
Customer perception towards tesla electric car's innovative features

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Abstract: This paper is titled as the customer perception towards Tesla electric cars innovative features. The objective of this particular research was to study the minds and thoughts that the customers had towards electric cars. Electric cars are the future living cars that will be established soon for the customers experiences. The study involves descriptive methodology with the help of primary and secondary data and the survey was taken from 76 respondents, the target audience, the customers for the analyzing purposes. Further the finishing were calculated with the help of statistical tools.

Keywords: Customers perception, electric cars, Tesla, environment friendly, innovation

INTRODUCTION

Tesla Motor is an American automobile brand named after Nikola Tesla, who was a prominent electrical engineer and inventor. Probably, he was the one who created the alternating current. In collaboration with Thomas Edison, he introduced the most effective way of transmitting power over long distances. AC motors are found in Tesla Roadsters, by the way. This engine emerged from the version introduced by Tesla in 1882. A modern creative brand was born by Martin Eberhard and Marc Tarpenning, which is currently being sold in its original form. Tesla says that Autopilot gives you more confidence behind the wheel, boosts your road safety, and makes travelling on the highway more fun. Although fully driverless cars are still a few years away, when conditions are clear, Tesla Autopilot operates a lot like the systems that aeroplane pilots use. The driver is also accountable for, and finally in charge of, the vehicle. In addition, Tesla provides the driver with intuitive access to the data it uses to monitor its behaviour. The autopilot technology that drives the Tesla Model S and Model X electric vehicles, along with the normal mix of crash avoidance technology such as Advanced Driver Assistance Systems (ADAS), which performs emergency steering and braking, helps cars to steer autonomously, change directions, navigate vehicles and curves, and park automatically in the garage. The essence of these cars in the mass market is boldly distinct from any of the other production vehicles out there. Tesla has released version 7.0 of its Model S app, which is a software upgrade for Tesla's autopilot hardware for Model S and Model X production vehicles, allowing vehicles to use data from nearby cameras, radar and ultrasonic sensors to automatically guide the highway, shift lanes and alter speed in response to traffic conditions. Model S or Model X searches for a parking spot and parallel parks on the driver's order until the driver arrives at the destination. In the latest Autopilot, the new driver-focused architecture of the instrument cluster reveals the real-time knowledge used by the car to intelligently determine the behaviour of the vehicle according to its environment at that time. The driving behaviour of each Tesla vehicle, when travelling through various road conditions, is shared with its central server alongside the autopilot feature. A new feature upgrade is being created and released for every other Tesla car in the world based on machine learning and Tesla concept engineer advice. The Instrument panel offers a path visualisation as defined by the sensors of the vehicle, supplying drivers with the details their car uses with features such as lane departure, blind spot detection, speed assist, crash warning, adaptive cruise, and auto steering. Based on previous studies conducted on self-driving vehicles (not yet marketed) and hardware resources available to the consumer industry, which activates Tesla's autopilot capabilities, we propose our views and assumptions on the operation and operation of individual autopilot hardware modules.

Tesla in India

Tesla, the electric car-making company of Elon Musk, is scheduled to begin selling its base model in India soon. It is the first step for Musk's company to enter the electric vehicle (EV) market in India before further expanding. Though the news of Tesla's entrance into India has left many of its fans in the country jumping for joy, capturing the market will become the company's biggest challenge to date. Recently, the company registered to open an office in Bengaluru City. A Bloomberg report suggests that Elon Musk is opening showrooms and probably a factory in negotiations with other Indian states. According to the Bloomberg report, less than 1% of vehicles sold

in India are electric vehicles. The real challenge for Tesla would therefore be to build a niche for itself in India's fuel-dominated auto industry.

