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# Tesla, Inc. A Case Study

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*"If you want to find the secrets of the universe, think in terms of energy, frequency and vibration."*

- Nikola Tesla

An American company based in Palo Alto, California, United States of America, Tesla, Inc is mainly associated with manufacturing electric vehicles (those vehicles which require one or more electric motors for propulsion) and makes use of clean energy to meet the requirement of sustainable development (development that meets the needs of the present generation without compromising the needs of the future generations). Along with the mainstay of vehicle-manufacturing, Tesla also manufactures electric cars, battery energy storage from home to grid-scale, solar panels and solar roof tiles, and related products and services. Tesla surpassed the scales of battery-operated vehicles and PEVs (a plug-in electric vehicle is any road vehicle that can be recharged from an external source of electricity, such as wall sockets, and the electricity stored in the rechargeable battery packs drives or contributes to drive the wheels) in 2020. It detained 16% of the plug-in market, inclusive of plug-in hybrid electric vehicles. The company also captured 23% of the battery-operated electric market. Its subsidiary company Tesla Energy develops and installs the PV systems (photovoltaic systems, i.e., is an electric power system designed to supply usable solar power by means of photovoltaics). This company, Tesla Energy is one of the world's largest supplier of battery-energy storage systems, having almost 3 gigawatt-hours installed in the previous year, 2020.

Martin Eberhard and Marc Tarpenning founded Tesla Motors, a tribute to the eminent electrical engineer Nikola Tesla, in the year 2003 in the month of July. Elon Musk, the world's richest person and the then co-founder of X. com (an online bank co-founded by Elon Musk, Harris Fricker, Christopher Payne, and Ed Ho in March 1999) invested $6.5 million in February 2004. Subsequently, he became the largest shareholder of the company and the serving chairman since 2008. Elon Musk strongly believes that the motive of Tesla is to accelerate the shift to sustainable modes of transport and usage of clean energy, which can be manifested through battery-operated vehicles and solar power. Then, in 2009 began Tesla's production of car models, starting with Roadster (a battery electric vehicle sports car, based on the Lotus Elise chassis). In 2012, came the Tesla Model S sedan (an all-electric five-door lift back; introduced on June 22, 2012) followed by the Tesla Model X SUV (a mid-size all-electric luxury crossover) in the year 2015. It was succeeded by the Tesla Model 3 (an electric fastback mid-size four-door sedan) in 2017. Finally, in 2020 arrived the Tesla Model Y crossover (an electric compact crossover utility vehicle). The 2017-produced Tesla Model 3 is by far the world's bestseller plug-in electric car by becoming the first electric car to sell 1 million units worldwide in the June of 2021. A consistent rise in the vehicle sales of Tesla have been observed with a 35.8% increase from 2019 in 2020. Tesla became the sixth-ever company in the history of the United States to reach a market capitalisation of $1 trillion, in October 2021.

However, with its growing popularity, Tesla has been subject to various lawsuits. These have mainly been caused by the controversial statements issued by the CEO Elon Musk and his actions. Allegations of creative accounting, whistleblower retaliation, worker rights violations, and unresolved and dangerous technical problems with their products, have also upsurged controversies. The National Highway Traffic Safety Administration adjured Tesla, Inc to submit the data relating to vehicles that were equipped with Autopilot (a suite of advanced driver-assistance system features offered by Tesla that amounts to Level 2 vehicle automation. Its features are lane centring, traffic-aware cruise control, automatic lane changes, semi-autonomous navigation on limited access freeways, self-parking, and the ability to summon the car from a garage or parking spot) in September 2021.

**History**

"*I don't care that they stole my idea. . I care that they don't have any of their own"*

-Nikola Tesla

Tesla celebrated its 11th anniversary of going public on June 29. Its journey of over a decade witnessed a lot of booms and recessions, a whole lot of ups and downs. But, by far in 2020, this company was successful in persuading and convincing many buyers of electric cars who once would have never thought of it. It's safe to say that Tesla's journey has not always been a cakewalk. Despite its many celebratory achievements, Tesla has also had its fair share of setbacks. Here's a breakdown of the company's most defining moments since its founding.

**Founding (2003-2004)**

Martin Eberhard with his belief of building "a car manufacturer that is also a technology company", with its core technologies as "the battery, the computer software, and the proprietary motor", incorporated Tesla Motors, Inc. on July 1, 2003 along with Marc Tarpenning, who served as the CFO while the former served as CEO. Elon Musk's contribution of $6.5 million in February 2004, was inclusive of the $7.5 million raised by the company in its Series A Round. And, as mentioned previously, Elon Musk became the chairman of the board of directors and the largest shareholder of Tesla. Ian Wright was Tesla's third employee while J. B. Straubel became the Chief Technical Officer of Tesla in May 2004. Eberhard, Tarpenning, Wright, Musk

and Straubel are all the co-founders of the company in accordance with the lawsuit agreed to buy Eberhard and Tesla in September 2009.

**Development of Roadster (2005-2009)**

Elon Musk's active participation and his overview of the Roadster product design at a very explicit level compelled Eberhard to acknowledge that Elon Musk was the one who insisted on a carbon-fibre-reinforced polymer body. Elon Musk demonstrated his leadership skills by leading the design of components right from the power electronics module to the headlamps and other relevant styling. His efforts were awarded when he received the Global Green (the American affiliate of Green Cross International, an international non-governmental organisation founded by President Gorbachev in 1993 to "foster a global value shift toward a sustainable and secure future.") in 2006 for designing the Tesla Roadster, which was presented to him by Mikhail Gorbachev. For the very same reason, he received the Index Design award in 2007. The first Tesla Roadster was delivered in February 2008 to Elon Musk himself.

Right from the very beginning, Elon Musk was firm on his stand that Tesla's long-term goal was to create market electric vehicles in mass-production which were quite affordable. The aim was to start with a premium sports car for the early adopters and then moving on to the common vehicles, including sedans and cheaply-priced compacts. Tesla began the production of the Roadster in 2008. The Roadster 'paradigms were officially shown to the world on 19th of July in 2006, in Santa Monica of California. Only 350 persons were invited in Barker Hangar of the Santa Monica airport.

Unfortunately, the Elon Musk-led board of directors asked Eberhard to step down from the post of the CEO. Before leaving the company in January 2008, Eberhard entitled himself as "President of Technology". Following the dismissal of Eberhard, Marc Tarpenning, who served as the Vice President of Electrical Engineering of the company, also left the company at the same time. This was followed by a lot of pandemonium when in August 2007, Michael Marx became the interim CEO, and five months later in December 2007, Ze'ev Drori became CEO and President. Elon Musk became the successor of Drori in October 2008, and has since served as CEO.

$187 million had been raised by the delivery of 147 cars in January 2009, with the CEO himself contributing $70 million from his own money to the company. The United States Department of Energy, approved Tesla to receive a loan of $465 million as part of the $8 billion Advanced Technology Vehicles Manufacturing Loan Program. The low-interest loan program was created in 2007 during the George W. Bush administration, and is not related to the "bailout" funds that GM and Chrysler received, nor are they related to the 2009 economic stimulus package. In May 2013, along with $12 million as interest, Tesla successfully repaid the loan and was the first car company to have fully repaid the government, while its contemporaries like Nissan repaid the loan in 2017, Ford expects to repay the loan in 2022, and Fisker went bankrupt and defaulted on the loan.

An overall profit for the month of July 2009 was achieved by Tesla, as it earned $1 million on revenue of $20 million, with profitability arising mainly from the improved gross margin on the 2010 Roadster, the second iteration of Tesla's award-winning sports car. A record of 109 vehicles in July was reported along with a surge in Roadster purchases. In September 2009, Tesla announced a US$82.5 million round to accelerate Tesla's retail expansion.

**IPO Models and Model S (2010-2015)**

As a preliminary prospectus indicating its intention to file an initial public offering (IPO) subsidized by Goldman Sachs, Morgan Stanley, J. P. Morgan, and Deutsche Bank Securities, Tesla Motors filed Form S-1 with the US Securities and Exchange commission on January 29, 2010. A strategic partnership with Toyota was agreed upon by Tesla in order for Toyota to purchase $50 million in Tesla common stock which was supposed to close immediately after the IPO. Tesla and Toyota would cooperate on "the development of electric vehicles, parts, and production system and engineering support" as per the executives of both companies. The first platform collaboration of Toyota and Tesla would be to build an electric version of the RAV4 EV, as per the confirmation issued after a period of less than two months.

Tesla Motors launched its IPO on NASDAQ (an American stock exchange based in New York City) and 13, 300, 000 shares of common stock were issued to the public at a price of US$17.00 per share, which raised $226 million for the company. In about 10 years of its founding, Tesla had market value half that of Ford. This is because in early 2013, the company had an issue with producing the Model S and was short of money. Elon Musk deal was abandoned which had proposed $11 billion to Google because production was improved and a sales push gave Tesla its first profitable quarter.

After the news of a third Model S fire in November 2013, Tesla's stock fell more than 20%. Despite the drop in stock price, Tesla was still the top performer on the NASDAQ 100 index in 2013.40, 000 electric vehicles worldwide were sought by Tesla to be sold to China, Hong Kong, Japan, Australia along with the list of country where it exported cars. However in November 2014, Tesla reduced its guidance on sales down to 30, 000 units for 2014, as of when Tesla has a US Corporate Average Fuel Economy 276 mpg.

Although Tesla's production of cars began at the Tesla factory in Fremont, California, the company sought to negotiate with the governments of other countries for local production of cars. In October 2015 negotiations with the Chinese government took place because local production in China had the potential to reduce the sales prices of Tesla models by a third. This was met by a hurdle because foreign automakers are required to establish a joint venture with a Chinese company to produce cars domestically. The CEO clarified that production will remain in the US in the

foreseeable future but in case of increase in demand in China, a factory could be built in the country as soon as a year after the launch of the new model of Tesla Model 3. Production in Europe will depend on the regions demand. A manufacturing plant in India was considered by Tesla according to Jay Vijayan, Tesla's Chief Information Officer. Tesla would greatly benefit by this because import duty would be avoided by 100%, which is applicable on imports of a Completely Built Unit (CBU) cars in India. Musk said in response to a specific question about whether he would consider a factory in India too, "Given high local demand, a Gigafactory in India would probably make sense in the long term. "

During the third quarter of 2015, Tesla produced a record 13, 091 vehicles. Thus, it revised its target sales for 2015 between 50, 000 to 52, 000 vehicles, including both of its models available for retail sales. An increase in average production and deliveries of vehicles per week for Model S and Model X is anticipated by the company.

