Google self driving car marketing plan

Business, Company

Grand Challenge and its SIS$2 million prize from the United States Department of Defense. The team developing the system consisted of 1 5 engineers working forGoogle, including Chris Rumors, Mike Montenegro, and Anthony Elevation's who had worked on the DARPA Grand and Urban Challenges [1-2, 8, 10]. The Google self-driving car is equipped with an autopilot system, and capable of driving from one point to another without aid from an operator [3-4].

Our focus in this marketing plan will be on enterprise businesses, rather than only solutions for individual end users. Google is already in the enterprise market. Our marketing plan starts with the product itself and product analysis. And then, aTechnologyAssessment is discussed and the product propose, components, features, ND values provided to enterprise customers are explored. The market analysis shows potential customer segmentations. The decision of choosing targeted early adapters and early majority is explained, and the technology adoption lifestyle curve and crossing the chasm are illustrated.

In the customer analysis section, the targeted customers in depth by giving a definition and exploring their activities are explained. The role of self-driving technology in the work process is shown, and the customer perceptions are investigated. The competitor analysis section gives a imitative landscape to map Google's competitors by giving an in-depth elaboration on every competitor's pros and cons and their place in the landscape position and uses the SOOT analysis to show Google's points of strengths, weaknesses; current and potential opportunities and source of threats.

The market strategy talks about positioning, promotion, and distribution. Thefinancesection illustrates the product pricing, costs, revenues, revenue allocation estimates, expenses budget, and customer value pricing. Company Overview Larry Page and Sergey Brine, two PhD students from Stanford University, founded Google because they wanted to help solve really big problems using technology. Google, incorporated in September 4, 1998, is a global technology company focused on improving the ways people connect with information. The Company generates revenue primarily by delivering online advertising.

The Company's business was focused on areas, such as search, advertising, operating systems and platforms, and enterprise [5]. In order for Google to achieve theirgoals, it strategically acquired more software and internet companies. The Company competes with Microsoft Corporation, Yahoo! Inc. , Faceable, Inc. , Twitter Inc. Amazon. Com, Inc. And eBay Inc. Google X, located in Bay area of San Francisco, is a secret facility to experiment with futuristic ideas. It has about 100 employees and generates hundreds of ideas each year.

The lab selects only one or two ideas each year and implement those selected ideas. It birthed such as the augmented reality glasses, self-driving car, space elevator, and Web of things [6-7]. Partnerships and Strategic Alliance Google implements the same business strategy as Nexus business model to their Google self-driving business model and initially they partner with Toyota to cultivate heir self-driving technology in the automobile

industry. Google and Toyota create horizontal partnerships, and provide Jointly used and complementary products.

This will lead Toyota to revolutionize its car industry to bring the new experience of driving to its customers. Partnering with Toyota, gives Google an access to the automobile market by using the Toast's distribution channel, reducing the primary investment for them to enter the market. This will further cut down their risk of investing alone in this new innovation. Toyota as partner will provide the services such as updating the software, maintenance of the self-driving car. Product Analysis Product value According to the WorldHealthOrganization, more than 1. Million lives are lost every year in road traffic accidents. We believe our technology has the potential to cut that number, perhaps by as much as half. We're also confident that self-driving cars will transform car sharing, significantly reducing car usage, as well as help create the new " highway trains of tomorrow. " These highway trains should cut energy consumption while also increasing the number of people that can be transported on our major roads. In terms of time efficiency, the U. S. Department of Transportation estimates that people spend on average 52 minutes each working day commuting.

Imagine being able to spend that time more productively. We've always been optimistic about technology ability to advance society, which is why we have pushed so hard to improve the capabilities of self-driving cars beyond where they are today. While this project is very much in the experimental stage, it provides a glimpse of what transportation might look like in the future thanks to advanced computerscience. And that future is very exciting.

Advocates of self-driving cars promote the safety of computer controls and the environmental benefits of more efficient travel.

For his part, Ford envisions that the features of self-driving cars will change transportation as much as the various new types of perpetrations, from electric to hydrogen, which will propel them. He underscored the urgency of figuring out self- driving because of sheer population growth as well [6]. Technology Assessment The Google self-driving cars use video cameras, radar sensors and a laser range finder to " see" other traffic, as well as detailed maps collected using manually driven icicles to navigate the road ahead.

