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Tesla's Impact on Automobile Industry

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Abstract: *Tesla has made an absolute dominance in the automobile Industry by its brilliant plans andinnovations done over the years, Despite the downs Tesla has faced in the past years, Thecompany still managed to go on and create a bold reputation in automobile market with alreadygiant automobile manufacturers like* ***Mercedes, Honda, Audi*** *being in the play.Tesla has managed to successfully create an huge audience which ends up giving more motivation for Tesla to come up with new innovations by the day and making amends in the Automobile Industry, Tesla has always been known for its creativity which is what makes themdifferent from the other companies in the Automobile Industry. By this report we've learned about* ***Tesla's Financial and Legal Struggles*** *during the beginning of the company then wewitnessed how Tesla managed to overcome it and turn into one of the most dominant companies in the Industry.Therefore I'd like to conclude my report with some last few points. In this report we've witnessed how the company began itself, what it went through, how it's going on and its future plans for the upcoming years. Tesla has been a phenomenal company, Despite the fact of being a young automobile manufacturing company, It has been leading the automobile market for almosta decade and looks forward to keep its dominance . Tesla has been one of the brilliant companieswith its innovations and technology over the years and will carry on to do so.*

INTRODUCTION TO TESLA

I. FOUNDERS OF TESLA

Tesla was founded by **Martin Eberhard & Marc Tarpenning** in Son Carlos, California. The founders were influenced to start the company after General Motors, Seeing the higher fuel efficiency electric cars running on batteries as an opportunity to break the correlations betweenhigh performance and low fuel economy in vehicles (Automobiles).

One of the following CEO's Martin Eberhard mentioned " He wanted a car manufacturer that is also a technology company at the same time", He believed the company would stand out from the rest of the Automobile manufacturers if technology was also a part of automobiles. This ultimately led to the attention of investors globally, Elon musk of the investors invested US$6.5 Million on the second project of Tesla's car **(Series A)**, Which comes after the model **(Roadster)**which was inspired by the idea of merging technology with vehicles (EV vehicles).

In 2004 Elon musk successfully managed to become Chairman of boards of Directors in Tesla,Musk then appointed Martin Eberhard as the CEO. In September 2009 a lawsuit settlementagreed to by Martin Eberhard allows all five **(Eberhard, Tarpenning, Wright, Musk andStraubel)** to call themselves and be recognised as Co-founders of Tesla.

Musk took an active role within the company at its first model (Roadster) and helped designing at a detailed level, but was not deeply involved in day-to-day operations being carried out in thecompany. Martin Eberhard acknowledged that Elon Musk was the person who insisted from the beginning on a carbon fiber reinforced body that Musk led the designing of components rangingfrom the power electronics module to the headlamps and other styling of (Roadster).

Elon musk was given **Global Green 2006 Product Designing Award** for his brilliant design onthe model (Roadster) which was presented by **Mikhail Gorbachev** (Former politician of Russia) Also he received another award in 2007 for Index Design award for his design on Tesla's(Roadster).

From the beginning, Musk consistently goal was to maintain Tesla's long-term strategic goal is tocreate affordable mass market electric vehicles globally. Tesla's goal was to start with a premiumsports car which was sold at a higher rate and to be aimed at early adopters and then moving into more mainstream vehicles for people of all types, Cars for day to day use,which includes sedans and affordable compacts.

II.THE SUCCESSOR OF TESLA (ELON MUSK)

Elon musk is currently the CEO of two companies **Tesla and SpaceX**, Further on the founder of **Boring company and Co Founder of Neurolink and OpenAI**. Elon Musk became the chairman Tesla's chairman in 2004, A year after the company was founded (2003), and assumedthe role of CEO in the year 2008. According to reports Elon musk is the world's wealthiest person in the world according to Bloomberg Billionaires Index and the Forbes real-

timeBillionaires list currently in 2022.

Under Musk, Tesla company has also constructed multiple lithium-ion battery and factories for electric vehicles production, Such as Gigafactory 1 in **Nevada (US)**, Gigafactory 2 in **New York**, Gigafactory 3 in **China**, Gigafactory 4 in **Germany**, Gigafactory 5 in **Texas** for the production of it's vehicles. Since its IPO in 2010 (Initial Public Offering), Tesla's stock has increased tremendously making it the most valuable car maker in summer 2020.