**SolarCity AND MODEL 3 (2016-2018)**

In an all-stock $2.6 billion deal, Tesla acquired SolarCity (a publicly traded company headquartered in Fremont, California that sold and installed solar energy generation systems as well as other related products and services to residential, commercial and industrial customers), thus entering the photovoltaics market in November 2016. And hence was formed the Tesla Energy subsidiary by the merging of the solar installation business and Tesla‘s existing battery energy story products. The deal was, in fact, pretty disputable because at the time of signing the deal, SolarCity was facing a lot of liquidity issues, which was unknown to the shareholders of Tesla.

In order to mirror the range of its present business, Tesla Motors ‘name was changed to Tesla, Inc., in February 2017. The company now included electric vehicles, battery energy storage systems, and solar power generation.

That same year, Tesla began its philanthropic contribution to the society starting with help in the form of solar power provided to areas recovering from disasters in 2017, especially a solar plus storage installed in a hospital in Puerto Rico, which was dilapidated due to the Hurricane Maria. A significant contribution to the cause of education was made in July 2018, with the company donating $37.5 million to kindergarten to 12th grade science, technology, engineering, and mathematics education in Nevada. In January 2020, Tesla donated 5 million Yuan ($723, 000) to the Chinese Center for Disease Control and Prevention to fight the COVID-19 pandemic in mainland China.

Model 3 sedan, tesla's fourth vehicle model, began selling in July 2017. Because of its relative cheapness and its intention to be for the mass market, this model was highly anticipated which encourage the company to try to speed up production. Over 450, 000 reservations were there for the model three in August 2017, which, however, was plagued by delays and production problems increasing pressure on the company which at this time was to have the most shorted companies in the market.

Elon Musk was considering taking Tesla private in August 2018, which of course did not materialize but at the same time give rise to much controversy and many lawsuits were filed against the CEO. A securities fraud charge from the SEC was also charged against him. Luckily, by the end of 2018 production problems had been overcome and Model 3 emerged as the world's best selling plug-in electric car for the year.

**Global Expansion (2019-Present)**

In 2019, Tesla opened its first “Gigafactory” (while there isn‘t an exact dictionary definition of what a gigafactory is, there are two common understandings of the term – one states that a gigafactory signifies a factory that is capable of end to end production of thousands of gigawatts of energy, via end to end battery manufacturing process. The other interpretation of the term is that a gigafactory generally points to a massive factory – with ‘giga’ denoting the sheer scale of the enterprise) outside the United States of America in Shanghai, China. This was the first automobile factory in China which was fully owned by a foreign company and was built in less than six months. In 2020, Tesla started construction on another similar factory in Berlin, Germany and the second one in Texas, United States of America. Its fifth vehicle model, the Model Y crossover’s deliveries began in March 2020.

The record for the greatest valuation of any American automaker was broken on January 10, 2020, and Tesla reached a market capitalisation of $86 billion. Hence, the company's market capitalisation was far above those of BMW, Daimler, Volkswagen, all the three combined. The world's most valuable auto maker by market capitalisation was Tesla in the month of February 2020, when it surpassed Toyota's $202 billion by reaching a valuation of $206 billion, which now had Tesla at a 5-for-1 stock split.

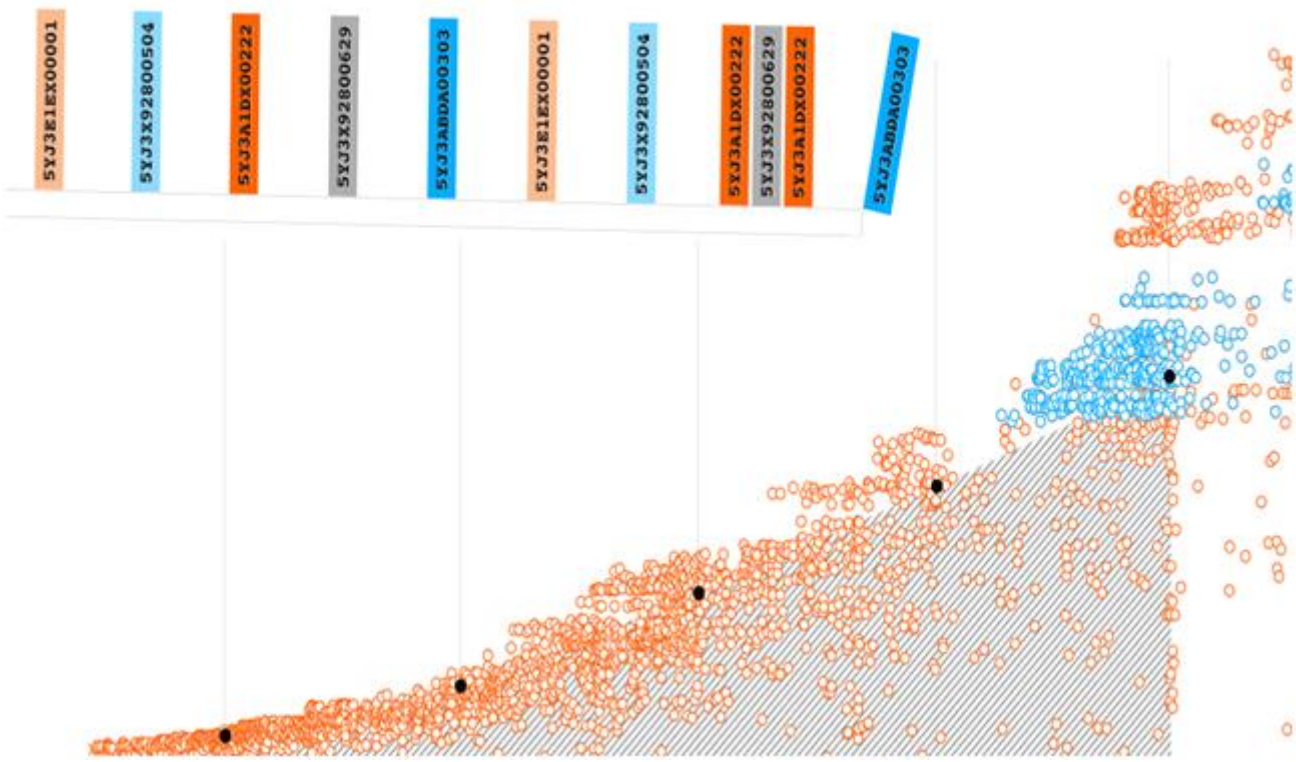
Four profitable quarters in a row for the first time were reported by Tesla from a period of July 2019 to June 2020, making Tesla eligible for admission in the S&P 500. Subsequently tesla was added to the index on December 21, 2020, making it the largest company to be ever added, and the sixth largest company at the time of its inclusion, in the index. JP Morgan Ryan Brinkman and other similar analysts suggested investors exercise caution as Tesla was dramatically overvalued, when investors try to buy more shares as a result of this inclusion. The share price of Tesla increased by an enormous 740% throughout 2020, and on January 26 2021, its market capitalisation reached a whopping $848 billion, more than the next nine largest automakers combined, consequently making it the fifth most valuable company in the US.

Tesla played a very smart game from 2015 to 2020, as it went on an acquisition spree, buying some of little known companies like Riviera Tool, Grohmann Engineering, Perbix, Compass Automation, Hibar, and German ATW Automation to advance Tesla‘s expertise in automation, along with Maxwell Technologies and Silicon to add to Tesla‘s abilities in battery technology.

Tesla became the first automaker to dissolve their public relations department in October 2020, as per the official notification to the American news website Electrek. However, a few PR managers do represent as last Europeans and Asian markets.
The goal of building half a million cars was met in 2020, with the company ending the year with over $19 billion of cash, as compared to a low $6.3 billion at the end of 2019.

Keeping up with the crypto currency trend, Tesla revealed in February 2021, that it had invested some $1.5 billion in bitcoin in 2020 and on March 24, Tesla started accepting bitcoin as a means of payment for vehicle purchases in the United States. Subsequently, they stated, that they would introduce bitcoin payment in other countries later that year. At the time, Musk tweeted that "Bitcoin paid to Tesla will be retained as Bitcoin, not converted to fiat currency. " Financial documents revealed that Tesla had made $100 million profit on the sale of bitcoin in just a matter of three months. However, the company said on May 12, 2021, that they would no longer take bitcoin due to concerns that mining the crypto currency would contribute to the consumption of fossil fuels and climate change. This heavily influenced the extremely volatile currency leading the price of bitcoin to drop around 12% on May 13. Elon Musk suggested that Tesla could probably help bitcoin miners switch to renewable energy for more sustainable development in the future and that if bitcoin mining reaches and trends above 50% renewable energy uses, Tesla would resume accepting bitcoin. It was only this announcement that made the price of bitcoin rise and soar again.

The company was speculated to move its headquarters from Palo Alto in California to Austin in Texas. The CEO stated that

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Tesla would continue to operate its Fremont factory in California and would continue to expand in the state.

Tesla broke ground on a new battery factory in Lathrop, California in September 2021 and signed a lease in October 2021 for additional office space in Palo Alto. A news that the Hertz car rental company ordered 100, 000 Tesla cars for its fleet meet Tesla's market capitalisation reach $1 trillion, making the company the sixth ever company to do so in the history of the United States, in October 2021.

**Products of the Automobile Industry**

*"Our virtues and our failings are inseparable, like force and matter. When they separate, man is no more"*

-Nikola Tesla

Tesla has four car models as of 11th November 2021, Model S, Model X, Model 3, and Model Y, with Tesla roadster no longer in sales. Tesla has plans for a second-generation roadster, a semi, and a pickup called the Cybertruck.

**Products in Production**

The Tesla model S, introduced on June 22, 2012, is an all electric five door lift back which received a major refresh in June 2021. This particular car is positioned by Tesla as its flagship. In 2013, it became the first electric car to top the monthly new-car-sales ranking in any country, leading twice in Norway, in September and December, 2013, along with in Denmark in December 2015. Its sales surpassed 250, 000 units in September 2018 making it the top selling plug-in electric car worldwide although it was later surpassed by the model 3. In an early review of the Model S, Consumer Reports declared, "This car performs better than anything we've ever tested before. Let me repeat that: Not just the best electric car, but the best car. It does just about everything really, really well. " In their Owner Satisfaction survey owners have consistently rated Teslas at, or near, the top rankings. In 2019, Motor Trend named the 2013 Tesla Model S the ultimate "Car of the Year" over the magazine's entire 70-year history.

