FORD AUTONOMOUS VEHICLE MARKET ANALYSIS

Presented by:
Aarzoo Dawra

Presented to: Prof. Chan Choi

Course Name: Marketing Research

Date: December 12, 2017

Industry Background

- Car companies are collaborating with tech companies and prominent start ups to develop Autonomous Vehicles.

- Why now
  - Technological advancements have made computer vision to distinguish various objects on road, build 3D map of the surrounding area and many other things.
  - To maximise profits, customer satisfaction has become major tool these days. And this can be attained by bringing Autonomous Vehicle in the market.

- Future Prospects:
  - According to a study conducted by Intel economic value of Autonomous Vehicles will increase from $800 billion in 2035 (base year of study) to $7 trillion by 2050.

Research Purpose/Objectives

Statement of problem

Autonomous Technology is fast moving and motor vehicle companies are making large strides forward entering the autonomous vehicle segment. Ford too wants to be the early movers in this competition.

- But is the market ready for this new technology?
- And should Ford invest in this new technology?

These are the topics of research.

Specific Research Objective

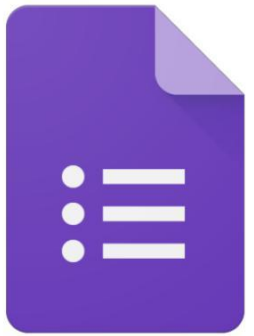
- Are the customers willing to buy Autonomous Vehicles in future?
- What features are they looking for in their future Autonomous Vehicle?

Potential Actionable Findings

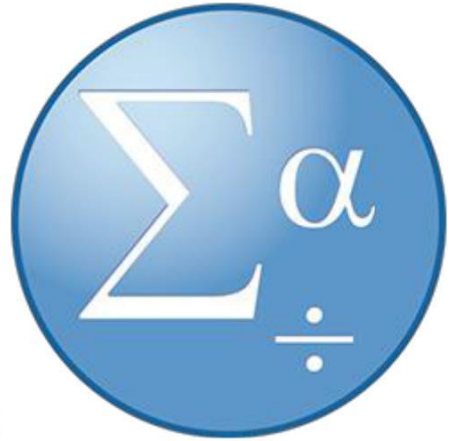
- Factors affecting the customer's decision in buying an Autonomous Vehicle
- Affect of brand loyalty, cost and trust issues on the Ford's market share

Research Design

- Conducted Survey using Google forms and received 47 responses
- A survey of 15 questions designed keeping in view the affect of all the questions on our response question.
- Descriptive Research
  - Characterizing customers' demographics, behaviour and attitudes (occupation, age, income etc.)
  - Characterizing marketing situation
  - Characterizing situational behaviour
- Analysis of these survey questions through ***SPSS*** with variables correlated to each other to predict the response variable "Your personal interest in acquiring a Self Driving (Autonomous) vehicle for your next vehicle purchase or lease"



Google Forms



Analysis

1) Response (Q4) vs Income (Q14)

ANOVA

4. By marking in the boxes on the scale below, indicate your personal interest in acquiring a self-driving (auto0mous) vehicle for you next vehicle purchase or lease?

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	17.395	3	5.798	7.177	.001
Within Groups	33.931	42	.808		
Total	51.326	45			

Inference : Income factor is highly significant with the response value, so people lying in higher income brackets are more likely to purchase Ford autonomous vehicles.

2) Response (Q4) vs Occupation (Q15)

Q.15 OCCUPATION

ANOVA

4. By marking in the boxes on the scale below, indicate your personal interest in acquiring a self-driving (auto0mous) vehicle for you next vehicle purchase or lease?

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	20.835	3	6.945	9.566	.000
Within Groups	30.491	42	.726		
Total	51.326	45			

Inference : With the help of anova test, Occupation factor is highly significant and play major role to identify the market segment based on occupation which likely to buy autonomous vehicles.

