
THAI FOOD

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Helping Ford Motor Company

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OVERVIEW

Due to the Ford Motor Company's decline in revenue, we plan to explore four paths to boost the company's car sales. Over the next twelve months, we plan to look at the data relating to developing rideshares partnerships, self-driving automobiles, finding sustainable solutions to the environmental problems caused by automobiles, and the affordability of an automobile to all. We want to ultimately help Ford Motor Company come up with a strategy for the future.

OBJECTIVE

To use data to explore paths which will help Ford increase sales, specifically paths relating which help save the time and money of the customers, increasing sustainability, and improving accessibility to all.

GOALS

The goals will be spread out over a period of 12 months. The action plan will be put in play effective beginning October 31st, 2017.

1. **By December 15th (1.5 months):** There will be concrete plans on how the data analysts will collect the data.
2. **By August 15th (8 months):** The data analysts will have collected all the data they need.
3. **By October 15th (11.5 months):** The data analysts will have extracted all relevant information from the data and convert it into visuals to present to Ford.
4. **By October 31st (12 months):** The project manager and data analysts will have worked with the Ford company executives to make a final decision on what the company is going to do in the future.

THE BIG IDEA

We would like to combine the conveniences of having an autonomous automobile and partnering with a rideshare company to make sure that millennials are able to use Ford automobiles without having the problems related to purchasing, driving or parking the vehicle in any given situation, that is, making it a customer-friendly and accessible experience for all.

STRATEGIES

1. Technology :

Problem: Many millennials do not have a driver's license or find it a technological hindrance to drive, and opt for other means of transportations like automobile rideshare services or public transportation.

Questions:

- What are the risks of having an automobile fully operated and controlled by computer programs?
 - Data: Quantitative data of how often do automobile related computer programs malfunction and how those malfunctions affect the driving experience.
- By how much will autonomous automobiles reduce road accidents?
 - Data: Quantitative data of road accidents having due to human error and qualitative data of how all the complicated algorithms, the sensors and cameras that the computer uses will insure safety.
- How hackable are autonomous cars and what are the effects?
 - Data: Quantitative data of how often cars get hacked and what kind of informations are been stolen and how much of the car can be controlled by the hacker.
- What types of cars do millennials often pick when using rideshare services?(SUVS, Luxury, sedans, etc)
 - Data: Looking at data from uber and lyft which types of cars are mostly used during everyday rides.
- What cities should we target to make the most profit?
 - Data: Qualitative and quantitative research on usage of automobile services in cities across America
- What type technology would have to be implemented into Ford's automobiles in order for them to work with a rideshare partner?
 - Data: Research current services that allow users to drive an automobile with a mobile application, without using the car keys. Specifically popular services such as, CAR2GO or ReachNow.

2. Sustainability

Problem: Millennials want to find solutions to the existing environmental problems and tend to choose the eco-friendly options of transportation.

Questions:

- What is the environmental impact of automobiles today?
 - Data: Qualitative and Quantitative surveys about latest carbon footprint numbers of using automobiles/personal cars, impact of automobiles on global warming and air pollution amount for using automobiles on the road.
- What is the need of removing fuel from the automobiles?
 - Data: Latest quantitative data about amount of fuel used by automobiles, usage of fuels in comparison to alternatives, latest daily fuel usage in America and depreciation of fuel resources
- What are the problems with electric automobiles today ?
 - Data: Qualitative feedback data of electric automobile users; common repair and functioning issues faced by electric automobiles
- What is more efficient for automobiles- plug in Hybrid, H2 Fuel, biofuel or electric only vehicles?
 - Data: Qualitative research in comparison of sustainable vehicle fuels (plug-in Hybrid, H2 Fuel, Biofuel and electric only), advantages and disadvantages of each fuel in terms of mileage efficiency, cost, legal, driving experience.
- What are some alternative ways to make automobiles without causing air pollution?
 - Data: Latest quantitative data on the air pollution caused by making automobiles, qualitative data on alternatives available
- What are the materials available to make automobiles more sustainably efficient?
 - Data: Qualitative research on a sustainable solution of automobile exterior materials.
- What is the best material to use for waterless automobile cleaning?
 - Data: Latest quantitative data on how much water is lost in automobile cleaning, qualitative analysis on materials (according to the water required to clean them)

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- What are some goods that can be made out of recycled tyres?
 - Data: Qualitative research on the uses of recycled parts of old automobile parts (especially tyres)

3. Affordability:

Problem: Millennials are buying less automobiles because it is a tedious and expensive process for the young generation and there are more cost efficient transportation methods available.