Musk provided the initial concept and financial capital for **'Solarcity'** which was co-founded byhis cousin's **Lyndon and Peter Rive** in 2006. In the year 2013, Solarcity was the second largest provider of solar power systems in the United States. The next year (2014) Elon Musk promotedthe idea of Solarcity building a production facility in **New York, Buffalo**, Which was triple the size of the largest solar plant in the United States. Construction of the production factories beganin 2014 and was completed in the year 2017. It carried out its operations as a joint venture with **Panasonic** until early 2020.

Tesla acquired Solarcity for over $2 billion US dollars in 2016 and merged with its battery to create its own Tesla Energy. The announcement of the merger created a bad impression for the Automaker company Tesla, Ultimately resulting in a drop of more than 10% in Tesla's stock price. At that moment Solarcity was facing liquidity issues, Multiple shareholders were not pleased by the announcement of the merging between **Tesla and Solarcity**. Multiple shareholder groups filed a lawsuit against Musk and Tesla's directors, claiming that purchase of Solarcity was done to solely benefit Elon Musk and came at an expense for Tesla and its shareholders. In2020 Tesla's directors settled the lawsuit in January 2020, Leaving Musk the sole defendant andthe court being in favor of Musk two years later.

III.POLITICAL ENVIRONMENT FOR TESLA

There are many political factors Tesla has to deal with around the world as it's a global company,Most importantly in the **United States (US)**. These factors include potential changes in the governments which ultimately leads to the changes of policies and the initiatives. Tesla operates in Major continents such as **North America, Asia, Europe and Australia**. In these countries there are strict environmental laws implemented by the government to induce production ofenvironmental cars to meet strict emission levels due to the high rate of the vehicles pollutionand its effect on climate change.

There are laws against environmental noise and air quality in which tesla has the right attribute to overcome it successfully, Governments of various countries are welcoming any alternativesources which would help the company progress much further and make advancements. The United States during **Obama's administration** had taken aggressive steps to reduce dependencyon Foreign Oil and started investing immensely on **Biofuel**. A series of initiatives are announced recently built on that commitment, and on significant investments are being made in vehicle technology specifically on Tesla. **President Obama** and **Vice Joe Biden** openly came out and boldly spoke out making the United States the first country in the world to put one millionadvanced technology vehicles on the road by 2015.

Their administration's plan has supported the goal and has included supporting of electric vehicle manufacturing tremendously and adoption of it in the United States through generous new consumer rebates, and more investments in R & D and new many more competitive programs forcommunities to encourage them to Invest in electric vehicles and its future plans. These initiatives were in favor for Tesla's growth.

Tesla always had close relations with the government of the United States and its politicians as ithelped the company to grow with its plans discussed for the future of the company and Electric Vehicles. Tesla managed to gain many investors attention for its projects and new models, Ultimately following the mission of deploying electric vehicles in the country (United States) and making the people successfully adopt the new era of vehicles (Electric Vehicles). Which followingly influenced their competitors other automobile makers to follow up with the innovation of Electric Vehicles in the United States.

IV.HOW DID TESLA BEGAN

The company began with a loan which was funded through the **Advanced Technology Manufacturing Program**, Which was signed by **President Bush** himself; The loan was later awarded to **President Barack Obama**. In Tesla's press release conference they had announcedthat they had successfully paid back this low-interest loan, The company was grateful and thankful to all who had made it possible including "the Department of energy and members of the Congress Party and their Staffs that worked hard to form the ATVM program.

Along with the federal loan, Tesla also relies on support from the politicians through a complex series of federal and state subsidies. For each purchase of a new Tesla acquired for self personal use, the federal government offers $7500 US Dollars as Federal Tax Credit. Various states offeradditional income-tax credits, Including $6000 in **Colorado** and $7500 US Dollars in **West Virginia**. These subsidies have become such a central business model for Tesla that it advertisesthem to its customers as a way to cover the cost of a down payment.

Even with the support of the federal and state politicians, Tesla was still reporting losses with a consistency and lacking their profits margin compared to the other automobile manufacturers in **California**. In the first quarter of the year 2013, Tesla reported its first-ever quarterly profit by using special credits from California's Air, Resources Board, which provides auto manufacturersfor the production of "zero-emission" vehicles. So far the following year Tesla managed to turn $57 Million dollars which was apparently a loss for them to an $11 Million dollars gain byselling $68 Million dollars worth

of these credits to other automobile manufacturers in California.

The green subsidy program's most successful investment to this date is an electric car manufacturer that has yet to profit solely from the sales of its product. Instead, It is a company built on loan guarantees, sustained on subsidies, and profitable only through a system of creditsdesigned to benefit electric car manufacturers at the expense of their automobile manufacturers competitors. If we take away all the recent hype surrounding Tesla's loan repayment, We are left with a company built to cash in on the privileges and on favors of politicians and governments towitness.

