



**UNIVERSITY
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THE LONDON SCHOOL
OF ECONOMICS AND
POLITICAL SCIENCE ■

MARKET RESEARCH PROPOSAL

For the client brief provided by Tesla, Inc.



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EXECUTIVE SUMMARY

Growth of a company is important; but what's better? Sustainable growth! The following report is a market research proposal outlined to achieve the aforementioned and aimed to attain Tesla's business objectives of acquiring market share, gaining a loyal customer base and diversification.

In accordance with the client's research brief, we aim to understand driver attitudes, brand perceptions, consumer appetites and evolving trends. It can be seen that currently Tesla has a positive outlook, however there are some areas where the firm should reassess and revamp themselves to capture the gaps in the market.

In order to gain insight into the problem at hand, a thorough examination of the electric vehicle industry was conducted to understand the business context. Thereafter three marketing decision problems and marketing research problems were formulated based on the business context. The decision maker (Tesla) will have the option of changing vehicle prices, changing promotional campaign, introducing a new product range and expanding charging infrastructure based on research outcomes.

A literature review was conducted to identify the factors influencing the marketing research problems and thereafter research questions and hypotheses were formulated. This was then summarized using an analytical model.

A research design of a combination of exploratory and conclusive research was put forward and online-based survey techniques were selected as the optimum survey method. The sampling design was comprehensively explained using the target population, sampling frame, sampling techniques and sample size. The entire design was built such that it met the requirements of the client brief and also captured the entire automobile industry so that comprehensive research can be done.

Techniques that can be used for data analysis were mentioned and well described. Different techniques were used for Tesla and Non-Tesla customers. Furthermore, the limitations of the current research and potential for future research were outlined for a clear understanding of the potential of this research. Moreover, two types of questionnaires were provided for Tesla and Non-Tesla customers.

Please refer appendix for glossary of terms and abbreviations.

1.0 BACKGROUND

1.1 Overview of Tesla

Tesla, a company based in Austin, Texas; founded in 2003, is a sustainable energy company whose primary goal is to transition the global arena to electric mobility through electric vehicles(EVs). Apart from solar panels, solar roofs and batteries, Tesla possesses a distinguished fleet of EVs consisting of luxury sedans, midsize sedans and crossover SUVs. The company wishes to reallocate their Research and Development (R&D) budget in order to exponentially inflate from its global deliveries of 936,000 units in 2021 by rolling out more affordable EVs, diversifying their existing product range, accruing market share and boosting customer acquisition and retention.

1.2 Business objectives

- ✓ Acquiring higher market share.
- ✓ Attaining a sustainable and loyal customer base in the highly competitive market.
- ✓ Further diversifying their existing product range.

1.3 Research Aims

1. *Understanding drivers' attitudes toward electric cars: -*
 - *Maximum willingness to pay* which helps to identify a suitable **price** range for each electric car model
 - *Perceived driving range limits on a single battery charge and convenient access to charging points* which helps Tesla to suitably customize and add value to their **product** and also identify preferable locations to erect charging stations.
2. *Gain better understanding of brand perceptions among motorists of different manufacturers to assist with customer acquisition and retention.* This will help align Tesla's **promotional** campaign in the right direction to capture the competitor's market.

3. *Engage in problem identification research in the **product** aspect through horizon-scanning of market potential for new product lines and evolving trends in consumer appetites.* This helps the company stay on top of trends to continuously innovate and add value to their products so that they don't become stagnant as market dynamics change.