The mid-size all electric luxury crossover, Tesla model X uses falcon wing doors for passenger access and was developed from the full sized Sedan platform of model S. The Model X has an EPA size class as an SUV, and shares ~30% of its content with the Model S, half of the originally planned ~60%, and weighs about 10 percent more. Both the Model X and Model S are being produced at the Tesla Factory in Fremont, California. This particular car was revealed at Hawthorne, California on February 9, 2012, which is Tesla's design studio. Its first delivery began in September 2015 and after one full year in the market the model X was ranked among the seventh best selling plug-in cars of the world. Model X is, however only available as the long range with an estimated EPA range of 360.4 miles (580.0 km) and the Plaid model with an estimated EPA range of 339.9 miles (547.0 km), but yes with Tesla's autopilot driver assistant system.

The model three, an electric fastback mid-size four-door sedan and the Model 3 Standard Range Plus version delivers an EPA-rated all-electric range of 262 miles (422 km) and the Long Range version delivers 353 miles (568 km). This particular car carries full self driving hardware with periodic software updates which add to the functionality. Production in limited quantity began in the middle of the year 2017 with the first week and rolling off the assembly line on July 7. The delivery along with your official launch of the first 30 caste place on July 20. This particular car has been marketed as being far more affordable as compare to the previous models of Tesla. Model three has consistently remain the best selling electric on world history as of early 2020, and became the first electric car to pass the 1 million global sales milestone in June 2021. It has been the world's top-selling plug-in electric car for three years from 2018 to 2020 and the best selling plug-in electric vehicle in the United States for three consecutive years, from 2018 to 2020 and the top-selling plug-in electric car in Europe in 2019 and the best selling electric car in China in 2020.

The Tesla Model Y, an electric compact crossover utility vehicle started production at Fremont plant in California and is the second vehicle that is based on the model three sedan platform. Tesla unveiled this car in March 2019 and started deliveries on March 13, 2020. An estimated 75% of its parts are shared with Tesla model three including a similar interior design and electric powertrain. However, this model offers optional third row seats for seven passenger seating capacity. It's a much smaller and less expensive segment than Tesla model X. There were four planned powertrain configurations for the Model Y: Standard Range Rear-Wheel Drive (RWD), Long Range Rear-Wheel Drive, Long Range with Dual Motor All-Wheel Drive (AWD), and Performance (with Dual Motor All-Wheel Drive). The Long Range AWD model and the Performance model are currently being delivered. The Standard Range RWD configuration was initially canceled in July 2020, due to the range (230 miles EPA) being unacceptably low to Musk, but was subject to order as of January 2021 (with 244 miles of EPA range). By February 7, 2021, the Long Range RWD appears to have been cancelled.

**Future Products**

An upcoming all electric battery powered four seaterall wheel drive sports car concept, the Tesla roadster second-generation has been claimed to be capable of f 0 to 60 mph (0 to 97 km/h) in 1.9 seconds, which would be quicker than any street legal production car as of the announcement in 2017. The Roadster is the successor to Tesla's first production car, which was the 2008 Roadster. The roadster should ship in 2023, as per Tesla CEO Elon Musk who said in a tweet that higher performance trim levels will be available be on the base specifications including a SpaceX package package "include ~10 small rocket thrusters arranged seamlessly around the car" which would supposedly allow for dramatic improvements in "acceleration, top speed, braking & cornering. ” Research completed by Bloomberg L. P. indicates that the estimate as to range per charge is optimistic, based on comments from Salim Morsy, electric vehicle analyst at Bloomberg New Energy Finance. In an article titled Tesla's Newest Promises Break the Laws of Batteries, Morsy indicated that the claimed battery capacity would require batteries that would be too large for the Roadster's small frame. "I really don't think the car you saw last week had the full 200 kilowatt hours in it. I don't think it's physically possible to do that right now. " Morsy's analysis directly contradicts Musk, who stated "this is what we are achieving in the prototype”. Venkat Viswanathan, a mechanical engineering professor at Carnegie Mellon University, told Jalopnik that the 1.9 second figure for 0–97 km/h (0–60 mph) seemed reasonable given the estimated battery weight of 833 kg (1, 836lb). He added that the feasibility of the acceleration claim assumed suitable tires would be available for the required traction.

The Tesla Semi is an all-electric powered battery-powered elegance eight semi-truck in improvement by Tesla, Inc. idea cars have been unveiled in November 2017, and manufacturing is deliberate in 2023. The agency to begin with introduced that the truck would have a 500 miles (805 km) variety on a complete rate and with its new batteries it might be able to run for four hundred miles (640 km) after an 80% charge in 30 minutes using a solar-powered “TeslaMegacharger" charging station. Tesla CEO Elon Musk said that the Semi would come general with Tesla Autopilot that lets in semi-independent using on highways. In November 2017, Tesla projected that the anticipated

charge of everyday manufacturing variations for the three hundred-mile (480 km) and 500-mile (800 km) range variations might be $150, 000 and $180, 000 respectively. The agency said they would provide a Founder's collection Semi at US$200, 000. In March 2018, Tesla announced that the Semi become being tested with actual cargo, hauling battery packs from Nevada to California. In August 2018, a Tesla Semi prototype traveled from California by itself—without escort or accompanying automobiles—for per week to arrive on the J. B. Hunt headquarters in Arkansas.

All-electric, battery-powered, light-duty truck, the Tesla Cybertruck has and EP a range of estimated 400–800 kilometers (250–500 mi) and an estimated 0–100 km/h (0–62 mph) time of 2.9–6.5 seconds, depending on the model. Provision of sustainable energy substitute for the roughly 6500 fossil fuel powered trucks sold per day in the United States, is the stated goal of Tesla in developing the cyber truck. The base price of the rear-wheel drive (RWD) model of the vehicle was announced to be US$39, 900, with all-wheel drive (AWD) models starting at US$49, 900. Production of the dual-motor AWD and tri-motor AWD Cybertruck production was slated to begin in late 2021, with the RWD model release date in late 2022, but the production was pushed back to 2022.

**Discontinued Products**

The Tesla Roadster is a battery electric powered automobile (BEV) sports activities vehicle, based totally at the Lotus Elise chassis, that turned into produced by the electrical vehicle firm Tesla automobiles (now Tesla, Inc.) in California from 2008 to 2012. The Roadster turned into the primary dual carriageway felony serial manufacturing all-electric powered vehicle to use lithium-ion battery cells and the primary production all-electric powered car to journey greater than 320 kilometres (two hundred mi) in keeping with charge. it is also the primary production automobile to be launched into deep area, carried by way of a Falcon Heavy rocket in a check flight on February 6, 2018. Tesla offered about 2, 450 Roadsters in over 30 countries, and maximum of the final Roadsters have been sold in Europe and Asia for the duration of the fourth sector of 2012. Tesla produced right-hand-pressure Roadsters from early 2010. The Roadster qualified for government incentives in several countries. According to the U. S. EPA, the Roadster can journey 393 kilometres (244 mi) on a unmarried charge of its lithium-ion battery %, and might accelerate from 0 to ninety seven km/h (zero to 60 mph) in three.7 or 3.9 seconds relying at the version. It has a pinnacle speed of 201 km/h (125 mph). The Roadster's performance, as of September 2008, became reported as a hundred and twenty MPGe (2. zero L/a hundred km). It uses one hundred thirty five Wh/km (21.7 kWh/100 mi) battery-to-wheel, and has a performance of 88% on common.

**Tesla Energy Products**

Tesla also sells and installs solar energy systems, battery energy storage products, as well as other related products and services to residential, commercial and industrial consumers as part of its Tesla Energy.

Tesla subsidiary Tesla Energy develops builds, sells and installs solar energy generation systems and battery energy storage products (as well as related products and services) to residential, commercial and industrial customers. The subsidiary was created by the merger of Tesla's existing battery energy storage products division with SolarCity, a solar energy company that Tesla acquired in 2016. Tesla Energy's generation products include solar panels (built by other companies for Tesla), the Tesla Solar Roof (a solar shingle system) and the Tesla Solar Inverter. Other products include the Powerwall (a home energy storage device) and the Powerpack and Megapack, which are large-scale energy storage systems.

In 2020, the company deployed solar energy systems capable of generating 205 megawatts (ranked third in U. S. residential solar installations) and deployed 3 gigawatt-hours of battery energy storage products.

Tesla has developed a software ecosystem to support its energy hardware products. Autobidder, Powerhub, Opticaster, Microgrid Controller and Virtual Machine Mode are the products that Tesla offers.

**Technology and Services Provided**

*"All that was great in the past was ridiculed, condemned, combated, suppressed-only to emerge all the more powerfully, all the more triumphantly from the struggle. "*

-Nikola Tesla

Revenues reached $900 million in the first quarter of 2021 which arise mainly out of services including vehicle servicing, charging, insurance, software app creates, and improve connectivity. Also, apart from this, autopilot as a subscription, paying for Wi-Fi hotspot in the car on the Tesla network add to the revenue collection and generation.

**Charging and Vehicle Batteries**

A Tesla Supercharger is a 480-volt direct present day fast-charging technology constructed by means of American automobile producer Tesla, Inc. for electric powered cars. The Supercharger network was added on September 24, 2012, with six Supercharger stations. As of February 18, 2021, Tesla operates over 30, 000 Superchargers in over 2, 564 stations international (a median of 9 chargers according to station). There are 101 stations in North America, 592 in Europe, and 498 in the Asia/Pacific location. Supercharger stalls have a connector to deliver electric strength at maximums of 72 kW, 150 kW or 250 kW. Tesla model S become the primary vehicle in order to use the community, observed through the Tesla model X, Tesla version 3, and Tesla version Y. Some Tesla vehicles have unfastened supercharging for life, a few have 100–400 kWh consistent with 12 months, some have a single one hundred–400 kWh credit score, and a few have a financial credit. Any expenses are robotically billed to the Tesla account the automobile is related to. If the account does not have any credit, the fees are mechanically billed to credit score card on file for that account. Expenses are in the main for the power used, however in a few localities that is not allowed and Tesla prices for the time spent charging. An idle charge may be charged (depending at the percentage occupancy of the Supercharger station) for persevering with to be plugged into the Supercharger after charging has been completed.

**Software Updates and Upgrades**
Tesla cars' software program is often updated over-the-air whilst new software program and firmware variations are released. This permits the cars to remain updated and improve after buy. Tesla additionally offers the choice to unlock the capabilities within the car thru over-the-air software program enhancements after purchase. Available upgrades consist of basic Autopilot, complete Self using, acceleration boost (for model 3 owners), and rear-heated seats (for version 3 proprietors).

**Connectivity**
All Tesla cars come with "widespread Connectivity" which gives navigation the usage of a cellular connection, and the subsequent best over Bluetooth: net browsing wireless, track streaming (with a paid subscription), and, while parked, video streaming and "karaoke". "Premium Connectivity" adds mobile access to those capabilities and also offers live wireless and satellite tv for pc maps for navigation.