V. FINANCIAL AND LEGAL TROUBLES FACED BY TESLA

At the beginning of 2018 Tesla was facing several difficulties. Missed predictions were taking place within the company which led the investors to dump the company's stock, and in middle ofthe year 2017, It had lost more than 5% of its value resulting in a collapse of **$12 Billion dollars.**

By January 2018 Tesla was producing its Model 3 sedans at a fraction of the rate it had anticipated. Over a Three-month period the company managed well to finish and ship 2,400 carsafter making a bold promising to its consumers and investors that it could complete more than 5,000 per week.

The company claimed that many of these problems were taking place because of its supply chain, which required it to inefficiency source parts from around the world rather than build andassemble cars at one place. Tesla's production issues paled in comparison to the legal troubles that Elon Musk would create later on the following year on Twitter. On August 7th Musk tweeted that he planned to take the company private at $420 and had done a secured funding to buy back Tesla's shares back. This ultimately set off a round of active trading as investors racedto grab shares before the privatization buyback, resulting in elevating the company's stock by 10% before trading was halted.

In September the **Securities and Exchange** commission had serious allegations on Elon Musk and charged Musk with security fraud based on his tweet, alleging that he had released incorrect and misleading information that drove up the company's stock price. Despite rejecting the **SEC's**first offer of settlement after Elon Musk threatened to resign from the company, Tesla and Musk eventually ended up agreeing on terms. Tesla ended up paying $20 Million US Dollars as a fine. Elon Musk stepped down from his position as the chairman of the company's board.

He was replaced By **Mr. Robyn Denholm**, a director and board of the company, Despite that Elon Musk is still the current CEO of Tesla. The department of justice had launched an investigation on Tesla to determine if it was misleading the investigators previously regarding itsproduction capacities of the Model 3. In February 2019 the SEC filed a motion against Elon Musk in contempt after publishing a tweet regarding Tesla's production capacities. This led to an Amendment to Elon Musk and Tesla's original settlement which now requires active oversight ofMusk's twitter account.

VI. LEADERSHIP AND CONTROVERSY IN TESLA

In the year 2008 Tesla made tremendous changes in its leadership team. In 2007 **Mr. Eberhard**resigned as the CEO of Tesla but continued to remain as a member of the company's advisory board. He was succeeded first by **Micheal Marks**, a Tesla investor who served as temporary CEO for Tesla. **Ze'ev Drori** took over Mr.Eberhard's permanent replacement in November.

Drori is often given the credits with turning the Roadster from a prototype into a viable product. When he was in charge in the year 2007 the project was facing many lags, and reporting on Tesla focused on whether the company could deliver its flagship product to market. Drori oversaw the successful launch of the Roadster in 2008.

However shortly before their company's first automobile (Roadster Number 1 to Elon Musk) co-founders Ederbard and Tarpenning left completely by that time entirely. Not long after in October 2008, Elon Musk became the CEO of Tesla's company and fired 25% of the company'sstaff. The transition didn't took place smoothly, Controversy took place during the event.

Ederhard's and Tarpenning mentioned that they were "forced out of the company theyfounded ".

In the year 2009, Eberhard sued Tesla and Musk for issues including **liberal and slander**. He alleged that he was forcefully forced out of the company and that the delays and financial problems associated with the Roadster model and had been unfairly blamed on his leadership. Eberhard dropped his suit later the same following year. Tesla has had a lot of controversy regarding of Musk's decision of firing 25% percent of company's employees. Despite that factthe company still managed to grow its way through.

Although Tesla is a company that advances the human understanding of Technology. It is a unique composition of professionals who are involved in the company and passionate about theirwork. However the company has a term **VUCA** and operates accordingly, "Volatile, uncertain, complex, and ambiguous" environment, It is paramount to investigate implications that the world events have for leadership and management of strategic change, and evaluate Tesla's change management capabilities, and make recommendations to overcome possible challenges,And avoid the mistakes they've done purposely as we've witnessed.

MAIN CONTENT

TESLA'S IMPACT ON THE AUTOMOBILE INDUSTRY - I

Tesla has been seen rapid growth in the company and to steal the spot of the world's most vital automaker. It may strike as a new era of vehicles with the merger of technology Tesla is comingup with in the automobile Industry. The Industry does not declines to change and become morecreative with it but does slowly adapts it. Lately this has been shifting drastically and dramatically, mostly due to when Tesla has taken the step forward in the Automobile Industry.

