expand.

Both of these approaches might eventually lead us to the vision of truly, fully driverless everywhere vehicles. But let's paint an intermediate vision that does touch on some of the marketing, commercial, and other implications of these technologies.

We're in DC now. Imagine that I were to invite you to my city of Columbia, South Carolina. Please, come on down. You might fly, or you might get into a vehicle, perhaps one that you still own, drive it in some sort of manual mode, perhaps with some safety system assistance, to a freeway, get on the freeway, lean on back, and let the vehicle drive you more or less uninterrupted down to Columbia, South Carolina.

That means you do not get on a plane. That means you do not stay at a hotel. Once you are in Colombia, you realize that you have forgotten your toothbrush. Well, what do you do?

You have particular demands in toothbrushes. You might walk or bike down to the neighborhood store, in which case these technologies may keep you safer.

You may call up what would be the Uber of the future, and have a driverless vehicle pick you up and take you to the store. Perhaps you'll share that with other people, and it will be much cheaper as a result. You're frankly unlikely to take the bus as we traditionally understand that mode. A lot could change.

But those aren't the only options. You may call down to the store and have that toothbrush or other piece of equipment sent by a little robotic shuttle that travels along the sidewalk at low speeds. You may have that product delivered by aerial drone. Or you may simply ask the hotel to print it off on their 3D printer in the lobby.

All of these represent a much broader vision of the future. And it's important as we discuss these technologies that we not limit it to the particular notion of the car that we've had for 100 years.

ELLEN CONNELLY: Thank you. I know, Peter, you and I have had some conversations about this in the course of preparing for the workshop. I wondered if you had any comments about how you see the trajectory for commercialization, and more widespread adoption of some of these technologies? In a couple of minutes or less.

PETER WELCH: Well, I'd have to agree with Bryant. What we've seen for the last 100 years is incremental change, continuous improvement, whether it's safety, whether it's maneuverability, whether it's performance, whether it's utility. And certainly, fuel economy. And propulsion systems have changed. They will continue to change.

I think that it is absolutely correct. We will see this incremental incorporation of these new technologies, as we have seen for the last 10 or 15 years. The vehicles have already dramatically changed. And we will get to the point—you know, the holy grail is the level four autonomy.

Quite frankly, for most of the materials that I've read and seen in the various interfaces I've had, seem to indicate that the primary safety benefits really sort of interject themselves at

level three, where there's very little distraction, there is the majority of the functionality of the vehicle is done robotically, for lack of a better description. But yet there is a driver there ready to take the helm.

And of course, there's a myriad of other research, which I'm sure we could get into—liability issues and others that could shape and, in effect, act as hindrances to the introductions of some of these technologies as well.

ELLEN CONNELLY: Thank you. Do we have any other comments on this topic? Avery?

AVERY ASH: Yeah. I think that there's been some really good points that Robbie and others have laid out here about the tremendous potential for the technology that we're discussing here, whether that's autonomous vehicles, whether that's connected vehicles, whether that's ride-sharing, car-sharing opportunities. They really offer both an experientially changed motoring experience and a mobility experience.

I think the real key, though, is in all this discussion should be following is, how do you realize those benefits? How does a motorist and a AAA member actively realize the benefits of these changes in technology? And what that really comes down to is ensuring that the right questions are being asked, and that consumer acceptance ultimately takes place. And that consumer acceptance really comes down to consumer education, ensuring the consumers are educated about how these technologies work, and how to effectively use them.

That there is trust the technologies will work correctly, that they have control over them, and that consumer protections are in place to make sure that whether it's increased data being generated by a vehicle, or liability with an autonomous vehicle, that all of these questions are addressed in the process. And I think all of those up and down this panel today and from those earlier have a role to play in both that education and that acceptance.

ELLEN CONNELLY: Robbie, did you have something to add?

ROBBIE DIAMOND: No, I just wanted to say that—I don't work for Google, and I'm not necessarily taking their position. I think it's interesting to note that Google, who has the real

experience on the road—I mean, at the end the day, they're the ones who've driven the most autonomous miles, and they'll tell you how difficult it is.

But they originally started with the driver and the steering wheel, and came to the conclusion that they had to leapfrog that. That, in fact, it was a driver and the steering wheel that were the problem, and that it's a very difficult for a driver, for a human, to get, as you heard before, situational awareness when they're lazy. I think we were described as lazy. And well, I'm lazy, so.

And I think that that's very telling. And that gets to liability issues and everything else. And so the simplicity of that. And lately, you've heard Ford say the same thing. And that doesn't mean there won't be incremental approaches. And yes, more safety features are going to be added to cars and more autonomy.

But I think ultimately, I think that that human, that situational awareness question, is so powerful—do we get there? The other thing about the power of full autonomy are all the people who will be able to take part in mobility that have never taken part. And that's from disabled people—50 million people in the United States are disabled. You have 2 million of those people never leave their homes. Over 500,000 of those people, it's because they have no access to mobility.

And so, I think there's a whole group of people—elderly people as our age population, and you have to take away the keys from your parents. We've all probably experienced that. And then, it is going to happen to us. So I think there are these trends that are going on that will help push this full autonomy future forward, as well as the technological revolution as things get cheaper and everything else.

ELLEN CONNELLY: Thank you. So we spent a lot of time earlier today talking about how people buy cars in this country. And I'd like to try to make some linkages between this panel and those discussions by talking a bit about how a move towards autonomous vehicles and more expansive use of ride-sharing technologies might affect the car buying and ownership experience in the United States.

There have been some predictions. For instance, the University of Michigan's Transportation Research Institute has suggested that in the U.S. alone, adoption of autonomous vehicle technology would lead to a 43% decline in vehicle ownership, going from 2.1 cars per household to 1.2.

Some others have suggested—actually, very recently, an executive from a company called Faraday Future, which is an electric car start-up company, that people might move away from ownership altogether, and instead rely on a subscription-based model.

So I'd like to get the panelists' views, maybe starting with Avery and then moving to Peter, on how more widespread adoption of these technologies would affect car buying and car ownership in the U.S.

AVERY ASH: Sure. I think that's a great question. I think that it might be first important to look at, we're already seeing a tremendous evolution in the technology that's being rolled out in new vehicles today. And what that really further underscores is the need for consumer education, more effective consumer education.

As there's more technology, this education process is going to take longer, and people frankly aren't going to want to sit in a half day seminar to figure out how to use their car. So how are you more effectively able to deliver the information necessary to make sure that people are using their vehicles, understand their vehicles, and are using them effectively?

A lot of these safety technologies are only effective if they're used correctly. But it's not just about new technologies. It's about now there's an increased spectrum of technologies as well. So if I have three vehicles in my driveway, and one of them was manufactured five years ago, one I'm purchasing today, one I purchase five years from now, they are going to have radically different technologies included in them.