**Vehicle Servicing**
Tesla provider method is to provider its automobiles first thru faraway diagnosis and restore. If it is no longer viable to resolve a problem remotely, customers are referred to a local Tesla-owned provider center, or a cellular technician is dispatched. Tesla has said that it does not need to make earnings on car servicing, which has historically been a huge profit middle for maximum car dealerships. In 2016, Tesla endorsed having any Tesla vehicle inspected every 12, 500 miles or once a 12 months, whichever comes first. In early 2019, the manual became modified to say: "your Tesla does not require annual upkeep and ordinary fluid adjustments, " and as an alternative it recommends periodic servicing of the brake fluid, air conditioning, tires and air filters.

**Insurance**
On June 4, 2017, the American Automobile Association raised insurance rates for Tesla owners following a report from the Highway Loss Data Institute. The report concluded that the Model S crashes 46% more often and is 50% more expensive to repair than comparable vehicles. Similarly, the Model X was concluded to crash 41% more often and to be 89% more expensive to repair than similar vehicles.

As a result, AAA raised insurance rates on Tesla cars by 30%. Tesla said that the analysis is "severely flawed and not reflective of reality", however, Tesla failed to provide any contradictory numbers. Shortly thereafter, Russ Rader, the spokesman for the Insurance Institute for Highway Safety, confirmed the AAA's analysis and that "Teslas get into a lot of crashes and are costly to repair afterward".

The following year, an analysis of claim frequency and insurance cost data by the Insurance Institute for Highway Safety conducted by financial research provider 24/7 Wall St. found that the Tesla Model S and Model X were the two most expensive vehicles to insure.

Musk stated that he expects these insurance rates will greatly decrease once driver-assist and self-driving technology become commonplace. Starting in October 2017, Tesla partnered with Liberty Mutual Insurance Company to offer US customers an insurance plan designed specifically for Tesla cars. In August 2019, this partnership was superseded by a partnership with State National Insurance, but was initially only available to Tesla owners in California. In July 2020, Musk, relying on data obtained through the partnership with State National Insurance, announced that Tesla was creating its own "major" insurance company. Tesla claims the insurance uses individual vehicle data to offer personalised pricing.

**Business Strategy**

*"Of all things, I liked books best."*

-Nikola Tesla

"My day job is running a space transportation company called SpaceX, but on the side I am the chairman of Tesla Motors and help formulate the business and product strategy with Martin and the rest of the team. I have also been Tesla Motor's primary funding source from when the company was just three people and a business plan. "-Elon Musk.

Elon Musk is the co-founder, CEO and product architect at Tesla who oversees all product development, engineering and design of the company's electric vehicles. As the chairman of the board of directors in 2004, he wasn't very involved in the day-to-day activities of the company, albeit he did oversee the roadsters product design. After 2008, Elon has been shaping the future of electric cars and the automotive industry radically through Tesla. Elon Musk was ranked 21st on Forbes list of the world's most powerful people which made him gain a lot of attention and popularity making him a famous personality and a credible one. It is ironic when car companies spend billions of dollars on earth guy zing and publicity but in the case of Tesla, one tweet from Elon Musk announcing a new model or an idea gets crazy ravenous publicity. I think it's quite safe to say that people believe in Tesla because of Elon Musk.

The company entered the market through very expensive cars which were targeted at the privileged class of people. The idea was to venture into a more competitive market of low-level price models once the company is more established and widely known as a successful idea. Keeping this aspect in purview, the first model was launched to get the company's mission out in the marketplace. What was of utmost importance was Tesla to make a name for the brand after which the business model would be reinforced. Tesla's business model is based on a three pronged approach to selling, servicing and charging its electric vehicles.

Tesla prefers selling its product directly to the customers through cell phone showrooms instead of adopting the approach of franchise dealerships. The firmly believe that this method of selling will accelerate product development. But what is of more significance is the consumers buying experience. Tesla showrooms, service plus centres and service facilities are all high-class. It also makes use of Internet sales so that consumers can modify and purchase a car online.

Tesla has merged direct sales with service centres with the belief that opening service centres have a very positive

effect on the consumers demand. Thus float the idea of the service plus retail centres. Consumers can service their cars or charge them at the service centre or service plus locations as well as have mobile technicians who can come to the home. These mobile technicians are called Tesla Rangers. The model S allows the consumer to wirelessly upload the data so that the technician can view and fix certain problems online without even having to touch the car.

Apart from the three-pronged business model, Tesla also provides financial services like granting loans and leases if the customer wants to resell or vehicle or have a provision for some downside protection on the vehicles value. Other products of Tesla include a line of phone batteries and solar roof systems among many others. Another important part of Tesla's business strategy is that Tesla takes customer deposits upfront, a year, two years or three years in advance of production and delivery unlike other car companies. Tesla has sold $500 million in stock to the public.

Tesla does not have its goals set for producing or selling high and electric cars for the rich people in the society and to make money. The mission of the company is to accelerate the world's transition to sustainable energy. This makes Tesla schools far beyond that of most automobile companies. Tesla's vision is to build a globe with cars void of harmful emissions and every day they work to draw this future closer to the present. Of course, performance of Tesla cars is superior. Tesla has succeeded in not only manufacturing electric cars but also revolutionizing the future of emission free travel and making long-distance travel through electric cars possible. The biggest achievement of Tesla by far is that it has made a business model to bring the electric car into the market rather than just plainly manufacturing a car.

**Tesla in Texas**

Tesla's increasing presence in Texas is coherent in multiple ways, which of course is the fewer number of regulations and low rates of taxes, quite favourable for the company's Chief Executive Officer, Elon Musk, and the conservative lawmakers who run the state share a libertarian philosophy. Owing to the limit on the expansion of scale of operations in California (the Bay Area), in Austin the gigafcatory is only five minutes from the airport and five minutes from downtown. It is for these reasons, that Tesla's annual meeting was hosted at its new factory near the Texas capital on 7th October, 2021.

Tesla's mission is to "accelerate the world's transition to sustainable energy," and its customers include many people who want sporty cars that don't spew greenhouse gases from their tailpipes. Texas, however, is run by conservatives who are skeptical of or oppose efforts to address climate change. They are also fiercely protective of the state's large oil and gas industry. And, despite the state's business-friendly reputation, Tesla can't sell vehicles directly to customers there because of a law that protects car dealerships, which Tesla does not use.

This move is not a cause of surprise because in May 2020, Elon Musk had threatened to leave California after local officials had forced Tesla to shut down its car factory in the San Francisco Bay Area because of the imminent coronavirus. But this decision is also subject to some gaping ideological contradictions because the company stands at the vanguard of the electric car and renewable energy movement. This is in stark contrast with the Texas lawmakers, who despite having welcomed him enthusiastically are the biggest registers to move the economy away from oil and natural gas. "It's always a feather in Texas' hat when it takes a business away from California, but Tesla is as much unwelcome as it is welcome," said Jim Krane, an energy expert at Rice University in Houston. "It's an awkward juxtaposition. This is a state that gets a sizeable chunk of its G. D. P. from oil and gas and here comes a virulent competitor to that industry."

In February 2021, the Texas electric grid was collapsed because of a rare winter storm, in which left millions of people without electricity and heat for days to come. Texas leaders sought to blame this blackout on renewable energy. "This shows how the Green New Deal would be a deadly deal for the United States of America," Gov. Greg Abbott said of the blackout on Fox News." It just shows that fossil fuel is necessary for the state of Texas as well as other states to make sure we will be able to heat our homes in the winter times and cool our homes in the summer times."

The CEO, was having a different ideology and he said that renewable energy could in fact protect people from power outages." I was actually in Austin for that snowstorm in a house with no electricity, no lights, no power, no heating, no internet," he said." This went on for several days. However, if we had the solar plus Powerwall, we would have had lights and electricity."

The announcement that Tesla would be moving its headquarters from Palo Alto, California to Texas came with inadequate details. It is not clear, for example, how many workers would move to Austin. It's also unknown whether the company would maintain a research and development operation in California in addition to its factory in Fremont, which is a short drive from headquarters and which it said it would expand. The company has around 750 employees in Palo Alto and about 12, 500 in total in the Bay Area, according to the Silicon Valley Institute for Regional Studies. It is also not clear how much money Tesla will save on taxes by moving. Texas has long used its relatively low taxes, which are less than California's, to attract companies. County officials have already approved tax breaks for the company's new factory, and the state might offer more.

Once Tesla has moved to Austin, Texas and starts producing cars, Mr. Musk might have some political connections to get the legislature to act according to him. This is because of the Texas law about how cars can be sold there. Texas has long had laws to protect car dealers by barring automakers, including Tesla, from selling directly to consumers. Tesla has showrooms around Texas, but employees are not even allowed to discuss prices with prospective buyers and the showrooms cannot accept orders. Texans can buy Teslas online and pick the vehicles up at its service centers.

**Stock Movement of Tesla Over the Years**

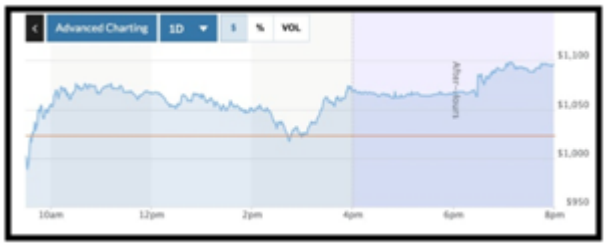
*"The day science begins to study non-physical phenomena, it will make more progress in one decade than in all the previous centuries of its existence. "*

-Nikola Tesla

Tesla has an open stock valued at $1, 010.41. The daily range is 987.31-1, 078.10, while the annual range is 401.66-1, 243.49. The market capitalisation stands at $1.03 Trillion, with 1B shares outstanding and a public float of 813.63 million. Its Beta is 1.37, while the revenue per employee is $445.68K with a P/E ratio of 345.79. Its EPS is valued at $3.09, having a short interest of 28.08M, and 3.45% float shorted with an average value of 22.74M.

Tesla's competitors include Toyota Motor Corp., which has a CHG of 1.22% and market capitalisation valued at ¥27.63T (approximately $0.24 trillion); Volkswagen AG Non-Vtg Pfd., which has a CHG of-0.71% and market capitalisation valued at €122.46B; Daimler AG, which has a CHG of 0.02% and market capitalisation valued at €93.53B; General Motors Co., which has a CHG of 1.11% and market capitalisation valued at $85.11B; Ford Motor Co. which has a CHG of-3.78% and market capitalisation valued at $80.4B; NIO Inc. ADR which has a CHG of-2.68% and market capitalisation valued at $66.59B; Bayerische Motoren Werke AG which has a CHG of 0.34% and a market capitalisation of €59.02B, and Stellantis N. V. which has a CHG of-0.07% and a market capitalisation of €54.63B.