Tesla boasts that the **cool factor** it provides in its vehicles, is significantly different than the othercarmakers produce in their vehicles. Tesla has successfully created an hype surrounding regarding its electric vehicles at which other brands have failed. The question is what makesTesla better than the other automobiles? Let's examine it.

Tesla isn't your usual carmaker, everyone is aware of that fact. In a lot of ways it is very similarto **Silicon Valley** tech startup. The typical carmakers are known to be experts at developing complex dependable products at a large scale, But their software is not up-to marks and not updated regularly if compared to our routine devices. Soon enough, we will be witnessing thegiants of the automobile world join the list of Silicon Valley tech companies. But why can't automakers focus on making great vehicles and let the tech partners do their job regarding thetechnology in the vehicles and build softwares for the car?

The reason behind this is the iconic shift of rivalry competition from game changing companies like Tesla, Who have embraced technology tremendously in its vehicles. This has revolutionized the comparative importance of software in a vehicle. Conventional vehicles become degraded as soon as they were taken out of their showrooms. Companies similar to Tesla are boosting the performance of their vehicles gradually by smartly utilizing the data gained over-the-air updates.

The latest example could be of Tesla improving its **autopilot system** for over 18 months. This isthe real edge of the software core transforms each tesla's car into a whole learning machine.

These stats have added new features such as, Smart Summon, added support for exciting content like Netflix, and have provided performance such as an extra 40 BHP into their **'Model S'**. Thisis Tesla's significant competitive perk. For other car makers in the industry, This would have certainly resulted into a costly and frustrating revisions. Therefore, This Silicon Valley mindsetto software is simply overpowering **Traditional Manufacturing**.

If we take a glimpse of the automobile market today in terms of designing we find in cars. Theyall look more or less the same if compared, which is not appealing in the least bit. Most of the cars have a square hatchback with some odd design or detailed. No car shows the smoothexterior of **Model S** or the ability to surprise like the **Model X** provided by Tesla.

Tesla has also guided to define the exaggerated responsibility Silicon Valley possesses in theAutomobile world. Prior to Tesla, one could count the number of startups focusing more on automotive innovation. And fast forward to the recent times, after a few years, the latest Tesla killer comes forth to attempt to steal Elon musk's crown. According to reports, **Lucid Motors,Faraday Future, Next EV**, are attempting to replicate his exact technology by developing high-end vehicles, then creating a fan base, and further on utilizing the capital and profits made by it to assemble a mass-market empire. Tesla's CEO himself as recently arrived at the important stage now. Different factors have come into play to judge whether will it be as successful as Tesla or not.

In October 2015, Tesla first introduced its **Autopilot Mode** and told driver to be careful as this was the first time that semi-autonomous innovation was being provided and in a commercial car. Elon Musk advised its drivers to not take their hands off the steering wheel. The main feature of an Autopilot is to Autosteer - it kept the car in the current lane and managed distance from the car in front of the vehicle and speed accordingly. It only took some days until the videos of itwent viral in Youtube to show videos of people driving the Tesla car as if it was completely autonomous. These videos were evidence of the fact of Tesla's successful technology play intheir vehicles.

THE SUDDEN CHANGE IN THE AUTOMOBILE INDUSTRY - II

Tesla's appearance surprised many people. However the executives of **Daimler AG**, also known as the parent company of **Mercedes**, had an introspective view initiating in 2009. Mercedes was known to be one of the most dominant companies in the automobile industry before Tesla came into play. The executives of Daimler AG talked about how the company and its CEO Elon Muskwere adopting a new approach to build that defied the established system.

Daimler is the name of the man who, 136 years ago, invented the first modern car. He also purchased almost 10% of Tesla's stake from the deal that offered a $50 Million support to thenew struggling startups in the automobile industry. This investment ended up providing Mercedes engineers an insight on how the CEO of Tesla was determined to introduce Technology into vehicles that wasn't flawless and then consistently updates it, employing thesmartphone method of over-the-air updates, giving absolutely no considerations to its initial profits.

Mercedes engineers aided Tesla in curating its **Model S luxury Sedan**. And in exchange, Mercedes gained access to Tesla's half handmade battery packs. Then in the year 2014, Daimler came to an conclusion to sell its stake. They were skeptical that whether Tesla's mindset could be industrialized at a massive scale. Tesla went on to the unique pioneer approaches in its software designs, its manufacturing and electronic framework, which allowed it to present its innovations much quicker compared to its automobile rivals.