Questions:

- What is the cost of transitioning into an automobile ride share service? (vehicle, app, etc.)
 - Quantitative data: how much it costs a rideshare service (such as Lyft or Uber) to create the app, and the cost of functioning (mileage, maintenance) of their automobiles on a daily basis
- How many automobiles does Ford have to sell to be financially stable in a year?
 - Quantitative data: number of automobiles that will need to be sold in the next 20+ years to get Ford's return on investment in this project
- How many sole ownership paying users would Ford need to be financially stable and in how much time?
 - Quantitative data: research the amount of money that would need to make one automobile (with all combined features) - the cost calculated would have to be per each automobile rideshare service as a baseline.
- What is the variation in cost of parking in specific areas (such as downtown, countryside etc.) ?
 - Qualitative data: research the cost of parking in different cities, different areas of city
- How much would it cost the user to buy insurance?
 - Quantitative data: research the cost of insurance Ford has right now, what it would cost Ford for insurance if they transitioned into a rideshare-self-drive automobile service, with additional features.

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- What are some ways to make people with low credit score and short credit history be able to buy automobile without having a cosigner?
 - Quantitative data: calculating the median credit score and credit history of people between the ages of 18-25 years (millennial generation).

4. Legal:

Problem: New and innovative ideas may come across unexpected legal challenges when attempting to push those ideas to the market. It is important that Ford has a strategy to prepare for those legal challenges.

Questions:

- What are the liability issues surrounding driverless automobiles?
 - Data: look into past lawsuits, current laws involving liability of automobiles.
- Are there any legal issues related to company partnerships that might apply to the Ford Motor Company if they partnered with a rideshare company?
 - Data: look into past lawsuit, current laws involving company partnerships
- Are there any tax break incentives involved in the development/production of certain types of the environmentally friendly automobiles?
 - Data: look into past lawsuits, current laws involving liability of automobiles
- What are the legal issues that Ford will have to go through to get their autonomous automobiles on the road?
 - Data: Qualitative data looking at legal documents and government regulations that the automobile must pass., Look at the SELF DRIVE act current status in Congress and look at the progress of similar bills, look at the history/success of related issues

5. Accessibility:

Problem: The technology industry is focusing on designing products for enabling the disabled. Ford can take cue, and make sure that their products are Universally Designed.

Questions:

- What are the different kinds of problems that people with disabilities suffer while using automobiles?
 - Data: Qualitative research on feedback from people with disabilities and their associations while using automobiles.

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- What is a cost efficient way to make *adapted* automobiles?
 - Data: Quantitative analysis on the amount required to make adapted automobiles, for the major disabilities.
 - What are some basic features in automobiles that can help people with disabilities, without external aid?
 - Data: Qualitative research on the features added by people with disabilities to their automobiles regularly.

TEAM MEMBER ROLES

- **Project Manager (1):**
 - PM will oversee the whole project and will lead the team to successfully complete the project. The PM will be in charge of meetings, enforcing deadlines, and communicating with team members on changes and updates. PM will help to answer any questions and clarify any confusion that may occur.
- **Paralegal (1):**
 - Focuses on researching the current legal regulations behind the technology, sustainability, and affordability aspects of automobiles.
- **Data Scientists (3):**
 1. **Technology :**
 - a. The data scientist will be in charge of researching how to innovate Ford cars into self-driving automobiles.
 - b. They will explore the making of self-driving and ride sharing automobiles, keeping in mind the current scenario of both features in the tech world today.
 2. **Production :**
 - a. The data scientist will be in charge of analysing data of the making of the automobiles.
 - b. They will research the necessary parts and resources that will be needed to help Ford make automobiles according to the strategies that are required for making automobiles more sustainable and accessible to all.
 3. **Financial :**
 - a. The data scientist will explore all aspects of how much it is going to cost Ford to make this strategy into a reality.
 - b. Needs to research questions ranging from the cost of transitioning into an automobile service to how many automobile services would Ford need to be stable in one year.
 - c. The data scientist's research will explore all avenues of finances and help to break down any money questions or concerns Ford might have.
 - d. Create a prediction model on how inflation would affect all calculated costs in the coming 20+ years.