3) Response (Q4) vs Level of Trust (Q5)

Correlations

		4. By marking in the boxes on the scale below, indicate your personal interest in acquiring a self-driving (auto0mous) vehicle for you next vehicle purchase or lease?	5. Indicate your level of trus in autonomoius vehicle technology in transportatio n
4. By marking in the boxes on the scale below, indicate your personal interest in acquiring a self-driving (auto0mous) vehicle for you next vehicle purchase or lease?	Pearson Correlation	1	.578**
	Sig. (2-tailed)		.000
	N	46	46
5. Indicate your level of trus in autonomoius vehicle technology in transportation	Pearson Correlation	.578**	1
	Sig. (2-tailed)	.000	
	N	46	92

**. Correlation is significant at the 0.01 level (2-tailed).

Inference : By Bivariant Correlation, we see that the predictor Trust is assosiated with the purchase of the autonomous vehicle.

4) Response (Q4) vs Price above human-driven vehicle(Q9)

ANOVA

4. By marking in the boxes on the scale below, indicate your personal interest in acquiring a self-driving (auto0mous) vehicle for you next vehicle purchase or lease?

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10.315	3	3.438	3.521	.023
Within Groups	41.011	42	.976		
Total	51.326	45			

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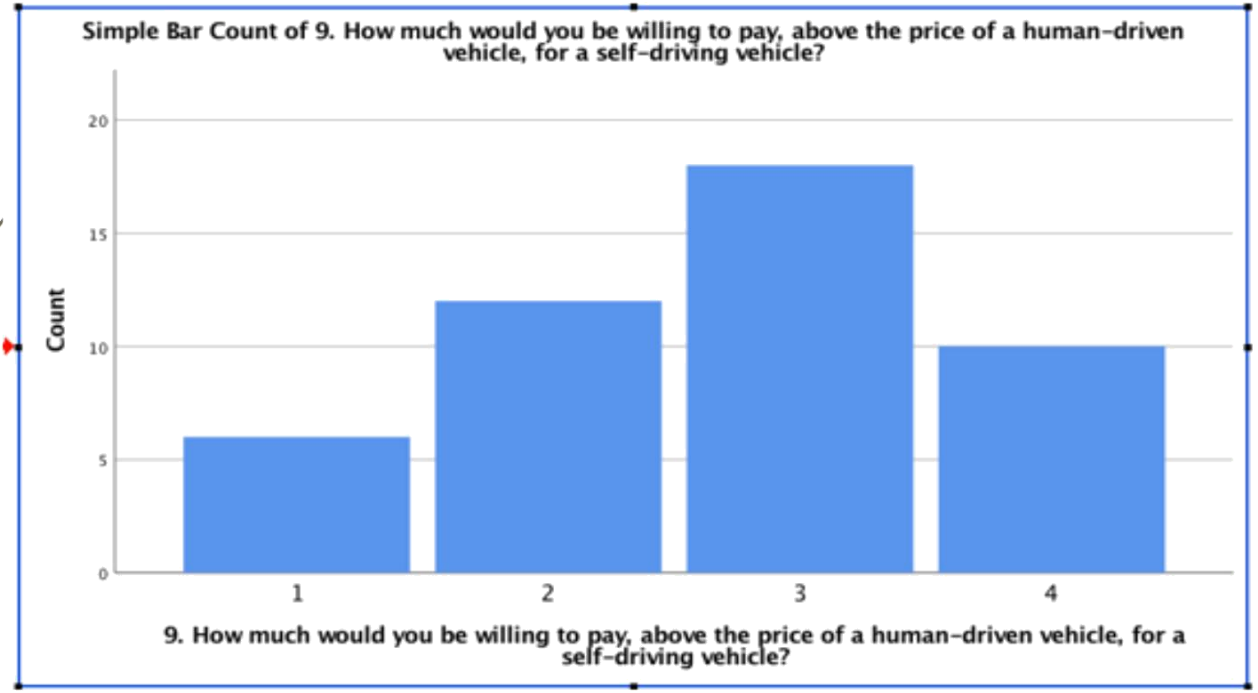


Inference : From the above anova table, Price is a significant factor in the launch plan of FORD autonomous vehicle. Histogram depicts that maximum number of respondents can't exceed their budget beyond $5000.

Conclusion : Ford should consider overhead price of the autonomous vehicle appropriately to drive sales.