When I get into a vehicle in the morning, and I get into an incident where I am forced to confer quickly, do I know whether or not I have active or passive lane assist in this car? How do you as a driver understand the vehicle that you're driving, understand the benefits of the car, but also understand the limitations as well.

And I think that sort of consumer education is really incumbent on all parties in this process, and it's really going to take a rethinking of some of the processes that is currently goes through. And I'm sure that we can certainly—you look through the dealer process today, at the education that takes place at the dealership, and it's a tremendous process. They do a very good job. There's great training.

But a lot of that challenge will be incumbent on thinking up new and innovative ways to effectively address these changes. We're seeing some interesting new ways of tackling that. We've heard from our clubs in the Northeast that some dealerships are actually leveraging high school students, very tech savvy high school students, to come and explain these new systems to new vehicle buyers.

We're certainly not saying that's maybe the approach moving forward, but that's sort of the out of the box thinking to allow people to understand the technology that comes with the car that they buy is going to be paramount to ensuring the trust and success of these technologies.

ELLEN CONNELLY: Thank you. Peter?

PETER WELCH: Well, the question of acceptability and the marketability of these vehicles, I think we'll probably all agree on the panel that autonomy is coming. The question is whether it's full autonomy, and what the timeline is. And technology will take control of that.

From a marketing perspective, I think it's actually a pretty big leap to go from autonomy to all of a sudden people are going to abandon personal ownership of vehicles. Right now, our fleet market, the way we look at markets, dealers are merchants. They stock, sell, and service what consumers want. They can't afford to inventory vehicles that there's no demand for.

Consumers are very smart when they make those decisions. I've heard earlier the average price of a car is rapidly approaching $34,000. They take a lot of time and energy and research to make that purchase decision, which they're going to making payments on typically for a couple years.

So they're really smart when they do that. So right now, the fleet side of our business is about 27%. And of course, we sell cars to the rental car companies, and the van pool companies, and taxi companies, and everybody else.

So roughly 70%, 73% today are vehicles that we sell to personal owners. There is a little variance there. We're selling cars to all of the Uber drivers over here, and those probably don't count his fleet sales in the traditional sense. So we will have to start looking at these differently.

But we have a very rich sense of freedom of independence and mobility in this country, much of which goes around the automobile. And I guess if I had to bet money, and I have talked to our business partners, the auto manufacturers, is that the predominant trend is still going to be, even if these vehicles are 100% autonomous, that individuals are going to want to own them and use them, which is an interesting intersection between the ride-share community.

So I see most of the ride-share activity going in that 70%. Now might that shift from 70% to 35% and whatnot? For instance, the American Truck Dealers Association, which is a sub-unit of the National Auto Dealers Association, about 98% of their customers are fleet customers. And in fact, that will probably be the most efficient use of automation, will probably occur in the heavy duty commercial truck segment.

These are your trip down to South Carolina. These are organized, regular routes, where you have issues with how many hours drivers can drive, et cetera, et cetera. So it will be a very dynamic situation, but it will evolve, and I think the tools are already in place.

And I agree with the panelists, the other panelists, on consumer acceptability on this. And some of it will be generational. A lot of it will, quite frankly, depend on the reliability of it, and quite frankly, affordability of these machines. Is it going to be too expensive for private ownership of an autonomous vehicle? Or are we going to see Google or Apple be the Henry Ford, so to speak, of the autonomous vehicle industry by producing very cost-effective vehicles that are, in fact, going to empower a larger segment of the population. We might actually see vehicle sales go up if we can get all of the disabled people, blind people, elderly people, et cetera, into the marketplace.

ELLEN CONNELLY: Thank you. Fiona?

FIONA SCOTT MORTON: Yeah. I just wanted to expand on that last point. I think if you consider an autonomous vehicle as a higher quality vehicle, it can be driven by you, but it can be driven without you, and so you can expand the market to teenagers and disabled people, and whoever, that suggests that you would sell more cars.

If, on the other hand, these objects are expensive and the technology evolves so that we can share cars more easily, then we need fewer cars. So I think it's not clear how many more cars you would sell at the end of the day. What's definitely clear is that more miles will be driven by these things, and that we can spend today—we will spend today—talking about cars. But there's certainly other issues I think that we need to be considering, such as zoning.

I'm going to be very happy to live a three hour drive from my job in the city if I get in the car in my PJs and sleep for two of those hours, and then open up the portable restroom, or whatever. So then, we'll have exurbs and cutting down forests, and so on, which might be counterproductive to the electric vehicle. It's all very complicated.

ELLEN CONNELLY: Bryant?

BRYANT WALKER SMITH: Just two notes on this discussion. The first is that we often talk about new technologies as the domain of the wealthy. In some ways, we may see poverty as a driver of automation, to the extent that a network organizer can identify pockets of demand that are ill-served and by combining trips can compete favorably with traditional suburban bus service, both in time, money, and perhaps even in environmental performance.

The second is when we're talking about the impact on vehicle sales and other models, it's important not to confuse vehicle miles traveled with vehicles sold or vehicles owned. It is entirely possible that fewer people will own vehicles, but each vehicle that is sold may be driven more miles each year as it enters service into a fleet, or into the automated version of Uber or other models, such that those vehicles are actually renewed and replaced much quicker than the average vehicle in the United States, which is about 11 years old.

So we may see a very long tail, particularly of individually-owned vehicles, even as we see much more dramatic changes in the vehicles that we actually use and the vehicle miles that we actually travel.

ELLEN CONNELLY: Thank you. Ashwini?

ASHWINI CHHABRA: Bryant and I were talking before the panel began, and we were sort of discussing this question of what actually happens to vehicle miles traveled? Do you see people driving around a lot more, living in the exurbs, or sending a car to pick up a toothbrush? Or do you see people sharing these cars more because once you no longer conceive of it as an asset that you own and only you would use, but you view it as a means for getting to from A to B, then sharing that backseat with someone becomes more palatable?

And really, I don't know that there's one clear answer there. I think you're going to see some of both. Some of the data that we've got from operating Uber Pool, which is our carpooling product in the dozen or so markets that we've launched in now—so we launched in San Francisco in September 2014. So that was our first market. And currently, half of our trips there are Uber Pool trips.

That's in line with what our projections were, and obviously, it sort of trended up over time, and part of that is driven by there's a cost savings. It's a lot cheaper to get around if you'll share that ride, so long as that ride doesn't really inconvenience you, you don't have to go more than 10% out of your way to pick up another passenger.

So L.A., which is car central, a third of our trips there are Pool trips. So I think you will see this, again, in cities. You will see it in some instances. And other people will choose, it's my car. I have a friend—I live in New York. I have a friend, and I'm bewildered by the fact that he has a car, until he points out that he has three kids, and he's got his three car seats, and there's no Uber product that's going to be able to address that.