2.0 PROBLEM DEFINITION

2.1 Business Context

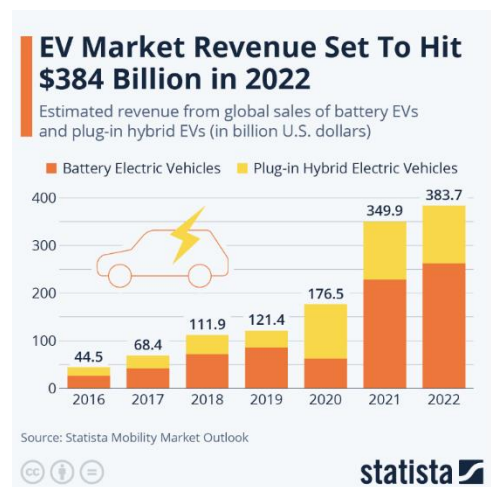


Figure-1-(Fleck & Richter, 2022)

The global Electric Vehicle (EV) market had a valuation of \$176.5 billion USD in 2020, exponentially doubling to \$384 billion USD in 2022(Figure-1) and a projection of reaching \$869 billion USD by 2027, thus registering a compound annual growth rate(CAGR) of 18.2%.(Akshay & Sonia, 2022)

The increase in demand for high performance, low emission and fuel-efficient vehicles; increasing fuel costs, reducing electric vehicle battery costs and stricter government regulations regarding vehicle emissions are **strengths** which promote the growth of the EV market. However, high

manufacturing costs, lack of charging stations and serviceability are some of the **weaknesses** that prevail in the market. Development of self-driving vehicle technology, government initiatives and AI advancements will create a plethora of **opportunities** for players in EV market.

Increase in demand for fuel-efficient, high-performance and low-emission vehicles:

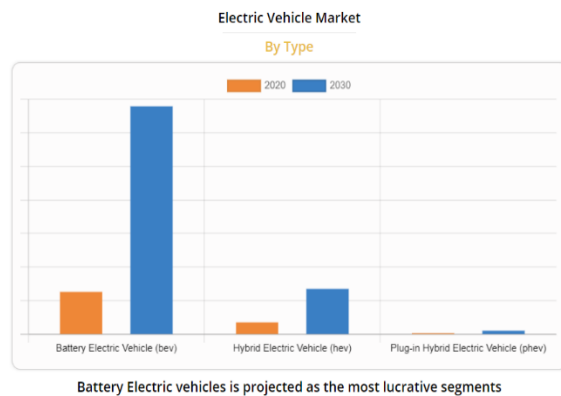


Figure-2

EVs convert more than 50% of electrical energy from the grid to power for the wheels in comparison to 17-21% achieved by gasoline. This efficiency coupled with surging fuel/crude oil prices promote the demand for EVs. Figure-2 shows the rapid surge in demand between different types of EVs between 2020-2030. Tesla should strategically capture this demand to acquire market share.

Lack of charging infrastructure:

In most developing countries, such as India, governments aim to purely have EVs by 2030 but EV charging infrastructure is currently inadequate in such countries. Even China (the biggest markets for EVs), is struggling to meet charging infrastructure requirements to charge their EV fleets. However, many private companies and governments are investing towards the development of charging networks. Moreover, time taken to charge EVs are considerably more than refuelling at a petrol station which affects journey time drastically making EVs unappealing.

Development of self-driving EV technology:

Self-driving technology is uplifting the EV market. OEMs such as Tesla, Vera, Volvo and Daimler have started developing self-driving vehicles. Tesla launched its self-driving trucks in 2022 and Daimler announced an investment of 570 million USD for self-driving EVs in January 2019. However, as we are still in its infancy, there are frequent road accidents due to autonomous driving. However, with the maturity of this technology in the next 5-6 years it will prove opportunistic for market growth and establishment of new product ranges.(Source:Akshay & Sonia, 2022)

Economic factors:

EVs are becoming affordable as battery prices decline and fuel costs rise. However, the initial purchase cost is the main barrier to wider adoption as EVs cost twice as much as fuel powered vehicles. Subsidies/tax breaks issued by governments, savings on maintenance costs and fuel make EVs more cost

effective in the long run. Running costs are lower for EVs as electricity is cheaper than fuel, although this depends on EV efficiency and local electricity tariffs.

The COVID-19 pandemic and recession has adversely affected the EV industry, with manufacturers struggling to adjust to rising inflation and forced to price EVs higher, adversely affecting the dwindling customer base.

Social factors and Demographics:

EVs are popular with consumers due to concerns about air pollution and climate change. The introduction of government regulations, policies and awareness campaigns to combat this has encouraged the uptake of EVs.