REVIEW OF LITERATURE

(Eberhard and Tarpennig, 2006) This article deals whether these cars produce pollution and how much these electric cars produce pollution per mile. Comparatively these electric cars are significantly more efficient and pollute less than all alternatives. This paper investigates the Tesla Roadster as well which uses commodity lithium-ion batteries instead of lead-acid batteries or nickel metal-hydrate batteries. These cars have astonishing performance and superior convenience. Lithium ion batteries are a lot more difficult to use than previous technologies. Tesla cars are making more and more efforts for making safe, light, and durable lithium ion battery systems. The energy and power density of lithium ion batteries make this effort very worthwhile. These energy contents are of the source of fuel such as coal, crude oil or natural gas as it comes from the ground. The energy content of this fuel is converted to its final fuel product as gasoline or electricity subtracting the energy needed to transport the fuel to the car. Finally, the fuel efficiency of the car itself is used to complete the equation. (Wakabayashi and Ramsey, 2015) Tesla company positions itself as a software company. Tesla provides its sales and marketing by sending the software directly to its cars over its wireless connection. These software analyze the driver's route and even their road condition and even alerts the driver whether they are going out of the location. The new software also feature blind – spot detection, emergency automatic braking, which helps the driver in preventing them to drive at high speed and these software also uses the personal information of the user. But, these features are been applied only on private property not on public roads. These models have more types of autonomous driving, except more possibly in complex environments. Tesla has an ability in updating its vehicle, these updates are being growing significant now-a-days. The latest update will allow the car to communicate with the company's system of fast charging location called as super chargers.

(Wilberforce et al., 2017) This research paper says that electric cars are now the most leading cars with a lot of customers welcoming it. It states that electric cars can create a better environment and use the renewable resources well and fine. It stated that the journey of electric cars weren't so easy at the beginning due to the cost of the cars. As the time passes, they came up with a better battery technology and automotive technology advancement in the cars for high performance. These cars are becoming worlds welcoming car due to the reduction of emission and a forward economic development. Electric cars are also the Green vehicles that use renewable resources as the main source of fuel. These cars added up with more and more features development for it's better performance and as well as eco-friendly. The author also states that electric cars are the future. (Silva et al., 2018) India is starting work on the country's journey of introducing electric vehicles with the goal of flashing all electric vehicles by 2030. In the overall electric vehicle implementation cycle, buyers are among the important people. The order to create consumer demand for electric vehicles, there will be electric cars. As also noted, a need for consumer incentive system, motivation and promotion benefits, the lot of nations active in the global production of electric vehicles have given different forms of incentives for different parties to support Application of electric vehicles. E-mobility going to plan's best solution standards. In fact, all these will have to be done in a time-bound and organized way. This article presents an overview of the country's electric vehicle changed economic, international electric vehicle activities, electric mobility issues, and its policy constraints. (Ferreira, 2019) This business case is inspired by the strategic choices taken by Tesla though Constructing and developing an empire in the global market for electric vehicles. In the early step of the space technology process, the small electric vehicle sector of the global automotive industry is already placed. Overall, the case of Tesla perfectly shows the collection of competitive steps taken by businesses in markets with network externalities, in terms of supplement management, requirements and the consumer base built to fight the battle for critical mass. We believe that Tesla has built a platform that exceeds traditional vehicles. Organisation to allow the vehicles to travel along the growth path of innovation.

(Thomas and Maine, 2019)) The Environmental issues is well viewed as a crucial and growing review culture. The Major Contributor Climate change is emissions from automation vehicles. In the automotive industry Tesla Motors' entry and growth has produced enormous changes. What is when considering entry into an established sector, can alternative energy start-ups learn lessons. To review the literature on innovation management, the commercialization strategy of Tesla is explained by the lens of Architectural Innovation and The Advantage of an Attacker. Implications for fresh entrants are given. (Motwani and Patil, 2019) The government to get all electric cars on the road by 2030. The world's third-largest energy consumer after the United states and Republic of China. As this is taking place, transformative, along with barriers, creates. The electric vehicle continues to be associated with traditional purchase and use models. The overall impact of electric vehicle ultimately benefits the people. Electric mobility is widely seen today as a way to improve air quality and meet climate goals. The developed model is good and can be used for further prediction related to buying of electric car. (Navalagund et al., 2020)) The world of electric cars is also a good method, as it has had a direct impact on customer buying behavior. India's automobile sector is known as the world's fastest growing sector and contributes to GDP by an average of 15 percent. Compared to the new power sector in India energy is in a nascent period. The US, China and other economies in Europe. Decision to buy is affected by buyer purchasing decisions based on different options to