And so there's always going to be different fact patterns. Which I think you'll see a little bit of both. But what's interesting, what's curious for me, is what does that mean for vehicle miles traveled? If it is disabled passengers? If it is people sending their kids to school? If it is the elderly? And we are quickly reaching the point where the Baby Boomer generation is going to be aging out of comfortably driving themselves in many instances—then those are new vehicle miles traveled.

I would argue those are virtuous vehicle miles traveled, and it's not—and it's sort of important for us to think about, what does the profile of those trips look like? And to the extent that that's something we're concerned about, what are the policies we can put in place to address that?

ELLEN CONNELLY: Robbie?

ROBBIE DIAMOND: I agree with basically everything that's been said. I continue to come back to say a few facts. But one previous point that I made, which is the consumer proposition, and the money that is both to be made by businesses, but then also to consumers themselves, both to save money and to offer a value proposition.

And what's really exciting about this trend potentially is that it's going to be driven by consumers. And in fact, it might be just for government to get out the way, certainly initially. And I think that Secretary Fox's announcement last week, in comparison and in contrast, to what the California DMV did—or if you don't know, the California DMV said that you can't have an autonomous vehicle unless you have a licensed driver in the vehicle, which then negates the whole concept of potentially offering this to elderly, and to disabled, and everything else. Whereas I would interpret Secretary Fox as sort of like, wait, let's watch this a little bit. And you see that in the British government and other governments. And I think that that's a really interesting, because this could be pulled instead of pushed. Our government pushes fuel economy, and our government pushes electrification. And we push all these things. But this could be a pull.

So two facts I just say is our cars sit 95% to 96% of the time. It's just second biggest asset we all buy, and yet it sits in the most valuable parking spots in the world, real estate in the world. And I think that is really telling, and if we can open up that economic value, which in many cases, is somewhat what Uber has done for these drivers who have these cars, and then allowing them to use it more frequently to make money, I think that's really telling.

It costs about $1.60 to operate a current car per mile. We take insurance, and maintenance, and everything else. And some people say electric miles in a shared environment

to be $0.15, to $0.20 to $0.25. And I then give you one other statistic, which is public transportation.

So in a city like Washington, which is dense, or New York, the authorities or the government subsidizes about $1 per trip above the fair that you pay. And in a city like Richmond, which is less dense, it's about $7 per trip. And when you look at disabled public transit, it's about $35 per trip.

So here you have, if this is really $0.25, an electric vehicle that doesn't have the maintenance, doesn't have the fuel requirements, because electricity is so cheap, you now could have the government actually providing free miles to people and still making money at the end.

So I really think that the economics here are just so vastly different than anything we've ever thought. Just as we talked about different vehicles, and not even think of them necessarily as cars, and that's just really interesting here.

ELLEN CONNELLY: Thank you. Oh, sorry. Peter?

PETER WELCH: Just a quick comment to that. I spent most of my professional career, in fact, in California. And I rarely thought that I'd be here defending the California DMV. But there were 2,900 disengagements over a 14 month period, and I actually think that the California DMV has been acting responsibly.

And I also know that they will be very quick to change the regulations when the technology catches up. And their number one job is to protect their citizenry for safety with respect to it. Other observation I'll make. I do read widely about the fact that most vehicles to sit idle for 80% or 90% of their useful life.

But the challenge before us is, in fact, that it's a highly bimodal distribution. So 80% of the time that they are an operation is typically between 6:00 and 9:00 AM in the morning, and 4:00 and 7:00, when the demand is there. With respect to the cost, we will have to gage that, as I mentioned before, particularly consumer acceptability with respect to these products.

We've never had more transportation options now. I will observe, though, that yes, I think everybody in this room uses Uber, including myself. But it's probably about $2 a mile, and I'm willing to pay for it for the convenience. It's a great model. But the cost going down with ride-sharing, and the effects of that may have, quite frankly, on mass transportation transit systems and others is another policy issue that I think we have to examine very carefully.

ELLEN CONNELLY: Any other comments on this? I'd like to think for a moment about a world where autonomous vehicles have been adopted by consumers, and consumers really love them, and have really adopted ride-sharing as well, and think for a minute about how that would affect the regulatory system that currently governs auto distribution, some of the topics that we've discussed earlier today.

Some of the things that I've been thinking about, just to sort of start us off—Peter, you I think mentioned this earlier, is this concept of fleet sales. Well, suppose that, as a result of the more widespread adoption of ride share and autonomous vehicle technology, auto sales move less to individual consumers and more to large, sophisticated corporate or government fleet purchasers? If one of the rationales for the current distribution system, which as I think we heard earlier today many times, is the need to sort of protect consumers and provide service to the individual consumer, who may not be fully sophisticated about their automobile, would this type of shift really undermine or change that rationale?

Another thing I've been thinking about is, suppose that we have a number of new entrants that consumers really love. I'm thinking of things like people are really loyal to their Apple products. Suppose there are new entrants of that caliber who do not want to use the franchise system? What type of pressure might that put on the direct distribution laws that are currently in effect?

Similarly, and I think we've heard about this in the warranty panel, there's more and more ability to deliver over-the-air repairs. Once consumers start to realize that this is possible, and is much more convenient potentially than having to go to dealers, will that put pressure on the dealer system and some of the regulations that are governing it?

I'd like to start off with Fiona, and then maybe move to Peter and some of the others.

FIONA SCOTT MORTON: Sure. So I'll just repeat, Ellen, your suggestions and a couple of others. I would say this morning what we discussed is that the laws surrounding auto distribution in the United States are largely frozen and prohibit innovation. We talked this morning about the population moving from the cities to the suburbs between say, the 40s and the 80s, and how the US manufacturers were put at a disadvantage compared to imports who could make a distribution network that matched the new population. And higher costs were thereby borne by manufacturers who had the old network.

So that's one shift. Bigger shifts have now happened in the way that we buy everything, primarily due to the internet. And the inability of auto retailing to change, I think, is becoming more and more obvious to an ordinary consumer. I think the additional cost built into the U.S. labels in 1980 was not obvious.

But I think if you buy something on Amazon, it's sort of obvious that you can't get a car that way. And I wanted to make a parallel. Let's imagine the state legislature said we are very concerned about the local family-owned video store. It's important to local communities to have a video store. And to help these communities, we're going to pass a law outlawing Internet Movie downloads and requiring consumers to visit a video shop and rent a video if they want to watch a movie.

OK. So we could have had our state legislature do that 10 years ago, and we could all be driving to the video store to pick out a tape and bring it home and watch a movie. Instead, we have streaming videos from Netflix and a whole range of other sources over the internet.

So I think this is the kind of parallel that we're facing now, and that the consumer is going to be less willing to go along with franchised auto dealers capturing their state legislature and prohibiting innovation, because they can see the value of that innovation more clearly.