These figures directly engaged to a merger with **Mercedes Collab with Tesla**. Which side stated that this brief

partnership between Mercedes and Tesla displayed the accident between the old
and new engineering cultures - the German infatuation with control and permanent safety, which earned evolution, and the Silicon Valley automaker's risky mindset which embraces quick thinking and radical thinking. A former Mercedes engineer who was involved in this partnership mentioned "Elon Musk has been walking on the edge of a razor blade when it comes to the termsof the aggression with which he pushes some technologies".

In contrast, Mercedes and other renowned automobile carmakers are still hesitant to this day about inventing new technology, particularly like automated driving with lack of tests and trials.

Investors prefer the Tesla model in a market that's facing dizzying and significant day-to-day changes. Although the US company will be experiencing a rivalry from EV's by established carmakers in the upcoming few years.

ELECTRIFICATION IN TESLA MODELS - III

Similar to Autopilot forcing the established carmakers to form their very own semi-autonomous innovation, Elon's passion for bringing Electrification in the automobile Industry proved to be equally successful. The influence of both **Model S and X,** along with Tesla's stock valuation, served as a promising and a certainty signal where the automobile Industry will be heading.

Electronics creativity being implemented with the automobile industry has been observed for a while, but it is definitely increasing and getting more creative by the day. The recent trends being seen in the daily news regarding **Electrification, autonomous driving, shared mobility**, and **connectivity** are major industry shaping trends which can be witnessed now. These trends are holding a great influence on the automobile industry at the supplier and **OEM levels**. All of this is leading to more investment.

Elon Musk was very successful in persuading his competitors to embrace Electrification, Although GM won by releasing its **EV Chevy Bolt** way before the Model 3 of Tesla, Elon stillhad some tricks up his sleeves. The public keenly watched whether the Model 3's entry level would be as much as the Bolt. The Bolt is equipped with 239 miles, which is tremendously well for the base model. But Elon was too ambitious and competitive to let it slide by.

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By the year 2040, researchers estimate that **54%** of all vehicles being sold in the market will be EV's. Many governments are coming to a conclusion of banning the production and sales of fossil fuel-burning cars. Huge giants in the automobile Industry with tons of capital experiencedin its supply chain and impressive supplier bases began to work in churning out and quickly developing their very own EV's as governments and buyers are more attracted towards sustainable, low emission transit, and eco-friendly choices.

This shows not only automobile manufacturers but the globally majority of nations have hopped on the bandwagon to reject gas and petrol-burning cars for the environment's sake. This sensation was created by Elon Musk himself. It speaks volumes about the power and the positionhe holds in the current automobile world.

It's a good question if Electrification with the same energy and enthusiasm as we are currently atthe moment if any automobile manufacturer got to it first? Tesla transformed its cars into rolling tablets and made Electric vehicles more desirable to its consumers. Observe the inside of a Tesla, and if compared to **Apple** it becomes apparent. Yes, other automobile manufacturers have not made a bold move if compared to Tesla to replace its middle instrument cluster a **17 inch touchscreen tab.**

TESLA FORESEES IT'S TARGETS AND SETS IT'S TRENDS - IV

In some cases, The company has simply anticipated consumers demands before its competitors does. Tesla wasn't the first company in the automobile industry who was considering to make electric cars which looks like **Sports Cars**, But it showed how much excitement could be createdaround sleek, electric vehicles.

This may sound simple, Model S has evidently proven what makes a right car and what is fun to drive. There's a reason why established luxury brands like **Aston Martin** and **Ferrari** feel compelled to compare themselves to Tesla. If considered it for a fact the touchscreens in new cars are growing more rapidly and getting more advanced by the day, Tesla is the one to makethat possible in vehicles.

Car companies shifted from incremental to exponential charges in screen sizes for after Teslastarted replacing knobs and instrument clusters with displaces which were twice the size if compared to other automobile manufacturers. For the Model 3, Tesla removed the instrument cluster entirely and installed a new **15-inch touchscreen** to control most of the cars interior function.

The thing about Tesla is it values peoples opinions and their perspectives when it comes tomanufacturing new vehicles and thereby fulfilling them gives the satisfaction to its fellow consumers. This ultimately creates a trend among itself in the automobile market attracting customers to its vehicles and that's what makes Tesla different from other automobile manufacturers.

TESLA'S IMPACT ON ENVIRONMENT - IV

Since the beginning of Tesla's Electric Vehicles (EV), Consumers have sought accurate information regarding the total carbon footprint of EVs as they compare to the Traditional engines, **Internal Combustion Engine (ICE)**. We are aware Elon Musk's vehicles create less pollution out of the tailpipe of its vehicle, But what about the batteries used in its Vehicles. The truth is, direct comparisons are tough to make due to endless variables to be considered into account. But as more information about batteries and manufacturing is available to the audienceand researchers, It is important to consider all of the factors to make the most rational decision when it comes to car ownership.