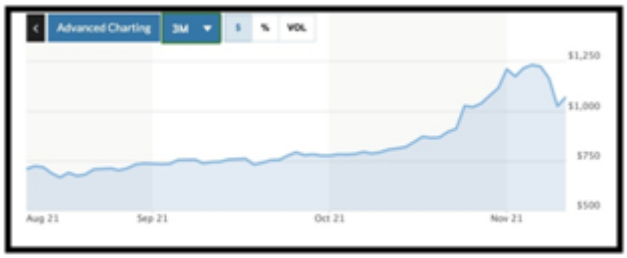
Outlined below is the stock movement of Tesla, Inc. over a period of a day (11th November, 2021), 5 days (7th November, 2021 to 11th November, 2021), a month (12th October, 2021 to 11th November, 2021), three months (12th August, 2021 to 11th November, 2021), six months (12th May, 2021 to 11th November, 2021), the year till date (1st January 2021 to 11th November, 2021), one year (11th November, 2020 to 11th November, 2021), three years (1st January, 2021 to 11th November, 2021), and all-time (since the inception in 2003 till date, 11th November, 2021). The company's five-day performance is-13.17%, the one month performance was 30.51%, the three-month performance was 47.86%, the year-till-date (YTD) was 51.34%, and the one-year performance was 159.36%.



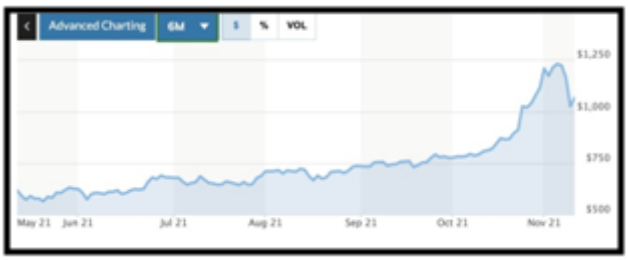

A graph depicting the stock movement of Tesla for a day (11th November, 2021).
Source: marketwatch.com


A graph depicting the stock movement of Tesla for 5 days (6th November, 2021 to 11th November, 2021).
Source: marketwatch.com

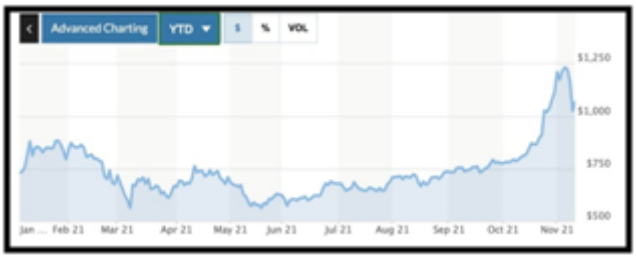

A graph depicting the stock movement of Tesla for a month (11th October, 2021 to 11th November, 2021).
SOURCE: marketwatch.com



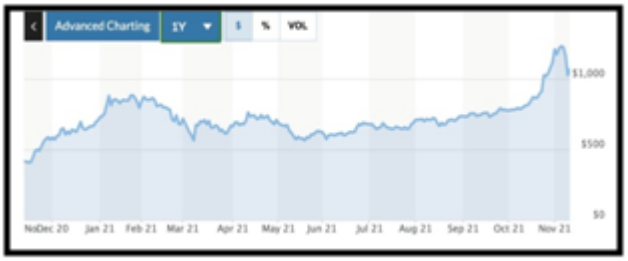

A graph depicting the stock movement of Tesla for 3 months (11th August 2021 to 11th November, 2021).
SOURCE: marketwatch.com




A graph depicting the stock movement of Tesla for 6 months (11th May to 11th November, 2021).
SOURCE: marketwatch.com




A graph depicting the stock movement of Tesla for year till date (1st January, 2021 to 11th November, 2021).
SOURCE: marketwatch.com




A graph depicting the stock movement of Tesla for a year (11th November, 2020 to 11th November, 2021).
SOURCE: marketwatch.com


A graph depicting the stock movement of Tesla for 3 years (11th November 2018 to 11th November, 2021).
SOURCE: marketwatch.com

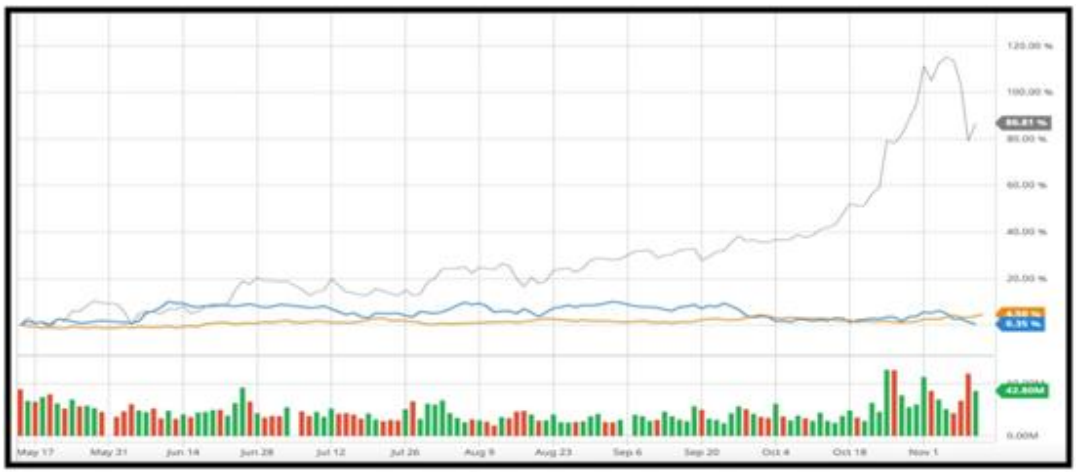

*Source:* barchart.com/stocks/quotes/TSLA/interactive-chart

**COMPARISON OF TESLA, INC. WITH NYSE AND DJI INDEX**

*"The scientists of today think deeply instead of clearly. One must be sane to think clearly, but one can think deeply and be quite insane. "*

-Nikola Tesla

Tesla's mission is to accelerate the world's transition to sustainable energy. Since its founding in 2003, Tesla has broken new barriers in developing high-performance automobiles that are not only the world's best and highest-selling pure electric vehicles—with long range and absolutely no tailpipe emissions—but also the safest, highest-rated cars on the road in the world. Beyond the flagship Model S sedan and the falcon-winged door Model X sports utility vehicle, Tesla also offers a smaller, simpler and more affordable mid-sized sedan, Model 3, which it is expected will truly propel electric vehicles into the mainstream. In addition, with the opening of the Gigafactory and the acquisition of SolarCity, Tesla now offers a full suite of energy products that incorporates solar, storage, and grid services. As the world's only fully integrated sustainable energy company, Tesla is at the vanguard of the world's inevitable shift towards a sustainable energy platform.



A graph depicting the stock movement of Tesla all time (Time of inception 2003 to 11th November, 2021).
SOURCE: marketwatch.com

The New York Stock Exchange is an American stock exchange in the Financial District of Lower Manhattan in New York City. It is by far the world's largest stock exchange by market capitalisation of its listed companies at US$30.1 trillion as of February 2018. The average daily trading value was approximately US$169 billion in 2013. The NYSE trading floor is at the New York Stock Exchange Building on 11 Wall Street and 18 Broad Street and is a National Historic Landmark. An additional trading room, at 30 Broad Street, was closed in February 2007. The NYSE is owned by Intercontinental Exchange, an American holding company that it also lists. Previously, it was part of NYSE Euronext (NYX), which was formed by the NYSE's 2007 merger with Euronext.

The Dow Jones Industrial Average, is a price-weighted measurement stock market index of 30 prominent companies listed on stock exchanges in the United States. Although the DJIA is one of the oldest and the most commonly followed equity indices, many professionals consider the Dow to be an inadequate representation of the overall U. S. stock market compared to broader market indices such as the S&P 500 or Russell 3000 Index. The DJIA includes only 30 large companies and is a price-weighted index, unlike later stock indices which use market capitalisation. Furthermore, the DJIA does not use a weighted arithmetic mean. The value of the index is the sum of the stock prices of the companies included in the index, divided by a factor which is currently (as of September 2020) approximately 0.152. The factor is changed whenever a constituent company undergoes a stock split so that the value of the index is unaffected by the stock split.

The major difference between the NYSE and DJI is that The Dow is an index and the NYSE is a place where people come to trade, i. e. to buy and to sell. The Dow gives an indication as to how the market is doing since it averages the 30 top blue chip stocks of the economy. The NYSE exchange is where all the trades for thousands of companies happen. NYSE lists all kinds of stocks and has both floor as well as electronic trading.

The largest exchange in the world. The Dow lists the 30 top stocks of some of the biggest companies in the world. Although the Dow Empire has now grown into many exchanges, ‘the Dow ’refers to the Dow Jones Industrial Average Exchange in NYC. Below outlined is the comparison of the stock price of Tesla, Inc., NYSE and DJI as on 11th November, 2021.