83% of Tesla drivers are males in high-income brackets falling at a median of \$85,000. Moreover, 70% of Tesla drivers were 34 years or younger (Source:Kay,2022)

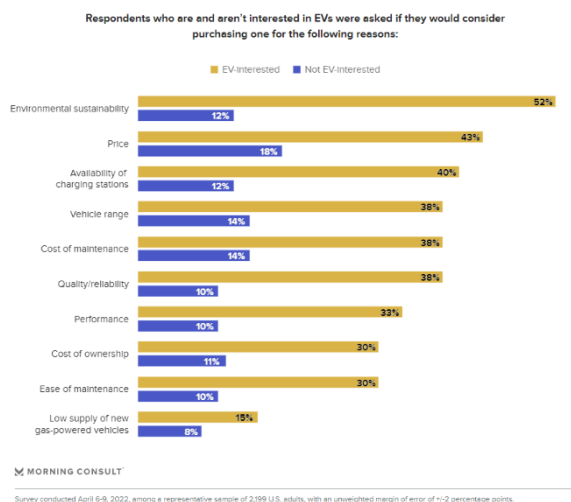


Figure-3

respondents, 38% of Black respondents, 43% of Latinos and 52% of Asian Americans” (Marpillero-Colomina,2022) saying they highly consider purchasing an EV vehicle. However, Black and Latino consumers own significantly fewer EVs due to lack of home charging stations and higher initial costs. Addressing these demographic barriers is vital to boost market share.

A study(Whalen, 2022) showed that 30% of EV-interested customers consider ease of maintenance as a factor in their purchase decision, while only 10% of non-EV-interested feel the same way(Figure-3). Hence, there is a lack of knowledge in consumers about the benefits of EVs and ease of maintenance which should be remedied with promotional awareness to boost customer acquisition.

A national survey by ConsumerReports revealed that across Americans, communities of colour have higher interest in purchasing EVs with “33% of white

Environmental factors:

Governments are imposing strict emission laws to cut down greenhouse gases(i.e.- Paris Agreement). These regulations burden fossil fuel vehicle manufacturers and thus is expected to uplift low-emission EV demand.

Majority of EV-Interested individuals purchase EVs for environmental sustainability(Figure-3), indicating that majority of customers are planet-conscious. Tesla should reciprocate this ideology to boost market share.

2.2 Marketing decision problem

1. Should the price of Tesla's vehicles be changed in order to stay competitive to acquire larger market share?
2. Should Tesla's promotional campaign be altered to boost customer acquisition and retention?
3. Should a new product range/technology be introduced or should Tesla focus on building more charging/technological infrastructure to support their existing products?

2.3 Marketing research problem

1. To determine customers' maximum willingness to pay across different customer segments for different products of Tesla.
2. Assessing the level of brand perception of different motorists towards Tesla versus other manufacturers.
3. To determine consumer appetites, preferences and evolving market trends to see if they align with the proposed new product range (technological advancements/expansion) and the effectiveness of currently operating charging points.

3.0 RESEARCH APPROACH

3.1 Literature review

(Hidru et al., 2011) states that maximum willingness to pay of EV customers depended mainly on driving range, charging time, battery capacity and fuel cost savings. People were willing to pay (wtp) \$35-\$75 for each mile of added driving range (marginally decreasing at higher distances). Hence, a high single battery mileage is of top priority. As per Electric Vehicle Database, 2022, EV ranges spanned from 95km-685km on a single charge, while the market standard was 341km. Moreover, individuals were wtp \$425-\$3250 for each hour of saved charging time. Hence, access to charging points and charging efficiency is a critical factor. Furthermore, individuals factored in roughly 5 years of fuel savings into their maximum wtp. Maximum wtp also somewhat depended on EV performance, pollution reduction and quality of after sales services.