Some of Tesla claims over the years have created a hype more than usual. There's even been adose of greenwashing in the creativity crafted claims regarding its sustainable corporate particles. Despite that fact, Tesla is known for its bold innovations, productions and style nowassociated with **Energy-Efficient cars**. So, how environmentally friendly Tesla is, and how much of a thoughtful consideration is Tesla carrying towards the the environment?

Operating and running a factory is **resource-intensive.** Reports vary regarding the carbon footprint of the actual production though. While the parts are different, it is generally accepted that Tesla's vehicle production is equivalent or less-consumptive than traditional vehicles builds.From the beginning, Musk has claimed about the efficiency of Tesla plants, with the issue of high-tech robots for precision and LED lighting to save as much energy possible as well as **reliance on local renewable energy.**

The company claims to have earned zero-waste certification at the **Fremont Plant**, Although there's existing reports that showcases the company's waste at this Plant. As new plants are beingcreated from the ground up, they are built to rely on renewable energy sources. In addition, the company's water reduction efforts are witnessed across the sales, service and delivery facilities,It has been implemented waterless car washes in some areas as well.

While the company's goal is to lead the way in sustainable particles, It is still hovering around progress rather than achieving perfection. By comparison to the traditional manufacturing parts, However Tesla's conversation methods are welcomed environmentally as its **EnvironmentallyFriendly.**

The main factor that affects the environment in regards to Tesla's electric vehicles EV's production which is in the need of materials needed for its batteries. There have been intense contradictions between Tesla's stated objectives to source its raw materials from suppliers who ensure environmentally friendly and ethical processes and reports of a questionable supply chain. Over the years, there have been a constant accusations of poor treatment of the huge population surrounding a lithium mine in **Argentina**, a dirty source of graphite from **China** andcobalt was mined under tough and harsh conditions.

Tesla responded to the accusations by saying the supply chain does carries some complexities and the company is continuing to find ways to clean them up. The company started, "Reliably determining the origin **(Of the materials)** is a difficult task, but the due diligence practices required of our suppliers helps us add transparency to help us and our suppliers adhere to the responsible sourcing principles of our code".

Electric cars don't rely on the same part as the combustion engine does, and overall EV components last much longer than the traditional engines. Keeping this in mind, comparisons shouldn't be made on a one-to-one basis. **Internal Combustion Engine (ICE)** vehicles needs tobe replaced much more often compared to the EV engines, Doubling the impact of material sourcing, manufacturing and scrap waste. Thereby, a product that lasts longer and produces lesswaste.

TESLA'S BATTERY TECHNOLOGY - V

Currently Tesla uses a range of **Lithium-Ion batteries** starting from 50 kWh to 100 kWh, acrossits model line-up. These batteries consume thousand of small Lithium-Ion cells, Which are provided from Japanese giants in specific **Panasonic** in fact, Tesla was the first automaker to usesuch batteries in its vehicles, which were earlier mainly meant to use it only in consumers electronics. Tesla's cars are specifically designed in such a manner that the batteries are placed under the vehicle floor (At the drivetrain of the vehicle), Thereby achieving not only a bettercenter of gravity but also saves interior and boot space.

The model 3 of presented by Tesla, has entry-level sedan which comes in three options - **Standard Plus, Performance, and Long Range AWD**. The standard plus trim provides a rangeup to 423km and the battery can be charged upto a maximum of 170 KW superchanger. The performance model creates a slightly higher range of 507km and has a charging capacity of 250KW, While the Long Range creates a range of 568 km and the same charging capacity of 250KW.

The **model S and the model X** both of the model delivers similar battery capacity and performance. Both Model S and Model X are now being served in two options - Plaid and LongRange. The Model S comes with an approximate range of 663 km, with a peak power of 661 bhp. However, the plaid trim offers a range of 628, but provides a peak power of 1,006 bhp. TheLong Range Model X on the other hand offers the same power output, however the range is reduced to 580km, owing to its bigger size and weight. Similarly to that, while the Plaid trim offers the same 1,006 bhp, its ranger is lesser which is at 545 km.