So what would those innovations be? Remote updates of software are an obvious one that Ellen pointed out. This is very handy for the consumer. Saves them lots of time and schedule hassle. And it omits the need for a physical presence in their local area. Efficient manufacturing, just in time manufacturing. So this is the Dell model as it used to be called. I produced to demand and not to inventory. I make cars that people want. In fact, I make cars

that people have already paid a deposit on. So I don't even incur the cost for the parts until I have cash in hand. That saves carrying costs for both the manufacturer for parts and the dealer for inventory. Moreover, you're never marking down a car, because every car is already bought. So that, the estimates on the savings of that changing a system from producing to inventory to producing to demand are quite large. So then, you don't need a local dealer to hold inventory for you.

You do need to test drive, look at the features of the car, physically touch the car perhaps. There are many interesting ways to organize that. It's not clear that the franchise model would be the one. It might be a company-owned store. It might be something else. I don't know. But we could experiment there.

Shared cars would be likely owned by a corporation. Such a corporation would buy in bulk, and would not be confined to probably a single city, but would want to deal directly with the manufacturer, and perhaps customize that car. We see today Uber has individually owned cars, but you can also easily see how Uber might service a very efficient group purchasing mechanism, and would have also specifications and quality issues that they would care about in the cars that their people are buying.

Again, the local dealer would have less of value-added in that world. Self-driving cars. OK. Self-driving cars will be a business with significant economies of scale, due to the way software works. Software has a large fixed cost to create and zero marginal cost to deploy. So if I have very good software for my autonomous cars, that's going to cause me to want to have scale in order to deploy that software in lots of cars.

That firm is likely to want to choose the car that it puts its software in, and perhaps work with the manufacturer to customize the car in particular ways. For example, how are we setting up the driver's seat? Is there a driver's seat? Where are the sensors on this car? How do they deliver information? What's the power of the computer built into the car?

Are we going to have bunk beds that fold down from the floor, fold down from the roof, like in a train? Lyft and GM would be an example of this kind of partnership. So here again, it doesn't seem like the local dealer is going to play an important role. In that environment, the

demand and the choice and the pricing and so on would be negotiated between two large parties, a buyer and a manufacturer.

And then we have some remaining activities. And as David Sappington and Dennis Carlton have said, the market is good at figuring out how to organize a firm when consumers are choosing among different options, and firms have the flexibility and ability to change the way they organize themselves to meet those needs. So that was my shortlist.

ELLEN CONNELLY: Thank you, Peter?

PETER WELCH: Hey, Fiona, you found a clever way to make an opening statement. To answer your question, to tie this up with some of the earlier panels, quite frankly, I think most Americans and maybe people in this room take for granted what an incredible private and personal transportation system we have here in the United States, which makes us very different than many other people, and many people in other parts of the world envy us.

Last year, our dealer members sold 32 million cars. If you include new cars and used cars, we performed 285 million repair orders, 59 million of which were warranty or safety repairs. We take it for granted that within about a half an hour drive of any direction here, you can find just about any make and model that's produced by the 32 manufacturers that our dealers represent, and the nine heavy duty truck manufacturers that they represent.

You can find them in probably different trim lines, colors. You can find a factory trained technician to fix those vehicles. And you can find a ready supply of inventory of parts and vehicles. It's an amazing system, and it's all private enterprise, private capital, that runs it. It really sets us aside from any other ecosystem, transportation system, and it is the backbone of America's transportation system.

It's been honed for 100 years. Yes, it's a living body. It improves. It changes. I wasn't around when they switched from the manual crank to the automatic starting systems, but that was a revolutionary system when we looked at it through the evolution as we go through.

I can tell you one thing. These vehicles continue to get more sophisticated, and with sophistication, many problems arise. Cyber security is the number one issue. We're going to have autonomous vehicles. They better not be able to be hacked.

We need to have secure processes to lock down those systems to make sure that they function. If the useful life is 11 years, the warranties are probably going to have to be longer in autonomous vehicles, because who's going to be responsible if one of the sensors go haywire, and God forbid, someone is injured with respect to him?

Somebody mentioned over-the-air, that's a big issue. Absolutely over the air is coming. Americans, as we talked earlier, we want to be able to download this stuff. But you just can't download fixes for every car. OK? We can't fix the GM ignition switch issue with a download. We can't retrofit Volkswagens with cheater devices on them to fix them to make them come within the parameters of our emission laws. We can't replace Takata airbags with over-the-air transmissions. There are fundamental differences.

Can we upgrade navigation systems? Absolutely. Can we change gear ratios and other systems? Absolutely. And our customers will absolutely demand that we do that. I think the primary area when we look at marketing into the future is, what's the face of our customer going to be? I mentioned before, 70% of it are individuals.

They've got individual budgets. If we move to ride-sharing and others, who's going to own these vehicles? We talked a lot about ride-sharing, but we don't talk about who's going to own the vehicle that's going to be shared. All right. There's a myriad of issues that go with that. So you got five people that want to share a car. How's it going to get title? How's it going to get financed?

You're going to create an LLC? Who's going to be liable if one of the partners that owns the vehicle gets into an accident? These are all issues that we need to collectively work through together to make sure that our market remains vibrant. And we also have to be respectful, as I mentioned before, of the great independence that Americans put in to freedom of mobility.

ELLEN CONNELLY: Fiona?

FIONA SCOTT MORTON: Yeah, I think the complexity of this issue is really real. Peter has identified a lot of good points. And I think that what economists would say about that complexity is that there is no need for the state to legislate that the franchise dealer is going to solve all of it. I think that's really what's a better solution is for different kinds of parties to experiment and see whether they're good at it, see whether they have economies of scale.

For instance, a franchise dealer that works in my town of New Haven, Connecticut might not be the right party to think about insuring a million vehicles that are shared up and down the East Coast. So that's the kind of thing that we need to, I think, be very innovative and creative about.

There was a lot of talk this morning about investment and auto distribution, and how consumers want this large and very expensive dealer network. We heard a lot about all the money that dealers invest in their show rooms and equipment. And one of things that puzzles me is, how do we know this? How do the people who say customers want this large and expensive dealer network, how do they know that?

Because of course, the costs of that network are built into the cars, at the end of the day, that the consumer is buying. The network has to be paid for. So if a consumer had to drive 10 minutes further to a dealership every time she went there, but her car cost $3,000 less, and her repairs cost 40% less, would she prefer that trade-off or not? I don't know.

What if the legislature said we want to encourage investment in TV stores? TVs can only be bought in physical stores. And we will require TV manufacturers to increase payments to those stores, because it's important that every consumer has a short trip to the TV store. Would the consumer prefer that, or would they like to be able to buy a TV from Amazon?

OK, we know in the case of TVs, because the market has told us, and consumer behavior has told us. I don't think I know of any study that's told us that consumers want to see auto distribution organized the way it is.