5) Response (Q4) vs In-vehicle Features(Q10)

Correlations

		10. How 3 are the below features in your Auto0mous Vehicle? [a. Wifi]	10. How 3 are the below features in your Auto0mous Vehicle? [b. Bluetooth Connectivity]	10. How 3 are the below features in your Auto0mous Vehicle? [c. Voice Control]
10. How 3 are the below features in your Auto0mous Vehicle? [a. Wifi]	Pearson Correlation	1	.407**	.629**
	Sig. (2-tailed)		.005	.000
	N	46	46	46
10. How 3 are the below features in your Auto0mous Vehicle? [b. Bluetooth Connectivity]	Pearson Correlation	.407**	1	.322*
	Sig. (2-tailed)	.005		.029
	N	46	46	46
10. How 3 are the below features in your Auto0mous Vehicle? [c. Voice Control]	Pearson Correlation	.629**	.322*	1
	Sig. (2-tailed)	.000	.029	
	N	46	46	46

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Inference : The Pearson Correlation coefficient for all the factors are highly correlated. Therefore, the response value is highly dependent on with the above mentioned factors.

Conclusion : After analyzing the Pearson correlation factor, we should add all the 3 three features to our autonomous vehicle.

6) Response (Q4) vs Safety Features(Q6)

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	1.707	.840		2.032	.049
	6. In the table below, please indicate the importance of each of the following safety factors on your willingness to purchase or lease a self-driving (auto0mous) vehicle. [a. The auto0mous vehicle being equipped with manual override features]	-.258	.296	-.183	-.865	.392
	6. In the table below, please indicate the importance of each of the following safety factors on your willingness to purchase or lease a self-driving (auto0mous) vehicle. [b. Crash test safety statistics being equal to or superior to human-driven cars]	.653	.372	.441	1.756	.087
	6. In the table below, please indicate the importance of each of the following safety factors on your willingness to purchase or lease a self-driving (auto0mous) vehicle. [c. Crash avoidance safety statistics being equal to or superior to human-driven cars]	-.183	.391	-.130	-.468	.642
	6. In the table below, please indicate the importance of each of the following safety factors on your willingness to purchase or lease a self-driving (auto0mous) vehicle. [d. Vehicle sensor sensitivity / durability]	.062	.279	.048	.223	.825

a. Dependent Variable: 4. By marking in the boxes on the scale below, indicate your personal interest in acquiring a self-driving (auto0mous) vehicle for you next vehicle purchase or lease?

Inference : The safety features are insignificant factors and does not play a major role for a customer's buying intention.

Conclusion : This could mean that customer trusts the autonomous technology and these safety features are not carry much significance over their choice of purchase.

7) Response (Q4) vs Age(Q13)