This is all made possible by Google's data centers, which can process the enormous amounts of information gathered by the cars when mapping their terrain. The system combines information gathered for Google Street View withartificial intelligencesoftware that combines input from video cameras inside the car, a ILIAD sensor on top of the vehicle, radar sensors on the front of the vehicle and a position sensor attached to one of the rear wheels that helps locate the car's position on the map. The system components are: 1. ILIAD 2. Video Camera 3. Position estimator 4.

Radar Mostly everyone has seen or heard about Google's drivers car. People want to know what is on top of the now famous cars. The cars navigate by a technology called ILIAD and the device seen on the roof is a ILIAD sensor. Though it may seem futuristic for a car to run on total autopilot, actually the technology behind it has been in use for several years. The Google drivers car is predated by " Stanley' which was developed in 2005 by Sebastian

Thru, the director of the Stanford Artificial Intelligence Laboratory, who is now employed by Google.

The car won a $2 lion prize, taking first place in the 2005 DARPA Grand Challenge, which is a Department of Defense sponsored competition for drivers vehicles. Thorn is also responsible for developing Google Street View. The Google car combines GAPS, video information from Street View with the ILIAD sensors information and information sent from radar sensors on the front of the car. The car also has an additional sensor on the rear wheel which locates the vehicles position on the map. Currently, Google is testing seven drivers cars.

Six of the cars are Toyota Presses and one is an Audio TTT ILIAD is an acronym for Light Detection And Ranging. It is similar to radar, but instead of using radio or microwaves it uses light in the form of laser pulses. It can determine distances by measuring the time between when a pulse is sent out and when it is reflected back. One main advantage of ILIAD is the ability to discern and detect smaller objects than radar. It can pinpoint objects that are invisible to radar and also provides much higher resolution than radar which enhances mapping of physical features.

ILIAD has become better known because of Google's drivers car. But it really is not some futuristic technology that Google has developed. In fact, some cruise control systems are already taking advantage of this technology. These systems use a ILIAD sensor, which is mounted on the bumper. The device measures the distance between the car and any cars in front of it. If the distance is too close the system automatically adjusts its speed

downward. You will probably have to wait a while before you can buy a drivers car.

Google's drivers car is still in the experimental stage. Google has said it has no plans to develop the car commercially at this time. Some of the knowledge and data gained may begin to make its way to auto manufacturers and may start to be implemented. There could be some legal problems with the cars as well. The California Department of Motor Vehicles said that all laws assume a car is human operated and the drivers cars are " ahead of the law in many areas. " The Figure 1 shows a self-driving car and explains its components.

Figure 1: A sell-driving car SOOT analysts The name says it: Strength, Weakness, Opportunity, and Threat. A SOOT analysis guides us to identify the positives and negatives inside the technology (S-W) and outside of it, in the externalenvironment(O-T). Developing a full awareness of the technology can help with both strategic planning and decision-making. Strengths * Google/Toyota brand - Google owns one of the most powerful brands in the world, so popular that the company 's brand name is used as a verb. Toyota was the first car brand in the world [21-22]. Pioneering drivers technology - self-driving pioneer (Sebastian Thru) * Existing Google Products [13] - Google owns some supporting technologies such as Google map * Financial stability [14] - Google is manically very solid, it generates big cash flows from its online advertising business. Weaknesses * Privacy issues - Drivers Cars may create a thread to personal privacy [17]. In the drivers mode, you immediately start exposing sending great quantities of revealing

information. * The lack of credibility - Google isn't a car manufacture, so it should partner with other car manufactures. Climate constraints [9, 20] - Snowon the road causes the car not to able to stay positioned on the road; the car encounters a change in a road that is not yet reflected in its onboard map. * Lack of wariness of manual instructions - The car drives though construction zones, accident zones, or other situation which a human control is needed. Opportunities * Advertising business - Google has a very valuable and unique asset in online advertising business. Google can expand the advertising business into every Google powered self-driving cars. Revenue from services - Google self-driving technology can help Google integrate Gamma, Chrome, Google Docs and Google Maps into the car services. The company owns an enormous ecosystem of services and applications which offer plenty of opportunities for further growth. Adaptability - Google self-driving technology can be used in any cars technically. Threats * Prone to be hacked [19]: self-driving cars pose new safety risks, because computers are vulnerable to something that human drivers are not hackers. Competitors [8, 11, 12]: * Mercedes: Mercedes-Benz claims it is in the best position to win the race to create the world's first customer-ready self-driving car. Mercedes' first self-driving car or 'autonomous car' will be available to consumers in 2013 in the all-new S-Class series with a starting price tag of $ASSESS, OOH [16]. * Audio: Audio shows off self- riving, self-parking AY Avian and RSI Sportscast [24]. * Cadillac: Cadillac of the General Motor Company is working over its " super cruise" feature would be a step to * Ionians, Volvo, and BMW: They also have plan to semi-autonomous cars [15]. Provide to self-driving cars [25]. Legal Issues: Rob-cars may face a new threat from lawyers and