As per (Long et al., 2018), "Respondents most frequently associate BEVs with Tesla (27%), Toyota (27%), Chevrolet (26%), and Nissan (13%)." Furthermore, more than 67% are aware of Tesla and 40% view Tesla as the future of EVs. Meaning Tesla's promotional campaign has good reach. However, the brand respondents prefer to buy from are evenly spread across multiple brands. Although consumers have a high regard for Tesla as a brand, its promotional campaign turnover rate and customer acquisition are mediocre.



Figure-4 (Source:Nagra,2021)

30% of respondents preferred to purchase an EV from a brand they already own, indicating the importance of brand loyalty and customer retention. Evidently Tesla customers are seen to return and vouch for Tesla products, depicting its prowess for customer satisfaction and retention(Figure-4).

Tesla has been perceived to be more stylish, innovative, and environmentally-friendly. With a relatively strong public image for being high-performance, trendy and attractive compared to its rivals. However, this strong perception has come at a high cost of implementation on advertising and CSR activities.

According to (Liu & Meng, 2017) consumers are hungry for innovation and Tesla is at the forefront of the technological innovation environment. Masterfully implementing quick disruptive innovation and thus capturing high-end demand, showing capability to capture evolving market trends.

(Hidru et al., 2011) states that consumers have an appetite for higher driving ranges, reduction in charging time and better performance overall. Therefore, addressing customer appraisal of limited range mobility and determining optimal EV range are crucial in the formulation of new product ranges and should be considered during R&D.

As per (Nagra, 2021) AI technology is trailblazing through many avenues. Through, self-driving vehicles which are expected to create savings of \$488 billion from preventing accidents and \$158 billion from fuel costs within the economy. Safety and performance of Tesla's vehicles are to improve through formulation of better LIDAR scanners and AI neural-networks.

(Gärling & Thøgersen, 2001) states that EVs aim to reduce pollution and greenhouse emissions.

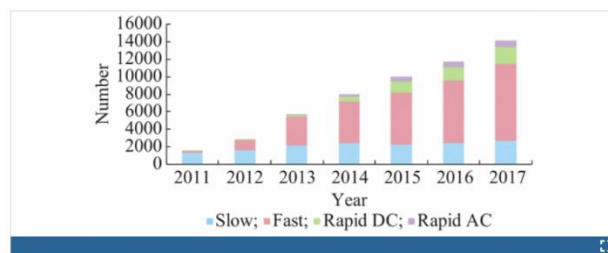


Fig. 4.
Charging points by type from 2011 to 2017.

Figure-5

According to (Chen et al., 2020), the number of charging stations have been steadily increasing from a few hundreds to thousands in a matter of years (figure-5). However, they are no match for the rate of supply of EVs. This deficit is also held back with slower charge speeds, insufficient charging ports and lack of flexibility to accommodate male and female charging plugs.

3.2 Research Questions

1. How does quality of supplementary services, EV specifications/features, pollution reduction and fuel cost savings affect maximum willingness to pay (MWTP)?
2. How does effectiveness of promotional/advertising campaign, brand loyalty and customer satisfaction affect brand perception?
3. How does AI, customer preferences, safety of EVs, environmental concerns and lack of charging stations impact technological advancement and expansion of charging infrastructure?

3.3 Hypotheses

H1:Quality of supplementary services has a positive impact on MWTP

H2:EV specifications and features have a positive impact on MWTP

H3:Pollution reduction has a positive impact on MWTP

H4:Fuel cost savings has a positive impact on MWTP

H5:Effectiveness of promotional/advertising campaign has a positive impact on brand perception