PETER WELCH: If could just briefly respond to a couple of those issues. First of all, I don't know if you really appreciate how consumers buy cars these days. OK? Our dealers are into electronic commerce like never before, and like no other business with respect to it.

The average consumer—and we do studies on this constantly, our business partner manufacturers do studies on this constantly—the average consumer spends 13.75 hours researching the purchase of a new car. In just 10 short years, the average number of dealerships that a customer visits before they make a purchase, an actual purchase, has gone down from 4.1 dealerships in 2005 to today, it's 1.3.

When the customer shows up at the dealership today, they typically have researched it, they've talk to somebody at the dealership, either through email, through text, or on the old fashioned telephone. They've located through inventory searches the model they want, the trim line they want. They probably have submitted a credit application.

It's probably been approved. They've already negotiated the price, which is as transparent as any business I know. And I know of no one in another business which can go on the internet can find out what a dealer's dead drop cost is on any car. And yes, while they drive, my time practicing along and running the California says there are 54 Ford dealers in the Los Angeles market. They all advertise on the same TV stations. They all advertise, less and less, in the same newspapers.

Yes, people drive two hours to save $200 on a $34,000 car. It's an emotional purchase, and it's one that there's a lot of excitement with respect to it. Competition has never been better. We heard today, which unfortunately—although we both submitted this Phoenix study that was done, which as we know, is the only empirical study that has been performed just a year ago, that looked at some 250,000 actual real-time transactional prices in the Texas area, and found that there was over a $500 difference with smart consumers that had choices between Toyota and Honda dealers to go and exercise their individual economic power to make purchase decisions.

So it's a system that works. Is it a system that can be improved? Absolutely, it can be improved. Everything needs to be improved. But it is still the best system we have in the world. It's the most cost-effective and efficient system, and the auto manufacturers, the large volume auto manufacturers, somehow seemed to be out of disfavor these days in favor of the new entrants, they're pretty darn sophisticated. Even though the discussions we had earlier about

the differences of opinion that we have from day to day, they still embrace it as the most cost-effective and efficient system to mass market vehicles to millions of Americans.

ELLEN CONNELLY: I'll give Bryant a few moments, and then see if anybody down here has any thoughts.

BRYANT WALKER SMITH: And the issue here is whether consumers should decide, or a regulator should decide on this. Can I pick on an industry that's not here to defend itself?

ELLEN CONNELLY: Sure.

BRYANT WALKER SMITH: Thank you.

ELLEN CONNELLY: We already covered TV.

BRYANT WALKER SMITH: [LAUGHING] Indeed. So taxi cabs, and the taxi industry broadly construed, an area in which the FTC's been involved with for decades, has been waging a lonely largely unsuccessful struggle against Uber. And there are a lot of critiques that can be made of Uber from a legal, or perhaps an economic perspective.

But when the taxicab industry pushes back against it, it's frankly kind of sad. And the reason why is because many of these ads and promotions start from the perhaps genuinely believed perspective that people actually like taxis. They actually like getting in one. They find them to be safe. They find them to be clean. They find the drivers to be courteous.

That's sad, because I have met no one outside of the taxicab industry who believes that to be true. And so my caution is as we're discussing new models and the serious disruptions they may bring, to bring that dose of reality into the conversation.

Now given that we have an economist down here, and I am not, I am fascinated by what some of the repercussions may be, regardless of whether they may demand a legislative or regulatory response. When we think about the traditional notion of taxis, one of the historical arguments for regulation has been the fear that lack of regulation would result in flooding the streets with all manner of drivers and vehicles, and that as a result, there would be a saturation whereby no individual owner or driver would make enough money for it to be worthwhile. And there would be serious swings, and it just would not be a healthy industry.

Now, I wonder what that means for even a driver-based model, like Uber is currently, going forwards. If Uber has essentially a monopoly position, it can act as that regulator, and it can limit the number of drivers. If Uber and Lyft and others are competing, or if there's not that desire to limit the number of drivers, then you could potentially again have that frustration coming from individual drivers who perhaps make a little, but don't make a lot.

If we move even further into the future, where the driver is out of the equation, and it's no longer a question of consumers and labor, well, then I also wonder what happens in a world where mobility is truly a commodity, where the consumer has an immediate knowledge of what competitor A's price would be, what competitor B's price would be, and can immediately select based on pennies of a difference. Likewise, a future where the competitors themselves have information about their pricing, and you can subtly or directly signal or match each other's prices. So I ask that as someone who does not understand economics professionally, and fascinated to hear your perspective.

FIONA SCOTT MORTON: I think I'm afraid to tell you it's just going to be competition, like the good old-fashioned American competition. I mean, let's assume you had two or three autonomous car firms in your city, and they competed for consumers on the basis of price.

And as you say, consumers might be very price sensitive, or they might not. It might be that one of those autonomous cars is more of a luxury car. Nice leather seats, nice air conditioning. It's a more pleasant ride, and they charge a little more. Or it might be that another one promises to get to you within two minutes.

And a cheaper one says, we'll get there within six minutes. So you get differentiation in products, just the way we see in many, many markets. And that differentiation allows different business models to be sustained. And ultimately, if there are too many driverless cars and they're not earning money, they will exit. They'll take those cars and bring them to a different city, or slow down production of those cars, so that then the remaining ones will be able to earn a return.

So the good news is we don't have to worry. We don't have to regulate how many autonomous cars we need in the city, because actually, the market will take care of it for us.

BRYAN WALKER SMITH: Even given the ideal, the economic ideal, of perfect consumer information?

FIONA SCOTT MORTON: Well, the consumer does need to know her choices. If there are three firms in the market, and she only knows about one, she can't price compare. So yes, but that's what a marketing department is for, and that's what an App store is for, so that you can have all three apps on your phone, and someone will find a way to compare prices across those three.

So yes, consumers do need information. They don't need perfect information. They need to know, this car promises to arrive in two minutes, and this one promises to arrive in six. And do I care about that? And how much am I willing to pay for that difference?

ELLEN CONNELLY: OK. I want to give this end of the table a chance to respond. Do any of you have any comments on the topics we've just been discussing?

AVERY ASH: Yeah, I mean, I think, not as much on the autonomous and the ride-sharing piece, but I think you touched on over-the-air updates, which I think is a really kind of important segue into the topic of connected cars, which I think have kind of fallen off this discussion, but I think are inherently complimentary to autonomous vehicles. They're certainly separate, but have a lot of the same themes that go along with it, and frankly, from a consumer perspective, are where a lot of the consumer misinformation, need for education, and need for consumer protections are in place. From a AAA perspective, when you're thinking about that connected car, we think it really comes down to three primary principles, two of which have really been on display here today. The first would be transparency, an understanding of what it is the car you purchased can do, what data it's transmitting, who it's transmitting that to.