TESLA NYSE DJI

**Key Statistics**

| | | | |
|---|---|---|---|
| Market Capitalization, $K | 1,072,504,832 | 1,758,460 | N/A |
| Shares Outstanding, K | 1,004,265 | 10,850 | N/A |
| Annual Sales | 31,536,000,000 | 0 | 0 |
| Annual Net Income | 690,000,000 | 0 | 0 |
| Last Quarter Sales | 13,757,000,000 | N/A | N/A |
| Last Quarter Net Income | 1,618,000,000 | N/A | N/A |
| 60-Month Beta | 2.00 | 0.96 | N/A |

**Per-Share Information**

| | | | |
|---|---|---|---|
| Most Recent Earnings | 1.86 on 10/20/21 | N/A | N/A |
| Latest Earnings Date | 10/20/21 | N/A | N/A |
| Most Recent Dividend | N/A | 0.020 on 09/23/15 | N/A |
| Next Ex-Dividends Date | N/A | N/A | N/A |

**Ratios**

| | | | |
|---|---|---|---|
| Price/Earnings ttm | 331.23 | 0.00 | N/A |

| Exchange | NASDAQ | NYSE Arca | FOREX |
|---|---|---|---|
| Open | 1,010.41 | 161.76 | 0.005616 |
| High | 1,078.10 | 164.04 | 0.005616 |
| Low | 987.31 | 160.35 | 0.005616 |
| Last | 1,067.95 | 160.58 | 0.005616 |
| Change | +44.45 | -1.48 | unch |
| % Change | +4.34% | -0.91% | unch |
| Volume | 42,802,699 | 132,400 | 1 |
| 20-Day Average Volume | 33,893,715 | 38,400 | 1 |
| Previous Close | 1,023.50 | 162.06 | 0.005616 |
| Industry | Auto - Domestic | N/A | N/A |
| Has Options | Yes | Yes | No |

**Technicals**

| | | | |
|---|---|---|---|
| 20-Day Moving Average | 1,031.91 | 164.89 | 0.005615 |
| 20-Day Raw Stochastic | 59.19% | 2.40% | 76.47% |
| 20-Day Relative Strength | 59.84% | 40.41% | 51.22% |
| Weighted Alpha | +141.93 | -4.11 | +0.05 |
| Today's Opinion | 96% Buy | 88% Sell | 32% Buy |
| Previous Opinion | 96% Buy | 72% Sell | 32% Buy |
| Last Month's Opinion | 88% Buy | 40% Sell | 24% Buy |

**Performance**

| | | | |
|---|---|---|---|
| **5-Days** | | | |
| %Chg | -12.02% since 11/03/21 | -5.45% since 11/03/21 | +0.02% since 11/04/21 |
| Low | 987.31 on 11/10/21 | 160.35 on 11/10/21 | 0.005603 on 11/09/21 |
| High | 1,243.49 on 11/04/21 | 169.08 on 11/04/21 | 0.005616 on 11/11/21 |
| **1-Month** | | | |
| %Chg | +35.96% since 10/08/21 | -1.89% since 10/08/21 | +0.04% since 10/11/21 |
| Low | 785.50 on 10/11/21 | 160.35 on 11/10/21 | 0.005603 on 11/09/21 |
| High | 1,243.49 on 11/04/21 | 169.93 on 11/03/21 | 0.005620 on 10/27/21 |
| **3-Month** | | | |
| %Chg | +50.42% since 08/10/21 | -7.09% since 08/10/21 | +0.04% since 08/11/21 |
| Low | 648.84 on 08/17/21 | 160.35 on 11/10/21 | 0.005603 on 11/09/21 |
| High | 1,243.49 on 11/04/21 | 176.07 on 09/02/21 | 0.005620 on 10/27/21 |
| **6-Month** | | | |
| %Chg | +69.77% since 05/10/21 | +0.95% since 05/10/21 | +0.02% since 05/11/21 |
| Low | 546.98 on 05/19/21 | 155.30 on 05/11/21 | 0.005501 on 06/28/21 |
| High | 1,243.49 on 11/04/21 | 176.64 on 06/10/21 | 0.005620 on 10/27/21 |

Source: https://www.annualreports.com/HostedData/AnnualReports/PDF/NASDAQ_TSLA_2020.pdf

**Facilities Provided in Regions**

*"Life is and will ever remain an equation incapable of solution, but it contains certain known factors. "*

- Nikola Tesla

Tesla, Inc. operates plants worldwide for the manufacture of their products, including but not limited to electric vehicles. It has production facilities in Tesla Fremont Factory, in Fremont, California, USA where Tesla Model S, Tesla Model 3, Tesla Model X, Tesla Model Y and Tesla Roadster (second generation) (future) are produced which opened in 2010 and has 10, 000 employees with a floor area of 5, 500, 000 sq. ft.; Tesla Lathrop Factory, in Lathrop, California, USA where automotive parts are produced which opened in 2014 with a floor area of 500, 000 sq. ft.; Tesla Kato Road Factory, in Fremont, California, USA where automotive seats and lithium-ion batteries are produced which opened in 2015 with a floor area of 510, 000 sq. ft.; Tesla Tool and Die Factory, Giga Nevada (Gigafactory 1), Giga New York (Gigafactory 2), Tesla Grohmann Automation, Tesla Toronto Automation, Giga Shanghai (Gigafactory 3), Tesla Shanghai Supercharger Factory, Giga Berlin (Gigafactory 4), and Giga Texas (Gigafactory 5).

**USA**

Tesla was founded in San Carlos, California. In 2010, Tesla moved its corporate headquarters and opened a powertrain development facility in Palo Alto. In May 2020, after California's government had refused to let the Tesla factory reopen after a COVID-19 lockdown, Elon Musk threatened that he would move the company's headquarters from California to Texas or Nevada, but as of June 2021 has taken no known steps to do so. Tesla's first retail store was opened in 2008 in Los Angeles, followed by others in major U. S. cities. As of September 2020, Tesla operates 130 stores and galleries in the United States, has stores and galleries in 34 other countries, and has 466 service centers globally. Tesla's first assembly plant occupies the former NUMMI plant in Fremont, California, known as the Tesla Factory. The factory was originally opened by General Motors in 1962, and then operated by a joint venture of GM and Toyota from 1984. The original factory was closed in 2010, and was acquired by Tesla the same year. By 2015, Tesla also occupied a second factory in Fremont a few miles from the original Fremont plant.

The first major battery production facility was opened in Nevada in 2016. The Giga Nevada (originally Gigafactory 1) produces Powerwalls, Powerpacks and Megapacks; battery cells in partnership with Panasonic; and Model 3 battery packs and drivetrains. The factory received substantial subsidies from the local and state government that, in exchange for opening in their jurisdiction, allowed Tesla to operate essentially tax free for 10 years. As part of the acquisition of SolarCity in 2016, Tesla acquired Giga New York located in Buffalo, New York, on the site of a former Republic Steel plant. SolarCity had received incentives to locate its factory in Buffalo through the Buffalo Billion program. In 2017, the factory started production of solar shingles for the Tesla Solar Roof. Between 2017 and 2020 Tesla partnered with Panasonic to assemble photovoltaic modules at the plant. On July 23, 2020, Tesla picked Austin, Texas, as the site of Gigafactory 5, since then known as Giga Texas. Tesla aims at opening the factory by the end of 2021. Giga Texas is planned to be the main factory for the Tesla Cybertruck and the Tesla Semi; it will also produce Model 3 and Model Y cars for the Eastern United States. Tesla acquired a former JC Penney distribution center in 2021 to build a Megafactory to manufacture Megapacks. The future location is anticipated to produce the next-generation Megapacks to use prismatic lithium iron phosphate batteries.

**Europe**

Tesla opened its first European store in June 2009 in London. Tesla's European headquarters are in the Netherlands. A 62, 000-square-foot (5, 800 m2) European service center operates in Tilburg, Netherlands, along with a 835, 800-square-foot (77, 650 m2) assembly facility that adds drivetrain, battery and software to the (imported) car body to reduce EU import tax, which depends on the location of final assembly. In late 2016, Tesla acquired German engineering firm Grohmann Engineering in Prüm as a new division dedicated to helping Tesla increase the automation and effectiveness of its manufacturing process. After winding down existing contracts with other auto manufacturers, Grohmann now works exclusively on Tesla projects. Tesla announced its plans to build a car and battery Gigafactory in Europe in 2016. Several countries campaigned to be the host, and eventually Berlin was chosen in November 2019. Construction began in June 2020, and as of June 2021, start of production is planned for the end of 2021.

**Asia**

Tesla store in Tokyo, the first showroom in Japan. Tesla opened its first Japanese showroom in Tokyo, Japan, in October 2010. By 2013, showrooms and service centers were operating in Hong Kong, Beijing and Shanghai. Two showrooms opened in South Korea in March 2017 and a service center opened there in late 2017. In August 2017, Taiwan opened its first service center and showroom. In July 2018, Tesla signed an agreement with Chinese authorities to build a factory in Shanghai, China, which was Tesla's first Gigafactory outside of the United States. The factory building was finished in August 2019, and the initial Tesla Model 3s were in production from Giga Shanghai in October 2019. In response to the Chinese military banning Tesla cars from entering military housing complexes, Elon Musk stated during the China Development Forum in March 2021 that the company would stop producing cars in the country if cars were being used to spy. The comment came shortly after a meeting of Chinese and U. S. diplomats in Alaska, in part over concerns of U. S. intervention in China's internal affairs. In 2020, China accounted for 21% Tesla vehicle sales revenue, and was the second largest market for Tesla after the United States, which accounted for 48% of its sales.

**Rest of the world**

Tesla opened the first Australian showroom in Sydney in 2010, followed by a showroom and service center in Melbourne in 2015. By 2019, Tesla had opened 4 service centers in Australia. In 2012, Tesla opened its first store in Canada in Toronto. The first expansion of Tesla in the Middle East was with the opening of a showroom and a

service center in Dubai, United Arab Emirates (UAE), in 2017. Five ultra-fast superchargers were also built between cities in the UAE, with a planned 50 destination chargers by the end of 2017. One of the first Tesla customers was Dubai's Roads and Transport Authority which ordered 200 Tesla Model S and Model X vehicles that were added to Dubai Taxi Corporation's fleet. In May 2017, a service center and store in Amman, Jordan was opened. In January 2020 a "pop-up" store in Tel Aviv, Israel was opened as well as a research and development center.

## Business Partners

*"Be alone, that is the secret of invention; be alone, that is when ideas are born. "*

- Nikola Tesla

A relative newcomer to the car area, Tesla, Inc., headquartered in California, is an automobile producer and energy garage agency quickly becoming acknowledged for its electric powered car design. It also markets automobile and domestic battery products. Tesla is a publicly traded agency. Tesla received a number of interest and unfastened exposure whilst it produced the primary electric sports activities automobile, the Roadster. Its next product was the model S, an electric powered luxurious automobile. The Roadster was the primary electric car to enforce the usage of lithium-ion batteries, in addition to the first electric powered version to have a cruising range of over two hundred miles. The constrained cruising range earlier than recharging has been one of the foremost criticisms of electrical motors, as most gasoline-powered motors have a cruising variety of around 410 miles. Worried approximately competitors either obtaining interior statistics or buying out important parts, Tesla is as an alternative secretive about the extra than dozen parts providers for the version S, but a lot of them had been exposed by diligent researchers. Tesla manufactures the simple electric powered additives of the automobile – the electrical motor, the battery p. c. and the charger – however different components come from suppliers unfold across the U. S., Europe and Asia.

**Panasonic**

Panasonic and Tesla announced that they will together develop battery cells for electric vehicles which were nickel-based and had lithium ions in January 2010, implying that the partnership was part of Panasonic's $1 billion investment over three years in facilities for research, development and production of lithium ion cells. In the beginning of the year 2010, and investment of $30 million for collaboration on your battery sales designed specifically for electric vehicles was done on the part of Panasonic, with the company reaching a basic agreement with Tesla to participate in battery production at Giga Nevada in 2014. The two companies have also collaborated on the manufacturing and production of photovoltaic cells and various other modules. This partnership started in the middle of the year 2017, ending in early 2020 before the company exited the solar business entirely in January 2021. The company also plans to reduce its reliance on Tesla as the battery partnership evolves, as per a statement issued by the outgoing CEO of Panasonic in March 2021.