BUDGET

	Details	Costs
Infrastructure & Software	This consists of data storage, servers, network and monitoring tools (tools such as, ETL (Extraction, Transform and Load) or Hadoop, real-time database and visualization).	\$157,000.00
3 Data Engineers/Scientists	All need to be engineers who are experienced with Big Data.	\$300,000.00
		\$457,000.00

Even though the cost of doing a Big Data Analysis project to develop a strategy may seem too expensive for a simple strategy development, previous research has shown that Big Data is bound to bring its return on investment. This is because the result of this analysis will make Ford have a concrete idea about what it is that millennials want to see in the automobile industry, and how Ford can fulfill their needs for at least the next two decades. It is important to realize that Big Data Analysis is a long term investment project.

RISKS

- **Data Error :**
 - The data collected could be irrelevant, out of date, or erroneous data. This not only adds to the growing cost of storing the data and ensuring compliance, it also leads to large amounts of data that can become outdated very quickly.
 - **Contingency Plan:**
 - Putting down sufficient time on designing the project strategy.
 - Making sure that the data collected is insured, relevant and the data engineers proofread the abstracts of the datasets before starting analysis.
- **Analysis Error:**
 - Misinterpreting the patterns shown by the data and drawing causal links where there is in fact merely random coincidence is an obvious pitfall. In addition, there could be confirmation bias, which is easily imposed when the analyst will come to a project with pre determined ideas about what they are looking for and is blinded to the insights from the data that go against these preconceived notions.
 - **Contingency Plan:**
 - Ensure that one is implementing all best analytical practices procedures from top to bottom throughout the project.
- **Legal Issues:**
 - For safety concerns the government may add age restrictions and regulations that require people to take some type of exam before using a self-driving rideshare automobile.
 - **Contingency Plan:**
 - Designing an exam that would be similar to the one that people have to go through now such as knowledge test, and driving test.

- **Fear of the Technology:**

- Self-driving and rideshare automobiles together are a new experience for customers around the world. In the pilot stage of this automobile, there would be many users who would fear driving in an automobile driven by a computer program.

- **Contingency Plan:**

- Ford would have to make sure that the user experience and interface ensures that the automobile is a safe place for all, and building a relationship of trust would be extremely important. This would include having multiple test runs of the automobiles before making them ready for consumer use.

- **Losing the ownership:**

- Many customers would complain that the rideshare feature makes them lose their sense of ownership of a personal automobile, because they are unable to have an automobile that belongs only to them.

- **Contingency Plan:**

- It is essential that Ford makes the customers realize that the rideshare feature is there to reduce the environmental impact of the automobile while making it more cost efficient, however, the automobiles would be available for sole ownership purchase as well.

SCHEDULE

	Number of Months													
	1	2	3	4	5	6	7	8	9	10	11	12		
Steps to Decision														
Create data collection plan		10/31- 12/15												
Collect data											12/16-8/15			
Process data and extract relevant information	8/16-10/15													
Make decision on which path to take	10/16-10/31													
When members of the Ford Motor Company will be needed														
Employees with relevant skills (machine learning, environmental experts, etc)			11/1-11/15											
High- level decision makers				11/16-11/30 and 10/16-10/31								10/16-10/31		

CONCLUSION

Our team strongly believes in our vision for the future of Ford. We want Ford to be innovators and creators that help build and shape the future for many years to come. The dying industry of automobile sales does not have to affect Ford; Ford can explore new avenues of expansion and growth to compete with other growing technology influenced automobile industries, such as Tesla and Lyft/Uber. Implementing our plan will not only help save the future of Ford but also transfigure Ford into a leading innovator for the entire automobile industry.

CITATIONS

- <https://www.recode.net/2017/5/23/15681058/digital-car-automotive-industry-software-are-designed-disruption>
- <https://www.motherearthnews.com/green-transportation/electric-cars-zmaz06onzraw>
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- <http://www.history.com/this-day-in-history/fords-assembly-line-starts-rolling>
- <https://www.americanbar.org/publications/youraba/2015/october-2015/are-we-there-yet--the-legal-aspects-of-driverless-cars.html>