Second would be security. That's a very key one. And I think the over-the-air update issue is one that really highlights this, the potential of ability to remotely deliver fixes to a complex problem. Cyber security was touched on earlier, and we saw in play just earlier this year, where you have a potential vulnerability for a jeep that was taken advantage of to remotely hack into that vehicle. Those jeeps would need to be brought into the dealership to have those repairs conducted to ensure that they were no longer vulnerable.

You contrast that with same time report on a Tesla vulnerability that, once announced, it was shown to be a known vulnerability, and they were able to announce, though, that Tesla had already delivered over-the-air update to those vehicles. It was able to patch the vulnerability.

I think we're really seeing there the potential for substantial consumer protection, and substantial increases to consumer safety. And really, the benefits ultimately to a consumer of A, right now with recall rates, we don't see people bringing in their vehicles to get fixed at the rate that we, certainly, as a motorist organization or really anybody at this table will be happy with. In a world of over-the-air updates, you can get that recall participation rate much closer to that 100% threshold that really is the ultimate goal.

But then I think the final piece, the final question here too, is just the choice question. That a lot of the potential that we're talking about here for these vehicle technologies are predicated on data being generated by a consumer, at least in the immediate term—the consumer's vehicle.

And then the question becomes, I, as a consumer, what are my rights? And what is my ability to control the direction of the data that my vehicle is currently transmitting, whether that would be to a dealer that I trust who was able to provide me with repair and potential recall information, whether that's back to the manufacturer, so they can make changes to drive cycles, they can make improvements to safety, they can more quickly identify recalls?

Same thing to a government institution like a NHTSA, who might also be able to better identify potential safety issues for those cars. But really also to the third parties of a consumer's choice. We can sit here and prognosticate on where the vehicles are going to be in 10 years, but we really don't know.

I could say with a pretty high degree of certainty, we're not thinking of a lot of the big innovations that are going to come along over the next decade here and now. And a lot of that is a need predicated on setting up a system that prioritizes competition, which will ultimately allow consumers to benefit from these technologies.

ELLEN CONNELLY: Ashwini, or Robbie, do you—

ASHWINI CHHABRA: Yeah. Just something that Fiona had mentioned that brought to mind the issue of equity. And it's come up in a couple of conversations I've been in now. The point that she made about the market solving for the oversaturation, under-saturation.

I think it's a very powerful point, and it implicates something about where these vehicles are available, and who has access to them that we need to explicitly acknowledge at least.

More sophisticated vehicles, whether it's clean technology, or whether it's automation, are more expensive. And as a result, they are more out of reach for lower income consumers, people who can't otherwise afford them, or certainly won't be the first people to benefit from them. And if, as is anticipated, there are safety gains to be had, whether it's from level three or whether it's from level four, people who can't afford cars are potentially going to be even less able to afford these more expensive cars now that the price may come down. And so, that's one way we can solve for that. But how do we proactively think about the safety benefits being realized by people across the board.

So looking at a city, for example, you can see it in a couple ways. There is the concern about, are you going to have too many autonomous vehicles on the road? If you take New York as an example, if you take—because we've operated there now for four years, so we've got—we've got a track record there. If you look at where are most of our growth is, it is outside Manhattan. It is outside the central business district. And obviously, when the business launches, it launches where the demand is going to be the greatest. But as prices come down, because you release new products, so you go from an Uber Black product to an UberX product to Uber Pool product, you put it within the reach of more and more people.

So to the point where a third of our trips to New York today are outside Manhattan, compared to about 10%, 15% from taxis. If you look at Chicago, it's something like six out of every 10 trips begin or end in what the city classifies as underserved areas. In DC, Wards seven and eight have seen 800% year on year growth in terms of the trips we provide.

So the way you control for this is you innovate, and you bring the price down, so that it puts it within the reach of more people. I think inherent in that is some degree of sharing, because that's a level change in terms of cost reduction.

But as we're thinking about the wonders of the new technology, it's just important to keep in mind who's benefiting from the safety gains, and the environmental gains, and so forth.

ELLEN CONNELLY: Robbie, do you have anything to add?

ROBBIE DIAMOND: Yeah, it strikes me that everyone here acknowledges that the world is just totally being turned upside down, and really, no one knows what the future is. So when I think about that world, I want consumers and the American public to begin to make decisions for themselves, and not be forced into a system that already exists across the board.

When you look at Uber and what happened in New York, and how the democratic mayor tried to basically regulate them, who rose up? Consumers. I remember here in DC, it was the same sort of question. The consumers spoke.

So I agree with Fiona, but you need to give consumers that opportunity. When it comes to these safety features, and autonomy, and everything else, I mean, that's really the key here. If they're given the opportunity to see it and touch it, and feel it, and it's not stopped before it gets out there, I think you'll see a very different world.

For me, the biggest danger is that cronyism in disguise of safety will stop all this. And I think that's a real question. The question is, what is safe? So right now, 33,000 Americans die every year in an automobile. 1.2 million people in the world. If we got to an autonomous world where 90% of lives were saved because 94% of accidents are caused by human error, well, that's a world that you'll save 3,300 lives every day that this is accelerated.

That's a world of matters. And the hacking issues and all these things matter, but the gains are so tremendous, that we have to allow for this to have regulators watching it very carefully, but not to get in the way of it initially.

And so the question is not what is safe. Because what we have today is, yes, the vehicles are for the most part safe. But the system itself isn't. 33,000 people, that's on the order of the amount of people who die of certain cancers. And so that is not to impugn an industry at all. That's to say that safer—it's compared to what it is.

And I think that safer matters tremendously, and we just need to make sure that the definitions that people use are not—there are incumbent today that will lose tremendously. There is no doubt the world will be turned upside down. There are people who are not incumbents today that will be incumbents of tomorrow, who will want to stop the system advancing in its tracks.

And to me, it's the question of how do you allow consumers, the public, to have a role, and have a smart regulatory environment that's watching it and dealing with it as it's needed, but not getting in the way of it before we even get started.

ELLEN CONNELLY: Thank you. Just a quick reminder to the audience. We have about 15 more minutes left. So if you do have questions that you'd like to have us consider asking the panelists, please flag down one of our conference staff for a comment card.

I'd like to spend a few moments talking about an issue that I think Robbie has sort of set up nicely here, and that's the issue of adaptability. We also heard a lot about this in the earlier panels. I believe it was Steve McKelvey, in particular, in the last panel who talked about how the current system may be impeding the ability of manufacturers and dealers to adapt as the situation changes.

And it seems, to me at least, that when you are sort of sitting on the cusp of technologies of the type that we're discussing on this panel, adaptability is really important. The saying adapt or die comes to mind. And I've read some things that maybe the current system is not adaptable enough, and maybe the dealer system is not the best, or it's not in the best position to be responsible for the introduction of new technologies, such as electric vehicles and autonomous vehicles.