Panasonic, which has supplied Tesla with lithium-ion cells for its battery packs since the carmaker's early Silicon Valley startup days, has reportedly sold off its complete stake in Elon Musk's electric powered vehicle company but says their enterprise relationship isn't changing. The Osaka, Japan-primarily based electronics massive unloaded its Tesla stocks all through the financial yr that ended March 31, 2021, in line with a report through Nikkei Asia. sales of the securities likely accounted for plenty of the $3.9 billion Panasonic stated as "proceeds from sale and redemption of investments" in annual filings and to be able to be used to fund new investments, Nikkei said. Panasonic to start with bought 1.4 million shares at $21.15 each across the time of Tesla's June 2010 IPO. The organisation pronounced its stake turned into well worth about $730 million at the give up of March 2020, previous to Tesla's five-to-1 stock split final year and big charge growth at some stage in past due 2020. based totally on that yr-earlier role, Panasonic's stake could have been worth $4.6 billion had it no longer offered any shares. Panasonic intends to retain offering Musk's organisation with cells and is running with it on a next-era battery Musk exact in 2020. "Our courting with Tesla as a commercial enterprise companion will not change going forward," in line with Panasonic government who Nikkei didn't pick out.

**Current Partners and Potential Partners**

Some of the key suppliers for Tesla's manufacturing production are AGC Automotive which produces windshields; Brembo produces brakes, Fisher Dynamics which produces power seats, Inteva Products which produces instrument panel, Modine Manufacturing Co. which produces battery chillers, Sika which produces acoustic dampers, Stabilus which produces liftgate gas spring and ZF Lenksysteme which produces power mechanism. Other suppliers include ADAC, ABC Group, Angell-Demmel, Argent, Gentex, Harada, Hitachi Cable America, Hope Global, MacLean-Fogg, Magna International, Methode Electronics, Multimatic, Panasonic, Plastomer, PSM International, Riviera, T1 Automotive, Zanini Auto Group, TXU Corp., Universal Logistics Holdings, Inc., Affinia Group Intermediate Holdings Inc., Lithium Exploration Group, Inc., U. S. Lithium Exploration Group, Inc., Niocorp Developments, Ltd., Rare Element Resources, Ltd., Burlington Northern Sante Fe Corp., Cooper Industries, Ltd., Clarcor, Inc., Dana Corporation, DELPHI CORPORATION, Flowserve Corp., NextEra Energy, Inc., Harman International Industries Inc., Lightwave Logic, Inc., Molex Inc., Metaldyne Performance Group Inc., Nortek, Inc., ROHM AND HAAS COMPANY, Searchlight Minerals Corp., Integrys Holding, Inc., Titanium Metals Corp., Thomas & Betts Corporation, Curaegis Technologies, Inc., Findex Com Inc., Vystar Corp., Liquidmetal Technologies Inc., Sense Technologies Inc., Omnitek Engineering Corp., Puradyn Filter Technologies Inc., Hammer Fiber Optics Holdings Corp., Amerityre Corp., Zap, Telkonet Inc., CDTI Advanced Materials, THT Heat Transfer Technology Inc., Zoom Telephonics Inc., Seachange International Inc., IEH Corporation, Arc Group Worldwide, Emcore Corp, CUI Global Inc., NI Industries Inc., Perma-pipe International Holdings Inc., UFP Technologies Inc., Applied Optoelectronics Inc., Paragon Offshore PLC, Universal Stainless & Allow Products Inc.,

Deswell Industries Inc., Trecora Resources, Core Molding Technologies Inc., Supreme Industries Inc., Neophotonics Corp., Harmonic Inc., CECO Environmental Corp., KMG Chemicals Inc., Gorman Rupp Co., DMC Global Inc., Avid Technology Inc., China Automotive Systems Inc., CSW Industrials Inc., Proto Labs Inc., Aaon Inc., Voxx International Corporation, Strattec Security Corp., CTS Corp., Bel Fuse Inc., Haynes International Inc., Pam Transportation Services Inc., Jason Industries Inc., and Handy & Harman Ltd.

In September 2020, Tesla signed a sales settlement with Piedmont Lithium to shop for excessive-purity lithium ore for up to ten years, particularly to supply "spodumene concentrate from Piedmont's North Carolina mineral deposit". Tesla additionally has number minor partnerships, for example operating with Airbnb and resort chains to put in vacation spot chargers at selected places.

Daimler AG and Tesla began operating together in past due 2007. On might also 19, 2009, Daimler sold a stake of much less than 10% in Tesla for a mentioned $50 million. As part of the collaboration, Herbert Kohler, Vice-President of E-drive and future Mobility at Daimler, took a Tesla board seat. On July 13, 2009, Daimler AG bought forty% of its acquisition to Aabar. Aabar is an investment organization managed via the global Petroleum investment agency (IPIC), that's owned by means of the government of Abu Dhabi. In October 2014, Daimler offered its last holdings for a said $780 million. Tesla furnished battery packs for Freightliner vehicles' custom Chassis electric van in 2010. The organization also constructed electric powered-powertrain components for the Mercedes-Benz A-class E-cellular, with 500 vehicles planned to be built for trial in Europe starting in September 2011. Tesla produced and co-advanced the Mercedes-Benz B250e's powertrain, which ended production in 2017. the electrical motor was rated 134 hp (one hundred kW) and 230 pound force-feet (310 N· m), with a 36 kWh (one hundred thirty MJ) battery. The automobile had a driving range of 2 hundred km (124 mi) with a top pace of one hundred fifty km/h (93 mph). Daimler department clever produced the clever ED2 cars from 2009 to 2012 which had a 14-kilowatt-hour (50 MJ) lithium-ion battery from Tesla.

In May 2010, Tesla and Toyota announced a deal in which Tesla purchased the former NUMMI factory from Toyota for $42 million, Toyota purchased $50 million in Tesla stock, and the two companies collaborated on an electric vehicle. In July 2010, the companies announced they would work together on a second generation Toyota RAV4 EV. The vehicle was unveiled at the October 2010 Los Angeles Auto Show and 35 pilot vehicles were built for a demonstration and evaluation program that ran through 2011. Tesla supplied the lithium metal-oxide battery and other powertrain components based on components from the Roadster. The production version was unveiled in August 2012, using battery pack, electronics and powertrain components from the Tesla Model S sedan (also launched in 2012). The RAV4 EV had a limited production run which resulted in just under 3, 000 vehicles being produced, before it was discontinued in 2014. According to Bloomberg News, the partnership between Tesla and Toyota was "marred by clashes between engineers". Toyota engineers rejected designs that Tesla had proposed for an enclosure to protect the RAV4 EV's battery pack; Tesla used a similar design in its Model S sedan, which led to cars catching fire due to battery packs being punctured by road debris. On June 5, 2017, Toyota announced that it had sold all of its shares in Tesla and halted the partnership.

Initial variations of Autopilot were evolved in partnership with Mobileye beginning in 2014. Mobileye ended the partnership on July 26, 2016, mentioning "disagreements approximately how the technology changed into deployed."

**Law Suits and Controversies**

*"The present is theirs; the future, for which I really worked, is mine. "*

-Nikola Tesla

Both the CEO and his company have been subject over a thousand lawsuits and controversies, with a majority of backlash and legal problems faced because of the August 7, 2018 tweet by Mr. Musk which was: "Am considering taking Tesla private at $420. Funding secured. . "This caused the stocks to rise first, but then go down again on the realisation of the falsity of the tweet. The U. S. Securities and Exchange Commission (SEC) charged fraud charges on Elon Musk over his false statements. Because of this tweet, Musk was removed from the position of chairman temporarily and two new independent directors were appointed to the board of directors, along with this, Musk also consented to have his tweets reviewed by the in-house counsel of Tesla. Civil penalties of $20 million had to be paid by both Tesla and Elon Musk.

A civil class-action shareholder lawsuit over Musk's statements and other derivative lawsuits were also filed against Musk and the members of Tesla's board of directors as then constituted, in relation to statements made and actions connected to a potential going-private transaction. It was alleged that Elon Musk and Tesla's board of directors had breached their fiduciary duties by proving of Musk stock-based compensation plan, which led to a class action being filed in 2018. What is more than $700 million in 2020, Elon Musk received the first portion of a stock options payout.

The other major legal case which Tesla was subject to was the acquisition of SolarCity, when, in 2016, Elon Musk urged the investors to approve the acquisition despite publicly recusing himself from involvement in the deal. Elon Musk very well knew that SolarCity was going bankrupt before the acquisition, and that he ignored the conflict of interest and thus the board of directors breached their fiduciary duties in connection with the deal, ultimately failing to disclose the troubling facts which were essential to an analysis of the proposed acquisition. The end, the members of the board left Elon Musk as the only defendant and the case settled in 2020. A former Tesla security manager, and Tesla's security employee Karl Hansen's supervisor Sean Gouthro had alleged that the company was illicitly hacking the employees phones and spied on them, and hence was filed a whistleblower complaint. They also

failed to report illegal activities to authorities and shareholders. Therefore, several legal problems were evolved because of the alleged whistleblower retaliation which also included the firing of Tesla's safety official Carlos Ramirez.

Tesla has been severely criticised for its promotion of the FSD (Full Self-Driving), when in reality the software requires the driver is constant supervision and is not fully capable of full self driving. Tesla's FST is a SAE Level 2 advanced driver-assistance system, similar to competitors' offerings such as General Motors' Super Cruise and Ford's Co-Pilot360, despite its marketing and the hype. Elon Musk has repeatedly claimed that Tesla vehicles will be capable of full autonomy in the near future, but a Freedom of Information Act request made by PlainSite revealed that Tesla told the California Department of Motor Vehicles (DMV) in December 2020 they "do not expect significant enhancements" to the Full Self-Driving software that would enable full self-driving. Tesla initially required all customers to sign a non-disclosure agreement in order to take part in their so-called FSD Beta testing program, which journalists noted as an attempt by Tesla to hide the system's flaws and protect itself from critics who argue that Tesla is actually making roads more dangerous.

A major point of controversy for Tesla has become the increasing incidence of jackal fires which have occurred both of the collisions and without any visible impact. Elon Musk has repeatedly said that the vehicles of Tesla or relatively less likely to catch fire than the ones which are gas powered, but substantial data from the national fire protection Association suggest the opposite. At least score reported incidents have been accounted for in which a tesla has caught fire and at least eight vehicles of Tesla appear to have caught fire without being involved in an accident.