H6:Brand loyalty has a positive impact on brand perception

H7:Customer satisfaction has a positive impact on brand perception

H8:Customer preferences has a significant impact on brand perception

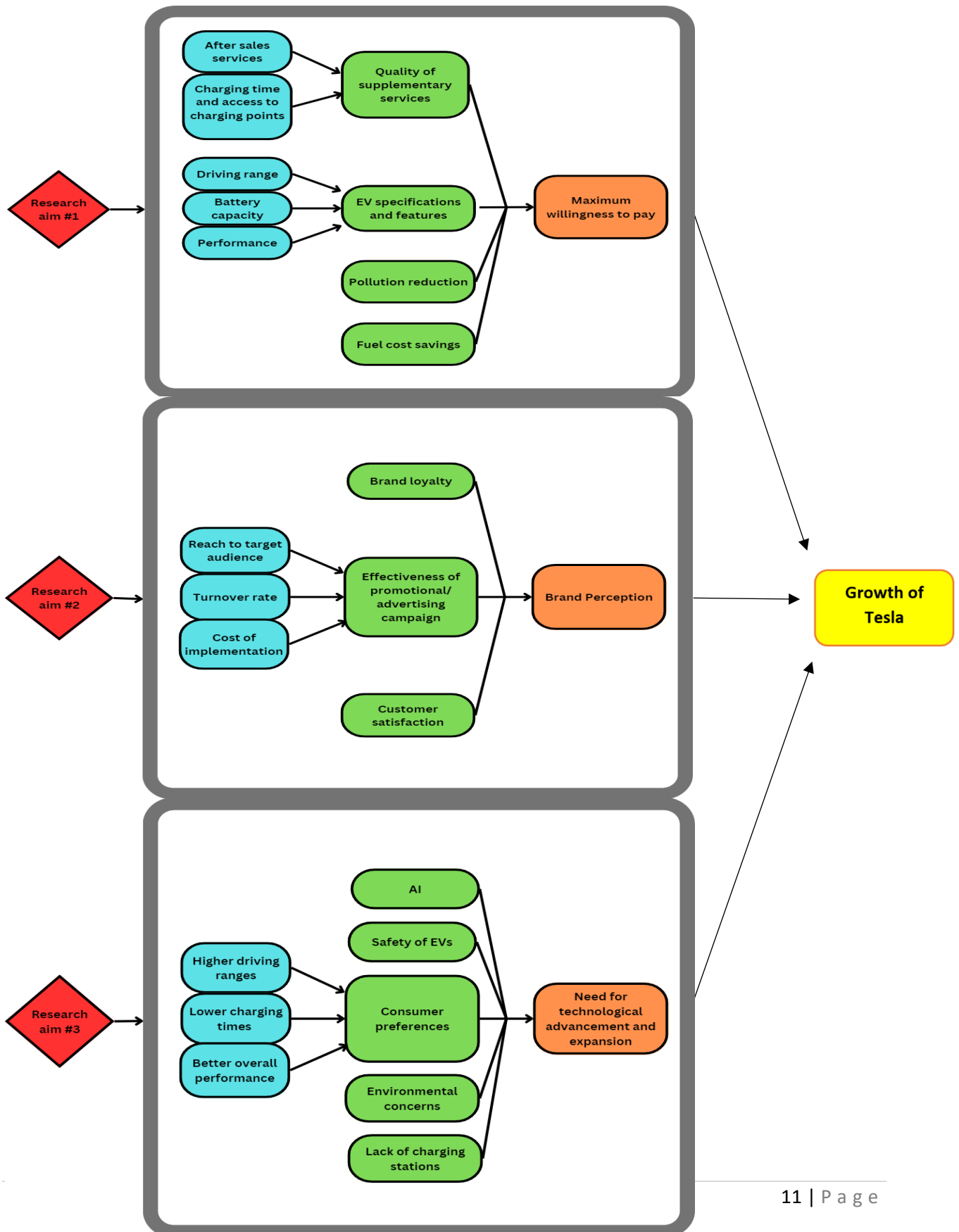
H9:AI has a positive impact on technological advancement/expansion

H10:Safety of EVs has a significant impact on technological advancement/expansion

H11:Environmental concerns significantly impact technological advancement/expansion

H12:Lack of charging stations significantly impacts technological advancement and expansion of charging infrastructure

3.4 Analytical model



4.0 RESEARCH DESIGN

The study will incorporate exploratory and conclusive research.