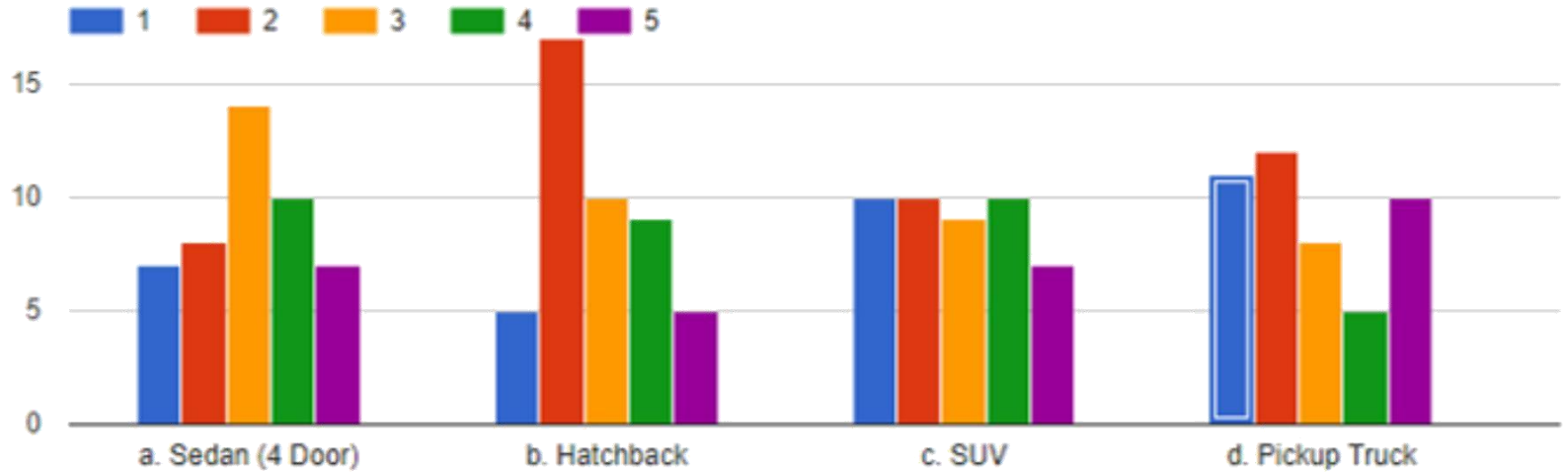
ANOVA

4. By marking in the boxes on the scale below, indicate your personal interest in acquiring a self-driving (auto0mous) vehicle for you next vehicle purchase or lease?

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.922	3	1.641	1.485	.232
Within Groups	46.405	42	1.105		
Total	51.326	45			

Inference : On performing anova test, we can conclude that Age does not play a significant factor for choice of autonomous vehicle ownership as the p value comes out to be greater than 0.05.

8) Response (Q4) vs Choice of autonomous vehicle(Q11)



Inference : We can see that the most popular choice amongst customers for autonomous vehicle is Pickup truck and least one is Hatchback.

Conclusion : So this will help Ford to decide upon their production line.

9) Response (Q4) vs Brand Loyalty(Q3)

Correlations

		4. By marking in the boxes on the scale below, indicate your personal interest in acquiring a self-driving (auto0mous) vehicle for you next vehicle purchase or lease?	3. Is the vehicle you own or plan to acquire a Ford?
4. By marking in the boxes on the scale below, indicate your personal interest in acquiring a self-driving (auto0mous) vehicle for you next vehicle purchase or lease?	Pearson Correlation	1	.159
	Sig. (2-tailed)		.291
	N	46	46
3. Is the vehicle you own or plan to acquire a Ford?	Pearson Correlation	.159	1
	Sig. (2-tailed)	.291	
	N	46	46

Inference : Since the Pearson correlation value is close to zero, this factor is highly uncorrelated.

Conclusion : Brand loyalty is not that big a factor for a customer to buy autonomous vehicle. So, we can say that a person who is driving a different vehicle right now can switch to Ford autonomous vehicle in future.

10) Response (Q4) vs Car time preference(Q12)

Inference : From the above graph, we can conclude that respondents have a mixed combination of opinions. So it's up to Ford to decided quality over comfort or quality over functionality or both, as per the budget of the production cost.

Conclusions

- People are willing to pay above the price of a human-driven vehicle, for their autonomous vehicle and it plays a significant role in decision making of the potential customer.
- Trust too is a highly significant factor for customers while purchasing an autonomous vehicle
- Brand loyalty is not a highly significant factor for a customer when it comes to buying an autonomous vehicle, so this opens new customer acquisition opportunities for Ford.
- Safety features does not carry much significance over the choice of purchase. This could mean that customers trusts the autonomous technology.
- We can see that the most popular choice amongst customers for autonomous vehicle is Pickup truck and least one is Hatchback.
- The Income factor is highly significant so people lying in higher income brackets are more likely to purchase Ford autonomous vehicles.
- This Occupation factor is also highly significant and people belonging to Self employed and Business owner category are more likely to buy autonomous vehicles.

Recommendations

Based on these conclusions, we, as the Marketing Research company purpose the following recommendations to the FORD Motor Company.

- ✓ Overall, there is a positive outcome of people general opinion towards their willingness to purchase autonomous vehicle therefore, Ford can go ahead with their production of autonomous vehicles in the market.
- ✓ They should be including features like wifi, Bluetooth and voice control in the vehicle as it plays a significant part to push the sales.
- ✓ People though are willing to pay extra for autonomous vehicles, but Ford should be price competitive and keep the price up to $5000 above the price of the manual driven car.
- ✓ We have seen that factors like comfort, luxury and features play a more important role as compared to trust and safety from customer's behaviour, so Ford should align their marketing campaign around these lines only.
- ✓ Ford should not stick only to their present customers but other potential customers too as brand loyalty is not that significant factor.
- ✓ Ford should launch more of pick up trucks and sedan autonomous vehicles and lesser hatchbacks as per customer's likability.
- ✓ Ford should target people who are business owner and self employed as their targeted customers.