improve values within a set number of risks and benefits. In order to overcome the pollution to the environment, there is growing concern about the air and the acceptance of responsible actions by users. In educating youth, these makers have a large role to play. Advertising and outreach systems to limit automotive waste will make important contributions to the application of EV innovation. Our research idea is based on the rich knowledge acquired by our peer teams across the university. (A.C.Gomathi, S.R.Xavier Rajarathinam, A.Mohammed Sadiq, Rajeshkumar, 2020; Danda et al., 2009; Danda and Ravi, 2011; Dua et al., 2019; Ezhilarasan et al., 2019; Krishnan and Chary, 2015; Manivannan, I., Ranganathan, S., Gopalakannan, S. et al., 2018; Narayanan et al., 2012, 2009; Neelakantan et al., 2013, 2011; Neelakantan and Sharma, 2015; Panchal et al., 2019; Prasanna et al., 2011; Priya S et al., 2009; Rajeshkumar et al., 2019; Ramadurai et al., 2019; Ramakrishnan et al., 2019; Ramesh et al., 2016; Venugopalan et al., 2014)

RESEARCH METHODOLOGY AND ANALYSIS

The research methodology which was widely used in this research is descriptive methods. Customers as well as potential customers of Tesla cars, were chosen as respondents for this research. 100 such respondents have given their responses to the statements. A structured questionnaire was circulated to the customers to find out their opinion towards electric cars. The data collected through google forms and were then exported as excel (.cave file) and interpreted in the systematic manner through statistical package for the social science (SPSS 23.0) for the statistical analysis. Tools used were descriptive statistics, mean analysis and Anova analysis.

Demographic profile of the respondents

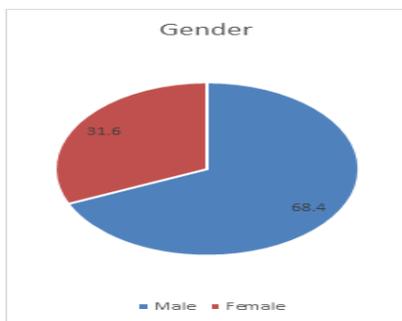


Fig.1: The pie chart depicts the percentage of gender in the sample. 68.4% of the sample were Male and 31.6 % were Female customers.

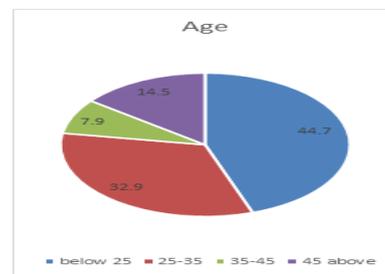


Fig.2: The pie chart describes the age of sample respondents. below 25 and above (44.7%), followed by 25-35 (32.9%), followed by 45 above and below (14.5%) and 35-45 (7.9%).

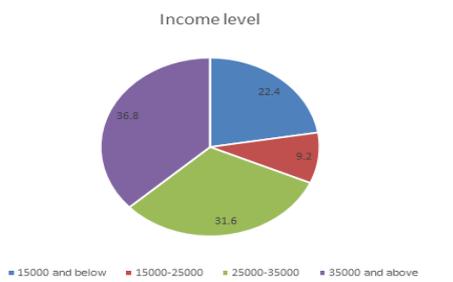


Fig.3: The pie chart describes the annual income of sample respondents. 35,000 and above (36.8%), followed by 25,000-35,000 (31.6%), followed by 15,000 and below (22.4%) and 15,000-25,000 (9.2%).

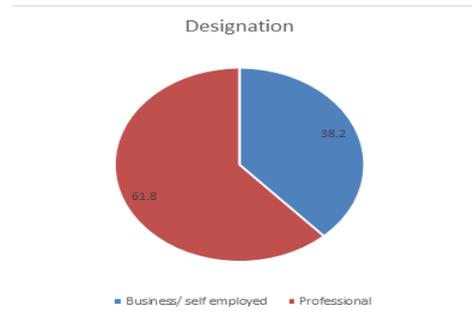


Fig.4: The pie chart shows the type of the designation that respondents have. 61.8 % of the respondents were professional and 38.2 % were business/self employed.

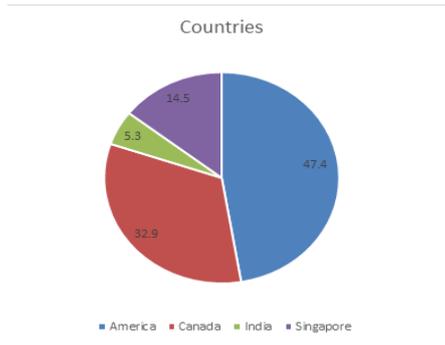


Fig.5: The pie chart shows that the respondents are from America (47.4%), followed by Canada (32.9%), Singapore (14.5%) and India (5.3%).