To understand the marketing phenomena, problems within the business and identify variables that affect Tesla and its business objectives **exploratory research** must be implemented to assist in the research aim of conducting problem identification research and horizon-scanning. Furthermore, it helps understand variables that affect Tesla/Non-Tesla customers' attitudes/opinions in order to create accurate hypotheses and create understanding for decision-making.

Conclusive research will be carried out to measure defined marketing phenomena, test above hypotheses and analyse the variables in the analytical model. A **descriptive research** design would be ideal since we aim to describe consumer attitudes and future preferences for Tesla to innovate to ensure successful product line-ups in the future. Moreover, it will help to describe consumer brand perception to identify the effectiveness of promotional strategies.

Utilizing a **multiple cross-sectional design** is most preferred as we are to analyse both Tesla and Non-Tesla customers (more than 1 sample). However, if we are able to obtain and maintain panels of consumers a **longitudinal design** will also work to capture consumer preference volatility in the long run.

4.1 Data Collection/Field Work

A survey is a good qualitative and quantitative data collection method. Data will be collected through a questionnaire surrounding the analytical model and provide a consumers POV.

Since Tesla possesses a global target audience, **online surveys** are most suitable. They are low cost, quick, flexible, can be personalized, visually appealing/interactive, without interviewer bias and can be taken from anywhere. Postal, face-to-face and telephone surveys are rather cumbersome to use due to time-zone differences, geographical limitations and time constraints.

To implement **internet surveys**, Tesla could share its link on its website and promote it via social media ensuring a high response rate from its young tech savvy consumer base and competitor customers. To improve response rate, aesthetic graphics, animations, layouts and other such visual/non-visual stimuli can be integrated.

Email surveys can be used by sharing them via email to Tesla customers using our customer database. Secondary data will have to be procured to email non-Tesla customers. Email surveys are relatively slower and have lower response rates. To combat this, monetary and non-monetary incentives such as discount codes/coupons could be offered.

5.0 SAMPLING DESIGN

5.1 Target Population

Tesla customers and Non-Tesla customers(competitor customers) are our two main target populations. “Competitor customers” include all types of Non-Tesla vehicle owners such as Battery-Electric-Vehicles(BEVs), Plug-In-Hybrid-Electric-Vehicles(PHEVs), Hybrid-Electric-Vehicles(HEVs), Fuel-Cell-Electric-Vehicles(FCEVs) and Petrol/Diesel-Combustion-Engine-Vehicles(Source:US Department of Transportation,2022).

The sampling elements will be Tesla customers and competitor customers and their extent will be at a global scale since Tesla has a worldwide customer base. Furthermore, since Tesla wishes to study the entire automobile market there will be no limitations of gender, age, income etc. of motorists as research participants. This will be feasible as Tesla has a large budget. The time period will be a window of 6 months.

5.2 Sampling Frame

Tesla’s own customer database (provided as per brief) will act as the Tesla customers sampling frame.

Competitor customer’s sampling frames can be obtained by directly contacting competitors and getting a list of customer data. However, most competitive firms will be reluctant to share such valuable information without proper incentive. Hiring a syndicated data services firm will be a cost-effective and quick way to procure competitor customer data and would likely be the most efficient option. In addition, a pre-screened global access panel could be purchased from a third-party firm. Prior to

finalizing, we must assess the adequacy, completeness, accuracy and convenience of the selected sampling frame.

5.3 Sampling Technique

Tesla customers:

Stratified sampling would be an ideal representative sampling technique. Using Tesla's customer database we can create strata by grouping homogenous customers (for instance by purchased product type, age, income level). Elements within each stratum should be homogenous while strata should be heterogenous to each other. Then within each stratum, elements can be selected using a random procedure/simple random sampling. This ensures that elements from all subpopulations are included in the sample boosting precision. Furthermore, the client has the option to classify strata based on which grouping feature they feel is most important to them. Moreover, statistical inferences which are important for conclusive research can be formulated since this is a probability sampling technique.

Non-Tesla customers:

Competitor customers are more likely to not respond. Hence, a non-probability sampling technique such as **judgmental sampling** can be used. Here the researcher can select elements based on typicality and convenience. Hence making it quick and cost-effective. However, selection bias poses a trade-off for representativeness and generalizability of findings, but since we are using a large sample, this will be negligible.