I'd like to get my panelists' thoughts on that, perhaps starting with Peter, and then moving to Robbie, Fiona, Avery, others.

PETER WELCH: Well, not to repeat myself, but I will. The dealer model is tried and true. And again, dealers are merchants. We derive all of our revenue from consumers. And like any other merchant, we stock, sell, and service. We're quite frankly agnostic as to your proposal.

I think anybody that—notwithstanding the fact that oil is down to $28 a barrel, and it isn't going to stay there, it's a finite commodity. Everybody knows the global warming issues, and so on. Consumer acceptability to these products is key. Education is key. I agree with Avery down there, that a lot of education will be done.

But the fact of the matter is the average person that's buying a car is still struggling in America. It's not the $400,000 a year average or whatever it is the owner of a Tesla or a Ferrari for that matter. It's a working mom with a couple of kids struggling to make monthly payments to qualify for financing, to find affordable mobility, to have a job, to improve their life.

I mean, that is what we see on Main Street day in and day out at our dealerships. And that is the face of consumers. That is the mass market. Those are the 32 million Americans that bought cars new and used last year. So we have to have a robust system that is out there that can cater to all of them.

Certainly, electronic commerce has played wildly into that. I will actually disagree, surprisingly, with some of the earlier panelists. You asked about the numbers. There are about 31,000 franchises in the country. We've got—let's see. I had them actually run the numbers, if I have the data here—18,082 rooftops, and about 16,400 franchise dealers throughout the country.

OK. 39% of those 18,000 dealers sold 300 or fewer new cars a year. These panelists earlier that talked about our biggest member, which is true—the AutoNations of the world and the Penskes are not representative of mainstream. They worked in large metropolitan areas, that is a high concentration of the public. They would do a wonderful job of servicing their customer base.

But it's the single Ford and Chevy dealer or Toyota dealer out in the community, and there are myriads of different communities. They range from agricultural communities, to educational communities. The mix and blend of the inventory that is an agrarian area where they're buying trucks and four wheel vehicles is completely different than a metropolitan Los Angeles dealer that may have a very large fleet.

Our dealers sold all the cars to Avis. They sold all the cars to Zipcar. We're not strangers to shared mobility and ride-sharing. We, in fact, are out there selling the cars. We're doing the warranty work on them, the repair work on them.

And yeah, if we have shared technology, I think Bryant made an excellent comment, vehicles are going to wear out quicker. The useful life, 11.4 years right now is the average age of a vehicle on the road right now. If we have more mileage on it, they're going to wear out more. We're going to sell more probably. Probably going to have more robust service arrangements with fleet owners.

To me, the key to this is who the owner's going to be. We were joking on the prep call about Uber, and the business model is very different, and very limited certainly. They don't own the vehicle. They got independent drivers out there. We're selling the car. We're servicing the vehicles.

In an autonomous world, I don't know that you're going to have an independent contractor that wants to finance an autonomous vehicle and lend it to the Zipcar, or whoever, Lyft, or whoever's going to be out in the future with it.

So that's why we like this business so much. It's very vibrant, and it's huge. It's a trillion dollars a year out of the American economy.

ELLEN CONNELLY: Fiona, and then the others.

FIONA SCOTT MORTON: That's a description of the industry as it is today. But I think the question from Ellen is about flexibility. And I worry about flexibility in such a highly regulated setting. So we're having trouble being flexible enough to think about the manufacturer selling direct through stores.

We're nowhere close to autonomous vehicles, or shared rides, or anything else. I mean, we're stuck on the most basic thing. And I just want to expand on that for 30 seconds, because my name was used in an earlier panel, and I don't want my research, anyone here, to go away with the wrong impression of my research.

OK. So there's a lot of confusion about intra-brand competition versus inter-brand. If the manufacturer sells to the franchise dealer, then both it and consumers want a lot of those dealers. That's true. Because once the car has passed into the ownership of the dealer, and the manufacturer would like a consumer to buy it, then a lower retail margin is good, and it's critical to competition with other brands.

If I'm Nissan, I want to low retail margin to compete with Honda. OK. A single franchise dealer that owns the car has market power in its local area, and it will set a stiff retail mark-up. This is called double marginalization, so you have two mark-ups, one on the manufacturer, and one on the retailer.

That's why I, in this piece cited, and others have found that the retail mark-up falls with more dealers and more intra-brand competition. However, this issue disappears with vertically integrated auto retailing. There is no retail margin because there's no retailer. There's just one guy. He manufactures, and he sells to consumers.

OK. So you don't have double marginalization. It doesn't matter how many of the stores you have, because one guy is setting the price, and that's the manufacturer. OK. So there is zero second mark-up, and cars are cheaper, if you have market power in two layers compared to if you vertically integrate. So if you're really trying to help the working mother with a couple of kids, then we should let the distribution system of this industry and any other respond to market forces and competition, and deliver those results that consumers want. If they want lower prices, then maybe vertical integration is a good choice.

PETER WELCH: Fiona, if I could respond to that.

ELLEN CONNELLY: Peter I'm sorry. I'm just going to, because we're running out of time. I'm terribly sorry. Do any of you have comments on this topic? No. OK. I'd like—

PETER WELCH: Then could I respond? There's a big difference between selling a car out of an order book and selling it out of an inventory, OK? A manufacturer that sells directly—and it's only six states out of 50 that have any kind of prohibitions. And I think the gentleman from Tesla even acknowledged that.

And guess what? They've been doing a pretty good job of going to those state houses—and by the way, that is the appropriate forum for them to go to change the laws. But 46 states have different laws. OK. I came from a state, for instance, in California. They had 10-mile limit with respect to it.

There's many, many different models with respect to it. But a manufacturer that owns and sells direct has the exact same expense for retailing a car. Now they may save some money because they don't yet have to advertise. They may save some money because they don't have to inventory vehicles.

But that's a function not of the system, but of the product that they've sold. And by the way, they came up with a very clever product that's very desirable in the niche that they have decided to service to. But if you had a regular large volume manufacturer that wanted to sell direct, they're going to have the exact same expense that they offload to our dealer members. So there is no mysterious middleman expenses added to the formula. That's a myth.

ELLEN CONNELLY: OK. We're going to move on. I'd like to address one question that we got from the audience, which is, should Congress consider federal legislation that preempts the patchwork of state laws and overrides a number of the special interest laws that freeze auto distribution? Bryant, do you have any thoughts on that question?

BRYAN WALKER SMITH: Not particularly.

[LAUGHING]

ELLEN CONNELLY: Do any of our other panelists have thoughts on that question?

AVERY ASH: Send it back down to the end.

PETER WELCH: I have an opinion.

ELLEN CONNELLY: I'm sure you do.