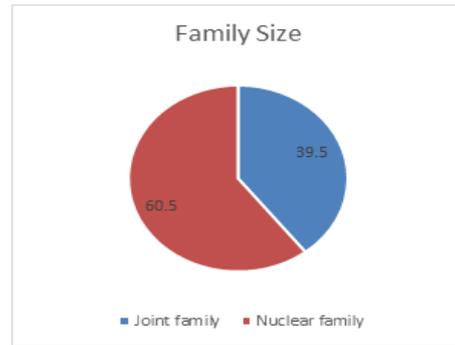


Fig.6: The pie chart shows the type of the family size from the respondents. 60.5% of the respondents were nuclear family and 39.5% were joint family

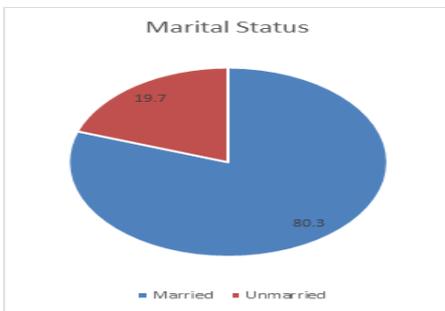


Fig.7: The pie chart shows the marital status respondents. 80.3% of the respondents are married and 19.7 % are unmarried.

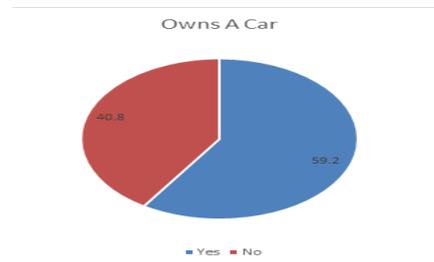


Fig.8: The pie chart shows the type of the respondents owning a car. It states the percentage has a car (59.2%) and followed by the respondents that don't own a car is (40.8%).

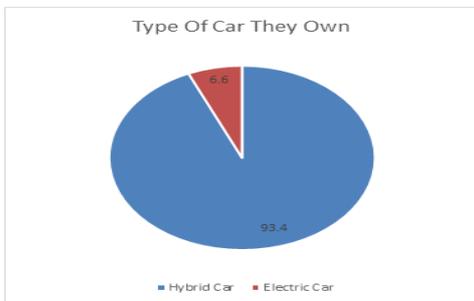


Fig.9: The pie chart shows the respondents have opted for hybrid cars of percentage (93.4%) and followed by the percentage for electric cars is (6.6%).

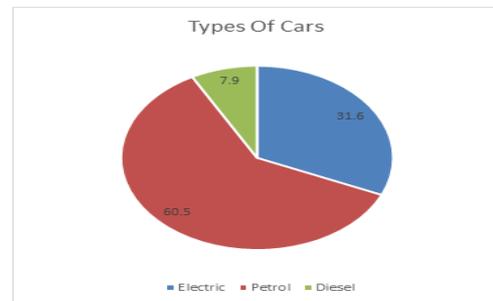


Fig.10: The pie chart shows the respondents had opted for petrol cars (60.5%) followed by the next is electric cars of (31.6%) and then finally the diesel cars is (7.9%).

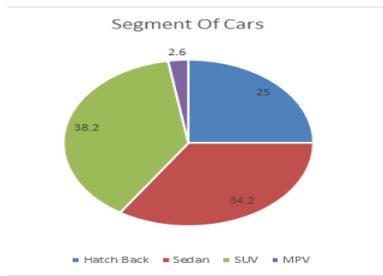


Fig.11: The pie chart shows the respondents have opted for SUV (38.2%) followed by sedan is (34.2%), then hatchback is of (25.0%) and then MPV is (2.6%).

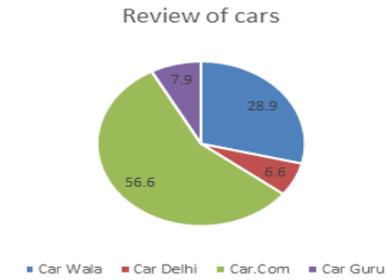


Fig.12: The pie chart shows the respondents have opted for car.com that is (56.6%) followed by car wala is (28.9%) then car guru is (7.9%) and then car Delhi is (6.6%).