5.4 Sample size

As we are mainly conducting conclusive research a large sample size is required. As per the brief, a minimum sample size of 5000 is required. However, we adjust this value for incidence and completion rates. The average response rate for surveys is 33% (Lindemann, 2021). Factoring this in we get a sample size of 15,152 Tesla customers ensuring a response of 5000 participants.

Non-Tesla customers consist of 5 types as mentioned above in target population (5.1). Hence to ensure equal representativeness of all groups it would be ideal to select at least 15,152 individuals from each type. Thus, multiplying by 5, we have a sample size of 75,760.

6.0 DATA ANALYSIS

Factor analysis can be used to as a product research tool to determine brand attributes that influence consumer preferences. Furthermore, it can be used to understand media consumption of the target population to gain better insight on brand perception. Moreover, it can identify the characteristics of price-conscious consumers and how it affects their maximum willingness to pay. Exploring these relationships will shed light into how business objectives can be achieved. In order to implement factor analysis SPSS software will be required.

Analysis of Variance (ANOVA) can be used as a multivariate analysis technique as it can analyse the relationship between 2 or more factors. For instance, we measuring how customer satisfaction and advertising campaign affect brand perception. SPSS or SPC software can be used to run ANOVA. Purchasing this software will not be an issue due to the large budget.

7.0 COST AND TIMETABLE

This is a large budget research. The following costs maybe incurred:

- Cost of questionnaire formulation and distribution
- Cost for acquiring secondary data(Non-Tesla customers)
- Software costs
- Participation incentive costs

The research time period is 6 months.

8.0 LIMITATIONS OF CURRENT RESEARCH

The 6-month time constraint to conduct the entire research, accessing participants on a global scale, collecting responses and analysing data is somewhat hasty and restrictive.

Integrity of secondary data might be questionable as it is outsourced.

Usage of non-probability sampling won't allow for generalizability of findings.

9.0 POTENTIAL FOR FUTURE RESEARCH

Apart from the current research aims, there maybe other factors with a stronger impact on market share, customer acquisition/retention and product diversification which can be explored.

Research into how other products of Tesla (Solar batteries, AI equipment) can aid its sale of automobiles.

10.0 APPENDIX

10.1 Questionnaire

If the survey participant is a Tesla customer, then provide them with 10.1.1

If the survey participant is a Non-Tesla customer (competitor customer), then provide them with 10.1.2

10.1.1 Tesla Customer Questionnaire

Thank you for taking the time to fill out this customer survey. This survey will take approximately 15 minutes to complete. Our aim is to understand customer attitudes and preferences towards Tesla products in order to improve customer relationships to better cater to target markets.

All survey responses are anonymous and kept confidential.

1. Age:

- I) Less than 20 years
- II) 20-30 years
- III) 31-40 years
- IV) 41-50 years
- V) 51-60 years
- VI) 61 years or older

2. Gender:

- I) Female
- II) Male
- III) Other

3. Country of residence: _____

4. Have you purchased a Tesla vehicle within the past 3 years?
- I) Yes
 - II) No
5. How many Tesla vehicles does your household own?
- I) 0
 - II) 1
 - III) 2
 - IV) 3
 - V) 4 or more
6. Did your most recent Tesla vehicle replace a non-electric car that you owned
- I) Yes
 - II) No
7. Approximate annual income:
- I) Less than \$60,000
 - II) \$60,000-\$80,000
 - III) \$80,000-\$100,000
 - IV) \$100,000-\$120,000
 - V) Over \$120,000
8. What mode of purchase did you use to buy your most recent Tesla vehicle?
- I) Outright
 - II) Bank loan
 - III) Lease
 - IV) Other, please specify _____

9. Please mark your preference to the following questions/statements.

		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I)	I believe the current price of Tesla vehicles are fair					
II)	Tesla's after sales services are up to my expectations					
III)	I am satisfied with the charging speed of my vehicle					