PETER WELCH: Talk about going out of your swim lane. What happened to 10th Amendment? I mean, these are the exclusive province of the states, and they do a darn good job. They know what's best in the interests of their citizens. I have to tell you that having practiced law in Los Angeles and having represented both sides of the equations here, having

lobbied the California legislature for nearly 20 years, I can tell you, this concept of a crony capitalism is just not true.

When I'm around talking to California legislators, they're asking a really serious policy issues. And they take very seriously the laws that they pass. And they're very well-documented, the abuses, unfortunately, that they have to correct.

ELLEN CONNELLY: 30 seconds, Fiona. I'd like to spend the last five minutes—

FIONA SCOTT MORTON: Some of these businesses are large in scale, and are going to cover a lot of states, and require a lot of investment. You could imagine that in a legal environment that was more certain and covered a broader amount of demand in geographic area, would be good for business.

ELLEN CONNELLY: I'd like to move on and talk a little bit about the future of regulation. We spent a lot of time debating the current system. I'd like to address the question to really all of the panelists to get your thoughts. There are a lot of legislators out there at the state level, and also at the federal level, grappling with a lot of these issues about how to address these new technologies, how to properly balance consumer interest and consumer protections with innovation and the desire to make sure that consumers have access to technologies that will potentially improve their lives.

So what would you advise legislators grappling with these various issues if you had maybe a top three list? Maybe I'll just go down the line. I'll start with you, Peter. We have four and a half minutes, so 30 seconds.

PETER WELCH: Keep an open mind, listen to all the parties, and do what they're elected to do. Make good public policy.

ELLEN CONNELLY: Bryant.

BRYAN WALKER SMITH: The details matter, but the broader social context determines how many of those details will be interpreted. So states need to begin by closely auditing their existing laws, identifying all of the potential obstacles and impediments to particular technologies, in consultation with developers who should be doing the same thing.

But in addition to that detailed approach, rather than the superficial approach that we've sometimes seen from state legislatures with respect to automated vehicles and other technologies, both the public sector and the private sector needs to build a public safety case for these technologies—to start talking about what safety means, how that safety will be measured, and how that safety will be monitored for the lifetime of the systems.

ELLEN CONNELLY: Fiona? Robbie?

ROBBIE DIAMOND: Yeah, I go back to my original point, which is I think that the revolutionary changes are incredibly profound and incredibly important to our country, and the lives of its citizens, and the entire world. And therefore, at this cusp of this moment, what we need to do is allow the technology to get out there, and have a very watchful and careful eye about it.

So not to prejudge what is going to happen, what the business model should be, what is safe—I was reading someone's testimony to the DMV, and it was pretty funny, because he said, you know, he got all the answers right to the question—he had to redo it at 70 years old. And his wife got two wrong. He was pretty sure that the machine would get all right. So is the machine safer than his wife?

So look, we're living in a new world. And for me, the real question is, this is what made America great. This could be the next revolution of productivity. This could get people who haven't been able to come out because of mobility issues, coming out. This could save so many lives. This could stop us on oil dependency.

So there'll be problems. There'll be hiccups. There'll be bumps. All that is true. But let's allow consumers to have an opportunity. Let's allow these companies, both automakers and new entrants, to get their products on the road, see how it works, and then come in afterwards and make sure that if something goes wrong, to deal with it.

But not think that we can prejudge this sitting in Washington or sitting in any state capital. I mean, it's almost laughable that we could.

ELLEN CONNELLY: Ashwini.

ASHWINI CHHABRA: Sure. The one thing that I think is—there are a couple things that I think are necessary in fashioning good regulation. And I say this as a former taxi regulator. There's the need to be expert in your area where you are regulating, which means staying current with new technology trends, and being nimble. And regulation is often incremental. Much to the frustration of people who are innovating in an industry. But that can work so long as a regulator then keeps up, and the process is such that it allows for regular and frequent updates, because the technology's just moving that fast.

I think sometimes, we have this rep as being opposed to regulation, and nothing is farther from the truth. We advocate for sensible regulation. It's just the process takes so long, and there are entrenched interests, and so forth. But whether it's auto distribution, whether it's permitting new vehicle technology, whether it's regulating for higher services, it's clear that all of these sectors and many more require a degree of expertise that regulatory agencies have historically not had, or have not been able to stay current in.

And I speak as someone who was at the New York Taxi Commission when Uber came on the scene. People there, I myself, others, didn't understand it in the way that I think people are understanding it now. And I think you see that repeating itself with the various bodies that are looking at self-driving cars now.

And so there's a difficulty in attracting the folks who understand the technology, because in government, you don't pay big bucks. And so it's hard to attract the experts, because the private sector will hire them away. But that's one thing I think is very, very necessary in devising good regulation, is having experts on board, and then being open enough to tear down whatever you regulated just the year before, because things will have changed.

ELLEN CONNELLY: I realize time's up, but I do want to give Avery a chance to respond.

AVERY ASH: Yeah, and I think kind of building on what Ashwini, I mean, really, whether you're a federal or state legislator, it begins with educating yourself about the technology, and then asking smart questions. Figure out the right questions to ask, and to identify where or if regulation or legislation is important.

And then it really comes down, from our standpoint, it's back to those principles. If you're thinking about it from a consumer perspective, it's about transparency and understanding the technology. It's about security and understanding there's a safety behind it. And then it's promoting consumer choice. I think with all those three, that's how you really realize the benefits of this technology.

ELLEN CONNELLY: Well, thank you. I know we went a little bit over. So thank you for bearing with us. I hope you found this to be as interesting as I did. And thank you very much to my panelists for a really spirited and interesting discussion. James Frost will conclude.

CLOSING REMARKS

- **James Frost, Attorney, Bureau of Competition, Federal Trade Commission**

JAMES FROST: I'm here. I just have a few quick announcements, and then we will let you all go. The first one is I want to remind all of you that the public record remains open for this event. It will be open until March the 4th. So if you would like to submit any comments about any of the issues that we talked about here, even though we spend a whole day talking about these issues, we left a lot of things uncovered. So we'd be happy to hear from you. There are instructions on the website on how to submit comments. That's available until the 4th of March.

Next, I want to thank all of our panelists, not only on this panel here today, but all the preceding panels. They've been very gracious in providing us with all their time. I want to thank you for all that. I also want to give a special note of thanks to Jonathan Hill over there on the corner, who has selflessly taken on a huge amount of logistical work associated with bringing you this program today, and we could not have done that without you.

There are also a lot of other folks whose names don't appear on the agenda. I can't possibly thank all of those people today. But let me just at least single out a few other people. All the folks on the FTC event staff, the technical crew in the back, the press office—a lot of other folks have spent a lot of time putting all this together. I want to thank all of them for helping us out.

Again, thank you all. And then I want to remind all of, please, turn in your security badge on your way out. And that completes the program for today. Thank you all. Have a good afternoon.

[END OF WORKSHOP]