Union [18, 23]. Figure 2: SOOT analysts Value Proposition " Wheels On Demand - Safe, Economic, Productive" The value proposition statement above says it all. The Google drivers car provides safe, economic and productive transportation to anyone. People who are disabled ND people without a driver's license can travel using a Google car. Safety We believe that the Google driver-less car will provide safe transportation to customers and save millions from death and injury by reducing traffic accidents. We estimate that the Google car can reduce accidents by 90%.

In fact, we also estimate that the Google car can reduce, wasted commute time and the number of cars on the read by 90%. To put those claims in perspective [27]: About 5. 5 million motor vehicle accidents occurred in 2009 in the U. S. , involving 9. 5 million vehicles. These accidents killed 33, 808 people and injured more than 2. Million others, 240, 000 of whom had to be hospitalized. Adding up all costs related to accidents-? including medical costs, property damage, loss of productivity, legal costs, travel delays and pain and lost quality of life-? the American Automobile Association studied crash data in the 99 largest U.

S. Urban areas and estimated the total costs to be $299. 5 billion. Adjusting those numbers to cover the entire country suggests annual costs of about $450 billion. Now take 90% off these numbers. We are claiming that the Google car will save almost 30, 000 lives each year on U. S. Highways and reverent nearly 2 million additional injuries. We also claim that it can reduce accident-related expenses by at least $400 billion a year in the U. S. Even if

we are way off, the improvement in safety will be startling. Economics The economic advantages of owning a Google car or a fleet are plenty.

Following are just a few of the benefits for fleet owners or for businesses operating in the personal transportation segments. 1 . Better use of cars a. Since the cars can drive themselves to the customer, it will be easier to keep them utilized at any given time. 2. Reduced land usage b. For customers that own fleets of cars, while most cars are parked in large parking lots waiting to be driven, a Google car can drive itself to the customer and hence land can be used more economically. 3. Reduced cost per trip c. The Google car can be programmed to operate at the best fuel efficiency.

Since there is no human driver involved, fuel efficiency is guaranteed. D. Billions of dollars saved in fuel costs 4. Wider geographic boundaries e. Some businesses like the Zip Car are limited by accessibility to customers. Owning a fleet of Google cars obliterates this drawback, because Google cars can rive themselves to customers wherever they are. Thus, the geographic footprint can be increased dramatically. Productivity Every trip in a Google car can be a productive one. Business travelers as well as individuals can now do a lot more during a commute.

Following are Just a few examples: * Catch up on e-mails during the commute * Read the Wall Street Journal (or any newspaper/magazine for that matter) * Watch your favorite TV show on Nettling In essence, while the Google car chauffeurs the customer around, they can indulge in any distraction that is considered illegal while driving today. The tolling texture summarizes the value proposition of Google cars. The 'Solution' is a solution

for our immediate customers I. E. Avis, Hertz and Zipper. On the other hand, the 'Experience' is an experience for our secondary customers I. E. People renting cars from Avis, Hertz and Zipper.

Experience Solution Feature Self-driving * No fear of cab drivers * No fear of driving in a strange new city * Improved Productivity * Write E-mails * Watch Movies * Read Newspaper * Phone conversations * Touring Mode * Increased Safety * Increased Fuel Efficiency * Reduced accidents * Reduced number of vehicles Larger geographic footprint * Larger customer base Product Google Car Experience Figure 3: Value proposition pictorial summary Market Analysis Market Demographics In an effort to find the right match of customers, the team decided to analyze and to find states and cities that have the densest population.