IV)	There are adequate charging stations near my locale					
V)	I find that the driving range of my vehicle is adequate for day-to-day purposes					
VI)	The performance and features of my vehicle are up to my expectations					
VII)	My purchase of a Tesla vehicle is motivated by environmental concerns					
VIII)	Fuel cost savings impact my purchase decision of electric vehicles					
IX)	My purchase decision of a Tesla vehicle was influenced by Tesla advertisements					
X)	I am not inclined to switch to other brands if I were to purchase another electric vehicle					
XI)	I use the AI self-driving feature					
XII)	There are adequate safety features in my vehicle					
XIII)	I am able to use my vehicle in all climate conditions					

10. Please rate how much you associate the following characteristics with Tesla's vehicles:

1 = not associable at all

2 = weakly associable

3 = somewhat associable

4 = associable

5 = highly associable

		1	2	3	4	5
I)	Innovative					
II)	Stylish					
III)	Powerful					
IV)	Trendy					
V)	Attractive					
VI)	Environmentally friendly					

10.1.2 Non-Tesla Customer Questionnaire

Thank you for taking the time to fill out this customer survey. This survey will take approximately 15 minutes to complete. Our aim is to understand customer attitudes and preferences towards Tesla products in order to improve customer relationships to better cater to target markets.

All survey responses are anonymous and kept confidential.

1. Age:
 - I) Less than 20 years
 - II) 20-30 years
 - III) 31-40 years
 - IV) 41-50 years
 - V) 51-60 years
 - VI) 61 years or older

2. Gender:
 - I) Female
 - II) Male
 - III) Other

3. Country of residence: _____

4. Have you purchased an electric vehicle within the past 3 years?
 - III) Yes
 - IV) No

5. How many electric vehicles does your household own?
 - I) 0
 - II) 1
 - III) 2
 - IV) 3
 - V) 4 or more

6. Did your most recent electric vehicle replace a non-electric car that you owned
 - I) Yes
 - II) No
 - III) I do not own an electric vehicle

7. Approximate annual income:
- I) Less than \$60,000
 - II) \$60,000-\$80,000
 - III) \$80,000-\$100,000
 - IV) \$100,000-\$120,000
 - V) Over \$120,000
8. What mode of purchase did you use to buy your most recent vehicle?
- I) Outright
 - II) Bank loan
 - III) Lease
 - IV) Other, please specify _____
9. Why haven't you considered buying a Tesla? (Select all that is applicable)
- I) Too expensive
 - II) Poor after sales services
 - III) Lacks performance
 - IV) Safety concerns
 - V) Lack of charging stations
 - VI) Other, please specify _____
10. Who is your currently preferred electric vehicle manufacture?
- I) Tesla
 - II) Ford
 - III) Rivian
 - IV) Mercedes-Benz
 - V) Other, please specify _____
 - VI) No preference
11. Are you satisfied with the price you paid for your current vehicle?
- I) Yes
 - II) No
 - III) Not sure
12. Are you happy with the performance of your current vehicle?
- I) Yes
 - II) No
 - III) Not sure

13. What types of electric vehicles do you think are lacking in the market? (You may select more than one option)

- I) Coupe
- II) Sedan
- III) Pickup truck
- IV) SUV
- V) Bikes
- VI) Quad bikes
- VII) Minivan

14. How important is environmental sustainability to you on scale of 1 to 10? (1 being completely unimportant and 10 being extremely important)

1	2	3	4	5	6	7	8	9	10
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15. How aware are you of Tesla's product range? (1 being completely unaware and 10 being fully aware)

1	2	3	4	5	6	7	8	9	10
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16. What is your preferred mode of receiving news from Tesla?

- I) Email
- II) Mail
- III) Social media
- IV) Television

17. If you wish to subscribe to our newsletter, please fill in your email address here:

10.2 Glossary of Terms

EV – Electric Vehicle

BEV – Battery Electric Vehicle

WTP – Willing/willingness to pay

R&D – Research & Development

MWTP – Maximum willingness to pay

AI – Artificial Intelligence

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