The **model Y** on the other hand, is based on the same platform as the **Model 3**, which is served with 3 options available - Standard Range, Performance, And Long Range AWD. However, as inthe case of an Model X, Due to it carrying

extra size and weight in Model Y, It offers a lesser range compared to the other Models. The Standard range trim offers 393 km, The Performance trim at the other side offers a range of 488 km, and the Long Range offers 525 km.

TESLA'S PLANS OF IT'S EXPANSION - VI

Tesla's Third Gigafactory in Shanghai acts as the company's backbone for its success in the Asian marketplace. For 2022, Tesla's envision of producing an approximate total of **2,50,000** Model 3s could turn true this following year. The same number of Model Ys are expected to joinsoon enough to Tesla's mega **Asian production line.**

That brings us to a total of at least half a million cars being produced yearly through just one production plant. Is the numbers too unrealistic even for Tesla's Standards? As such as a huge output hasn't even been achieved for Tesla's whole production line of 2022. Do not give hopes on Tesla yet, as the Model Y and the Model S is already witnessing a huge demand in **China andother following Asian countries**.

Moving to the European continent, Tesla's Gigafactory in Berlin project is another mega initiative for the company. This mega production plant aims to plant its strong ideology and innovations in the prestigious European market. Just like China, The plant in **Berlin** has a lot of work up its sleeves as production is being scheduled to begin later this year. If everything goes smoothly we will be witnessing Model Y's and Model 3's rolling out of Berlin soon enough.

Unlike its **Fremont and Shanghai** Gigafactories, The Berlin one could also be the place where the testing of its new innovative technology will be taken place. That includes 4680 battery cells, upgraded paint systems, and many others. The gigafactory in Berlin is fitting a reply to Tesla's European automobile rivals.

Coming back to its very own home country United States (US), the Giga **Austin** is another ambitious project being done by Tesla. The new Gigafactory will be the home to the much-hyped Tesla's **Cybertrucks**. Apparently, The model Y is also in line to undergo mass production line in the following Gigafactory, Thanks to its tremendous success in the United States. This new gigafactory in Austin, Texas should further solidify the intimate relationship between Tesla and its American citizens.

TESLA'S DOMINANCE IN 2022 - VII

The electric vehicle market in the United States is still pretty fairly new, Tesla has managed to dominate that market tremendously since its inception. However, Competition in production of Electric Vehicles isn't slowing down and is largely increasing as legacy automakers such as **Mercedes, Porsche, Aston Martin,** Etc, Have began to release their own zero-emission vehicles, and although Tesla continues to Dominate the market, The automakers shares have been decreasing with consistency over the past few years.

Tesla's Model Y SUV and Model 3 Sedan were the top-two selling vehicles in the United States **Market of Q1** this year, The word came at a time when electric vehicles made up over **5%** of total car sales for the first time ever, and as many legacy automakers are starting to witnessconsistent sales on their EVs.

Tesla managed to sell **46,707 Model 3 Units** in the first quarter of 2022, and its sales of the Model 3 and Model Y combined made up a fabulous **68%** of the overall EV market share. If compared, Tesla's vehicles made up 70 percent of the market share in the year 2021, and theymade up **75%** of the EV market share in the year 2020.

Still, The slight decline in Tesla's market share is expected, and will be constantly going down as legacy automakers continue to release their Electric Vehicles. Despite the increasing competition by the day, Traditional automakers have a long ladder to climb up before reaching the EV sales volume Tesla has achieved.

Tesla's Model 3 and Model Y sales were followed distantly by Ford's electric Mustang Mach-E, which just sold **6,734 units**. Tesla's Model X followed the Mach-E, and the Model S was the quarters seventh most sold Electric Vehicle. Other vehicles on the top 10 list of Q1 includes **Hyundai Ioniq 5, The Kia Ev6, Nissan leaf, The Kia Niro and The Audi E-Tron.**

Ford, Rivian General Motors, and others are releasing their first Electric pickups which is something Tesla doesn't offers currently at the moment, The reason for that is Tesla is currentlyhighly anticipated with the production of its Cybertrucks next year.

For Tesla, The completion of the new Gigafactory located in **Austin, Texas** will also be playing a crucial role in the upcoming years as the EV competition is increasing daily by the day in the United states. With the production set to be increased even more, Sales are likely to follow suit, Tesla is uniquely positioned as a company to dominate the EV market for decades.

CONCLUSION

Over the past half-century, various number of automobile brands whose activities are directly related to the production of automobile came in the United States. Tesla Motors managed to make a revolution in the automobile world. This company has changed the perspective of vehicles in the **XXI century**. Today the car is no longer claimed as a luxury, which is only available to wealthy individuals.