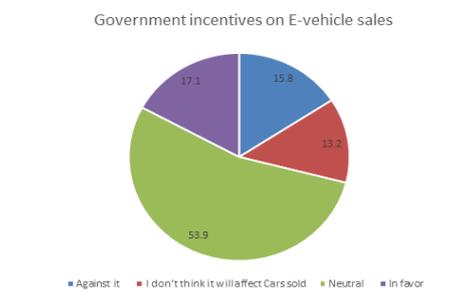


Fig.13: The pie chart shows the respondents have chosen neutral that is (53.9%) followed by in favour is (17.1%) then (15.8%) respondents have voted for against it and (13.2%) have opted stating that this will not affect the cars sold.

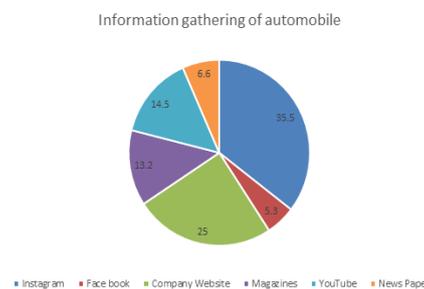


Fig.14: The pie chart shows the respondents have chosen instagram that is (35.5%) followed by company website is (25.0%) then YouTube is (14.5%) followed by magazines is (13.2%) followed by news paper is (6.6%) and finally face book is (5.3%).

Table 1: Mean analysis on impact of factors

FACTORS	MEAN	RANK
Features of Tesla	3.4671	2
Environmental Friendly	3.6447	1
Specification of Tesla	3.4145	3
Efficiency of Tesla	3.4057	4

The mean score and rank are displayed in the above table. The Tesla mean score is (3.51%), followed by Tesla features (3.18%), owning a car (2.06%), car features (1.13%). All the mean scores are lies between 2 and 3. It reveals that people like Tesla cars as it is environmentally friendly, and followed by it's innovative features.

Table 2: Perception of customers towards Tesla and the factors in ANOVA analysis

Perception of Customers towards Tesla	F value	Significance
Features of Tesla	8.263	.000***
Environmental Friendly	8.830	.000***
Specification of Tesla	10.412	.000***
Efficiency of Tesla	8.434	.000***
Perception of Customers towards Tesla	F value	Significance
Features of Tesla	.548	. 651
Environmental Friendly	1.206	. 314
Specification of Tesla	1.732	.168
Efficiency of Tesla	.234	.872

Anova analysis was conducted by comparing income level and perception of customers towards Tesla. Majority of variables are less than 0.05, hence an alternate hypothesis was accepted. There is a significant difference among Income level with respect to perception of customers towards Tesla. Anova analysis was conducted by comparing the origin of countries with respect to Perception of Customers towards Tesla. In this case all variables are less than 0.05, hence null hypothesis is accepted, and there is no significant difference among countries with respect to Perception of Customers towards Tesla.

DISCUSSIONS

From this research it is clearly evident that future prospects of Tesla cars is great and dynamic. Tesla takes pride in naming itself as one of the most innovative and problem solving organizational culture that it promotes within its company. This will certainly motivate employees to a more competitive level that will be able to develop profitable solutions with the current and emerging problems within the target market. Tesla has been extremely successful with introducing their advanced electric vehicles which certainly benefit the larger corporate culture within the market. Tesla should invest heavily in the marketing of their brand and all their product portfolio through all the social media platforms. They should also engage in developing the message of the brand as to how Tesla will create an eco-friendly revolution by their electric vehicles introduction and reducing the dependability of combustion engine cars that have been harming the global environment and have been one of the major causes for creating global warming.

CONCLUSION

A brand like Tesla will lead the race of electric vehicle cars in the future. Fossil fuels and petroleum are bound to perish from earth in the next 5 decades. The answer to the future dependency of electric vehicles and cars will certainly have one brand that is Tesla. New facilities and sales operations in high potential developing countries will enhance and provide the growth that will aim to satisfy the mission and vision of Tesla and propel the brand towards the success in the near future. In conclusion, the certain key factors that will drive the demand of electric vehicles is the cost of gasoline, the infrastructure of the availability of battery charging stations at various points and the appeal of the "green" movement which will help a brand like Tesla to penetrate to captivate segments of the market and make the brand mainstream to capture generation Y consumers at a price point where they get value for money and get connected with the brand.

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