

**Frank Beckmann:** Frank Beckmann back with you and joined by Craig Giffi, who is the Vice Chairman in US automotive leader for Deloitte. You have been looking at a lot of different data about these vehicles that I've talking about on this program and the focus in CES. We are talking about automated cars; we are talking about the move towards Uber and Lyft, all of this data isn't just coming out of your imagination is it? You have plotting this according to a lot of surveying you have done of consumers.

**Craig Giffi:** Right. I mean, if you look at the industry itself right, whether you're talking about the traditional automotive industry or the technology industry Silicon Valley, they are all moving very rapidly to develop this technology toward autonomous vehicles. They are also developing technology that helps share rides right, the ride sharing, the ride hailing applications. But we went out and we surveyed customers around the world and we do this on a regular basis. We have over twenty thousand respondents from seventeen countries and we wanted to explore what are they interested in, in terms of the technology that is being developed; do they think it is safe; are they willing to pay for it and how often would they be willing to use various aspects of it. And we found some really profound and interesting things that would say....well maybe not so fast.

**Frank Beckmann:** Really, where is this technology most attractive and where is it least attractive?

**Craig Giffi:** Well what is interesting when you look at it by country, is the technology seems to be most attractive in what we call emerging or developing nations. So in China and India, relative interest in fully autonomous vehicles is very high. But if you go to what we'd call traditional developed nations, it's much lower. In the US, about 40-42% of the consumers are maybe interested in fully self-driving vehicles. The vast majority of consumers would say they are much more comfortable with basic automation or safety features that are added to that. But if you go to China and India, the numbers are well over 70/80%, that would say that they want fully autonomous vehicles and they want them as fast as possible.

**Frank Beckmann:** Why is that? Is driving that dangerous over there or is it that they don't have a car...

**Craig Giffi:** Well, driving is significantly more dangerous, in both cases; their populations...the roads in India. I don't think you nor I would even consider driving on right, they are extraordinarily dangerous.

**Frank Beckmann:** As Ben-Hur used to...

**Craig Giffi:** That's right. In China you'd have a similar, you got a billion people slowly migrating the vehicles but they are doing it, actually fairly quickly. When I say slowly, the billion are coming slowly. But there's half a billion that are driving around that have never done that. As a result of that it is very dangerous and they are looking for the technology features. But again it is for the automakers the real challenge is there is no one size fits all. When you go country by country, Germany less than 30% of the population is remotely interesting in autonomous vehicles. They what to drive, they like their driving and they are expressing that very clearly. Not only in their preferences but also in their willingness to pay.

**Frank Beckmann:** I wonder if that is something to do with the quality of the cars too, I mean because traditionally BMW, Mercedes have the reputations for being very high quality and so those people who drive those on daily basis say why do I want to get rid of this I love this?

**Craig Giffi:** That's right. I mean I think one of the things that is really going to perhaps slow this adoption down is quality of the vehicles. The current vehicles are very high quality compared to what you and I grew up with in the 60's, where you get out the screw driver and put in the collaborator and kick it a few times and smack it. Those vehicles don't exist anymore, so the quality is very high. The average vehicle staying on the road in the US over eleven years approaching twelve years is almost a record. That is because quality is so high and if you add to that, there are over 268 million vehicles on the road in the US. At a eleven; twelve; thirteen years average life span it's going to take quite a while before we see a complete transformation to autonomous vehicles. So I think consumers do not always know what they want when they ask them. Did they want a smart phone? None of us wanted a smart phone. And today, we can't live without it.

**Frank Beckmann:** Exactly.

**Craig Giffi:** Maybe the same thing will happen with autonomous vehicles but it is still going to happen slowly because the share base; the car park that is out there has to turn over and there is no reason because of that quality; the profound quality is so high that they have to have a new vehicle.

**Frank Beckmann:** Craig, I think most of us believe those at some point it is going to happen.

**Craig Giffi:** It is going to happen, I agree.

**Frank Beckmann:** And it is going to be at a large scale and the question is whose going to be the leader in that? Is, we sort of take for granted that our big three; Ford, Chrysler, and General Motors are going to show the way along with Silicon Valley. And they'll set the pace for everybody around the world. And we may be jumping the gun on that? Or is there a competition out there in the rest of the world that we are not taking into account here right now?

**Craig Giffi:** Certainly, there is competition. I mean, the auto industry has an epic center in the United States, primarily in Germany and in Japan. We see in all three nations the major automotive companies are moving rapidly toward autonomous vehicles. So while the US has invested heavily, the leading companies there in the US, the big three, if you will, are now significantly investing on autonomous vehicles. The same is true in Germany and they are making tremendous strides for autonomous technology and the Japanese are just now weighting in and when they really get their sights up on that, when see the large Japanese companies now turning their attention, we know that they are very good with technology so from an automotive maker standpoint, it is unclear who is going to win this race. I think they are going to come up together but it is clearly a race. But then we talk about the technology companies and there is no question that Silicon Valley has the edge, but there is other places in the world like in Israel, where all of this technology is being developed. You have great ecosystems of technology; capable players that are changing the equation and what is really interesting is right now going back to the consumer study, when we ask consumers who they trust to bring this technology to market. In general, they don't trust the existing automakers or the technology companies, and I think that what we are seeing

are upstarts. Tesla is a good example of an organization that kind of came out of nowhere with both a vehicle, an electric vehicle, new propulsion system, and autonomous technology. And in many respects, what we are seeing are those new entrants - the companies we don't even know about - possibly today are going to grab an upper hand in this. But again, because the technology is not rolling off fairly slowly, it's very expensive to develop. It is unclear how much penetration those fringe players can have but I don't have any guarantee whatsoever that the US can necessarily stay in the lead. I think what will happen is they will all move together relatively at the same time.

**Frank Beckmann:** That's good stuff. Thanks for coming back and talking with us.

**Craig Giffi:** Thank you very much.