Nevertheless, The struggle of Engine power, speed and attempts to turn a car into comfortable four-door "House on wheels", not only the leading concerns are involved in the production of vehicles but the entire world economy is tied to an exhaustible natural resource - oil. It is a oilysubstance called **"Black gold"** that has led to an responsible of human comfort on

impressive monetary costs.

Tesla company is known to be one of the most innovative and creative companies among the modern automakers today. Its electric cars have made a revolution in the automobile market, andhome energy stores are going to displace the oil-making from the market. Its founders have created a new generation of automobiles.

The man behind Tesla Motors Company is the well-known-businessman Elon Musk, who in early 2000 together with the founders of Google **Larry Page and Sergey Brin** believed in thisambitious project and worked towards it. The right combination of Innovation, The Ecologicalapproach, And Modern technologies sums up Tesla.

The main goal of Tesla is to make Electric Vehicles a mass product which is evidently working quite well for them, According to Elon Musk himself, He never considered this idea as the best objective for investing capital or a company with the help of which it is possible to receive superprofits. He wanted to prove that a beautiful electric car with a large power reserve on one chargeis no longer a dream. It is necessary to mention a person in honor of which the company is named.

The Ideas were developed at the beginning of the last century by the Serbian scientist **Nikola Tesla** helped the entrepreneur and engineer Elon Musk to start a revolution of Electric vehicles inthe automobile industry in just 12 years. Nikola Tesla is rightly called the second **Leonardo Da Vinci.** He is "Mysterious Genius", "Master of Lightning" and "Light Tamer". It is almost impossible to influence his life on a modern man.

A large-scale electrification of the entire planet began thanks to him. According to some sources he was the one to invent the first radio transmitter, described the first radio-controlled models, laid down the principles of robotics, and invented a counter, speedometer, luminescent lamps, AnX-Ray, And an Electric Clock.

Throughout his life, Nikola Tesla dreamed of enslaving such a natural phenomenon as lightning. All of his developments had two important goals: **Obtaining cheap energy** that would be available to every person in the earth and the **Possibility of transmitting electricity** withoutwires to any location and place.

There's a stereotype that electric cars are only for rich individuals. The company took this stereotype very seriously and therefore proved it incorrect. The latest development Model 3 costs 35 thousand US Dollars, which is relatively inexpensive in comparison with its predecessors.

The power reserve of three hundred KM in junction with the **"democratic"** price should completely change the perspective of people towards Electric Vehicles.

In its work, Tesla Motors adheres to the same principle as the creators of free software. Despite the presence of a large number of patents, the company allows all the manufacturers who are interested in the production of electric vehicles to use its developments. In this way, Tesla Motorshopes to give an additional impetus to the development of environment friendly rides. Today every authoritative brand stands out with their very own **Produced Chips**.

Tesla electric cars has a lot of them, One of such things is smart **Air Suspensions** in Tesla's vehicles, which itself can adjust the clearance between the car and the highway. The functions ofthese cars can be changed by updating the software in approximately a person does in his electronic devices such as Mobile,Tablets, Etc.

In the year 2013, after several incidents of ignition cars due to impact of foreign objects being used, the company immediately released a software patch for its consumers that includes groundclearance. In the new version of the firmware, the developer plans to add functions of a **full- fledged autopilot.**

To recharge its cars, Tesla Motors displays a network of **Supercharger Stations** all around the world. Owners of these autos can charge batteries at such stations for absolutely free. Electric transport is the new future of the automobile Industry, Which is coming up with new innovationsand creativity day-by-day and gaining a huge audience.

ACKNOWLEDGEMENT

I admire the time you took out for going through my research paper "Tesla's Impact On Automobile Industry" I gathered my informations through the best sources such as Books & Websites which provided me in-depth information about the company, Also the recent news forthe following year (2022) helped me following up the recent developments being taken place inthe company, thereby achieving me to add up latest informations about the company in my Research project.

People who are interested in the Automobile Industry or as the future we talk about the "Electric Vehicles" will be finding this report immensely helpful, For things such as Battery charges produced for a Electric Vehicle, What affects it carries on the Environment, How countries areplanning to adapt it to shift its citizens from a Diesel Car to a Electric Car, What countries are willing to make investments to the Electric Vehicles Manufacturers. And many more questions will be simplified through this report.

I would like to thank you for reading my report. Hopefully you found it interesting as it carried out thorough information of how the company began its journey and how it is going and the plans it is coming up with for its future. I hope this research was informative for you and gave you a much more Broader Idea of how the Electric Vehicles will be playing a crucial part in the future.