Our research determined that Zippers have more rental cars in dense populations unlike cities that have a smaller population. Using a similar model, we are hoping to launch self-driving cars within a dense population so that customers will be more aware of the product and e willing to adapt to this technology. According to the Census Bureau in 2010, five states (California, Texas, Florida, Illinois, and New York [46]) were labeled to have the largest populations in the United States. We intend to follow the state laws recently put into place for users to utilize self-driving cars on public roads.

As of September 2012, there are only three states (California, Florida, and Nevada [48]) have passed laws permitting self-driving cars. A law has been proposed in Texas to establish criteria that would allow self-driving cars to be

driven on roads [49-50]. Nevada doesn't have a heavy dense population compared to the other major states as it roughly has a population of over 2. 7 million people [46]. Even though the other two states have nearly over lox the amount of Novena's population, we don't want to Just limit ourselves to states that have the heaviest populations.

Great data can be collected from a state that doesn't have such a large population. At this moment, we will allow Google and Toyota to decide their course of action and which cities and states they choose to launch their vehicle. We are hoping that after phase 1 that there states follow California, Florida, and Nevada (phase 2) and implement their own laws to allow self-driving cars to be driven on their public roads. Market Trends Over the years, car manufacturers have been making automobiles more automated with technologies such as self-parking and adaptive cruise control.

Our focus here is to highlight some of the major semi-autonomous technologies that have reached the early majority on the Technology Adoption Life Cycle (TALC) model over the last decade. We are aiming the early majority due to the fact that this group is motivated y evolutionary changes to gain productivity enhancements. The semi-autonomous vehicles that we have identified have become reliable and proven results on the market so much that many car manufacturers have followed each other's footsteps to implement changes into their own vehicles.

As of 2013, many models only have features that offer narrower functionality as fully autonomous vehicles have not yet been available to the public. These functionalities include: night vision (increases a driver's perception

and seeing distance in darkness), adaptive cruise control automatically adjusts the vehicles to maintain a safe distance from vehicles ahead), self-parking (assists the driver in the task of parallel parking), and lane guidance (monitors the vehicle's position in the lane and either warns the driver when the vehicle is leaving its lane, or less commonly, takes corrective actions).

We have constructed a timeline that illustrates how automobiles are becoming more sophisticated over time. Our research indicates that by 2015, Google will have a functional self-driving car that the public can purchase. 2004 2006 Adaptive Cruise Control & Self-parking Night Vision Self-Driving Technology Lane Guidance 2007 2015 2004 Figure 4: Market trends Changing Laws One of the concerns in getting the Google car to market has been that the traffic laws were designed with the assumption that there is a human driver behind the wheel.

With self-driving technology this landscape changes completely. Google has been lobbying in Washington D. C. And at other agencies to modify the laws to promote self-driving. As a result, the U. S. Department of Transportation's National Highway Traffic Safety Administration (NATHAN) has already announced new policies nickering vehicle automation, including its plans for research on related safety issues and recommendations for states related to the testing, licensing, and regulation of " autonomous" or " self-driving" vehicles [42].

Market Needs After a thoughtful assessment of customer perceptions and expectations, survey questions were created to fully understand the expectations of self-driving cars. Our expectations of the survey include

learning about the attributes that customers favor and whether or not those attributes are conclusive with the research already done. The feedback results received from the survey have confirmed our findings that customers desire features of self-driving cars.

For consumers, the features that make self-driving cars valuable include: * Safety * Reliability * Accuracy * price * Ease of use * Accessibility The preferred features weren't surprising due to the fact that the product is still in the Innovations stage of the TALC model. Safety and reliability were the top most wanted features out of the entire list at 64%. Even though most of the users yearn to have these features in self-driving automobiles, and would like to buy a Google car at some point in the near future, they won't be early adopters, but more so the early majority.

This means that most people prefer to wait and see if other people are using a product before purchasing or renting it themselves. Many of the people surveyed also want to wait for the price to drop since most users won't pay more than for the self-driving technology as an add-on package. Conducting this survey has helped us identify key value factors to better understand which features of self-driving automobiles are more important to users. Customer Segmentation Figure 1 below summarizes the plan to break down the Total Addressable Market (TAM) down to the Selected Addressable Market (SAM). Each market segment has a