If this was not enough, four drivers have been killed while using the autopilot, which is Tesla's semi-autonomous driver-assistance system, which gave rise to questions about the autopilot capabilities and how often the drivers be attention to the road when using the system. To counter this, Tesla pointed out the fact that vehicles with autopilot have had lower accident rates than those in which the autopilot is not activated. However, various factors like environment in which the drivers use the autopilot could also be one of the causes for the difference in the rate of accidents.

Several concerns about the financial reporting of Tesla have been questioned, as to whether they violated the generally accepted accounting principles (GAAP). Various magazines like Fortune and Bloomberg News have accused the company of using creative accounting to show positive cash flow and quarterly profits and concerns have been raised on Tesla as accounts receivable balance, the warranty reserves and lease accounting. The hedge fund manager, David Einhorn has alleged that Elon Musk was a significant fraud and has publicly questioned the company's accounting practices. He even told the CEO that he was" beginning to wonder whether your accounts receivable exist. "A major fraud was committed from the period of 2012 to 2014 when Tesla on more than $295 million in zero emission vehicle credits for a technology that was battery swapping, but was never made available to the customers. This gave rise to concerns at the staff at California air resources board that Tesla was gaming the battery swap subsidies and recommended eliminating the credit.

Considerable controversy was raised when Tesla Fremont factory in Alameda County wanted to be exempted from the stay at home orders imposed by the county. Elon Musk allegedly called the public health orders fascist and defied local government orders by restarting production on the factory when the Alameda County officials were negotiating with the company to reopen the Fremont factory. This was a sheer act of non-compliance but, Tesla filed a lawsuit against the Alameda County. However after rescinding it was given approval to reopen.

An employee was fired from the company because he criticised Tesla for taking inadequate safety measures. This was followed by three other Tesla's Fremont factory employees who said that they would stay at home of fear of catching COVID-19. However this was denied by Tesla who stated that these employees still worked for the company. According to Alameda County health records obtained by PlainSite, COVID-19 cases at the factory grew from 10 in May 2020 to 125 in December 2020, with about 450 total cases in that time period out of the approximately 10, 000 workers at the plant (4.5%).

The company has also been criticised for postponing production and release dates of production as can be evidently seen when in 2016, he missed 20 projections, in October 2017, he predicted that model three production would be 5000 units per week by December, however he revise the target to sometime in March 2018. Delivery dates for model three were also delayed and other projects like converting supercharge stations to be solar powered have also lacked projections. To this criticism, the CEO responded by saying that: "punctuality's not my strong suit. . . I never made a mass-produced car. How am I supposed to know with precision when it's gonna get done?" Tesla was also fined by the United States environmental protection agency for the production of hazardous waste violations, leading Tesla to begin negotiating penalties for 19 environmental violations, centred on Tesla Fremont paint shop where there have been at least four fires between 2014 and 2019. With the production ramp of model three, environmental violations and permit deviations at Tesla's Fremont factory increased significantly from 2018.

Other controversies and lawsuits that Tesla was subject to include the Giga New York Audit, when The New York State Comptroler released an audit for the Giga New York factory project, concluding that it presented many red flags, including lack of basic due diligence and that the factory itself produced only $0.54 in economic benefits for every $1 spent by the state. According to automotive journalist Jamie Kitman, when approaching Tesla for EV technology that Musk had claimed the company was willing to share, multiple CEOs of major automotive manufacturers were offered the opportunity to buy regulatory credits from Tesla instead. This suggests that "the company may not be not as eager for the electric revolution to occur as it claims. " Tesla has used nondisclosure agreements (NDAs) in multiple

occasions with both employees and customers to allegedly prevent possible negative coverage.

In June 2011, the NHTSA took issue with Tesla's use of NDAs regarding customer repairs and, in October 2021, the NHTSA formally asked Tesla to explain its NDA policy regarding customers invited into the FSD Beta. An investigation by the Reveal podcast alleged that Tesla "failed to report some of its serious injuries on legally mandated reports" in order to downplay the extent of injuries. From 2014 to 2018, Tesla's Fremont Factory had three times as many Occupational Safety and Health Administration (OSHA) violations as the ten largest U. S. auto plants combined. In March 2021, the US Labor board ordered Musk to remove a tweet and reinstate a fired employee over union organisation activities. As of July 2021, approximately 100 former employees submitted signed statements alleging that Tesla discriminates against African Americans and "allows a racist environment in its factories."

**Vehicle Product Issues**

*"We crave for new sensations but soon become indifferent to them. The wonders of yesterday are today common occurrences"*

-Nikola Tesla

On April 20, 2017, Tesla issued a global keep in mind of 53, 000 (~70%) of the 76, 000 automobiles it bought in 2016 due to defective parking brakes which could emerge as stuck and "save you the vehicles from shifting. " On March 29, 2018, Tesla issued an international recall of 123, 000 version S motors built before April 2016 because of corrosion-susceptible energy steering bolts, that may fail and require the driving force to use "improved force" to govern the automobile. In October 2020, Tesla initiated a bear in mind of nearly 50, 000 model X and Y vehicles during China for suspension problems. soon after in November, the country wide highway visitors protection management (NHTSA) introduced it had opened its own research into 115, 000 Tesla automobiles regarding "front suspension protection troubles", citing in particular 2015-2017 version S and 2016-2017 version X years. instances of the "whompy wheel" phenomenon, which additionally covered version X and the occasional model three motors, were documented thru 2020.

**Fires and Autopilot Crashes**

In 2013, a model S caught hearth after the vehicle hit metallic debris on a toll road in Kent, Washington. Tesla showed the fire began within the battery and came to be due to the impact of an item. Due to this and other incidents, Tesla announced its decision to increase its modern-day car guarantee to cover fireplace damage. In March 2014, the NHTSA introduced that it had closed the investigation into whether the version S become at risk of catch fireplace, after Tesla stated it might provide more protection to its battery packs. All model S cars synthetic after March 6, 2014, have had the zero.25-inch (6.4 mm) aluminum shield over the battery % replaced with a brand new 3-layer guard. In October 2019, the NHTSA opened an investigation into viable battery defects in Tesla's model S and X cars from 2012 to 2019 that might cause "non-crash" fires.

A model S driver died in a collision with a tractor-trailer in 2016, while the automobile changed into in Autopilot mode; the driver is assumed to be the primary man or woman to have died in a Tesla car in Autopilot. The NHTSA investigated the accident however determined no protection-related defect trend. In March 2018, a driver of a Tesla model X becomes killed in a crash. Investigators say that the motive force of the automobile had his vehicle in 'self-driving' mode and turned into the usage of his telephone to play video games when the car collided with the barrier within the middle of the limited-access highway. thru research, the NTSB found that the Tesla malfunctioned because of the gadget being pressured with the aid of an exit at the freeway.

In accordance with a file launched in June 2021, the NHTSA has initiated as a minimum 30 investigations into Tesla crashes that have been believed to contain the use of Autopilot, with some related to fatalities. Later, in September 2021, the NHTSA up to date the list with a further fatality incident and ordered Tesla handy over all huge facts pertaining to US vehicles with Autopilot for you to decide if there may be a safety defect that leads Tesla cars to collide with first-responder cars.

**Software Hacking**

In August 2015, researchers stated they had been able to take manage of a Tesla version S via hacking into the auto's leisure device. The hack required the researchers to bodily get right of entry to the car. Tesla issued a safety replace for the model S the day after the take advantage of changed into announced.

In September 2016, researchers at Tencent's keen security Lab verified a far off attack on a Tesla model S and managed the car in both Parking and driving Mode without physically getting right of entry to. They have been capable of compromising the automobile networking bus (CAN bus) while the automobile's internet browser turned into used whilst the car turned into connected to a malicious hotspot. This became the first case of a remote control take advantage of verified on a Tesla.

The vulnerability became disclosed to Tesla below their computer virus bounty software and patched within 10 days, earlier than the make the most became made public. Tencent also hacked the doors of a model X in 2017. In January 2018, safety researchers knowledgeable Tesla that an Amazon net offerings account of theirs might be accessed without delay from the net and that the accounts have been exploited for cryptocurrency mining. Tesla replied through securing the compromised system, profitable the safety researchers wi-financially through their bug bounty software, and pointing out that the compromise did now not violate purchaser privateness, nor vehicle safety or protection. Later in 2019, Tesla awarded a vehicle and $375, 000 to moral hackers for the duration of a Pwn2Own version three hacking event.

**Vehicle Sales**

*"My brain is only a receiver, in the Universe there is a core from which we obtain knowledge, strength and inspiration. I*

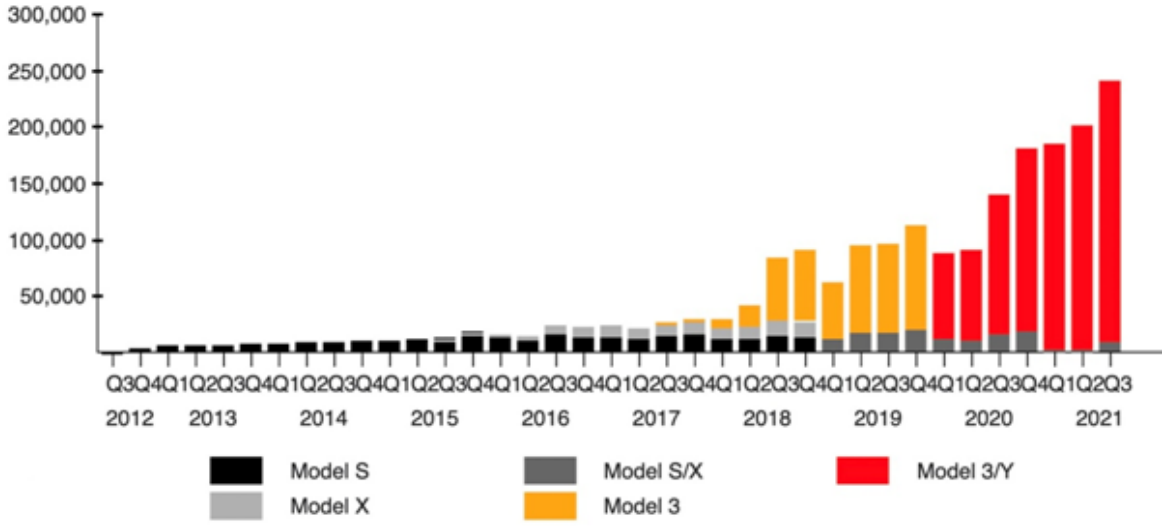
*have not penetrated into the secrets of this core, but I know that it exists. "*

-Nikola Tesla

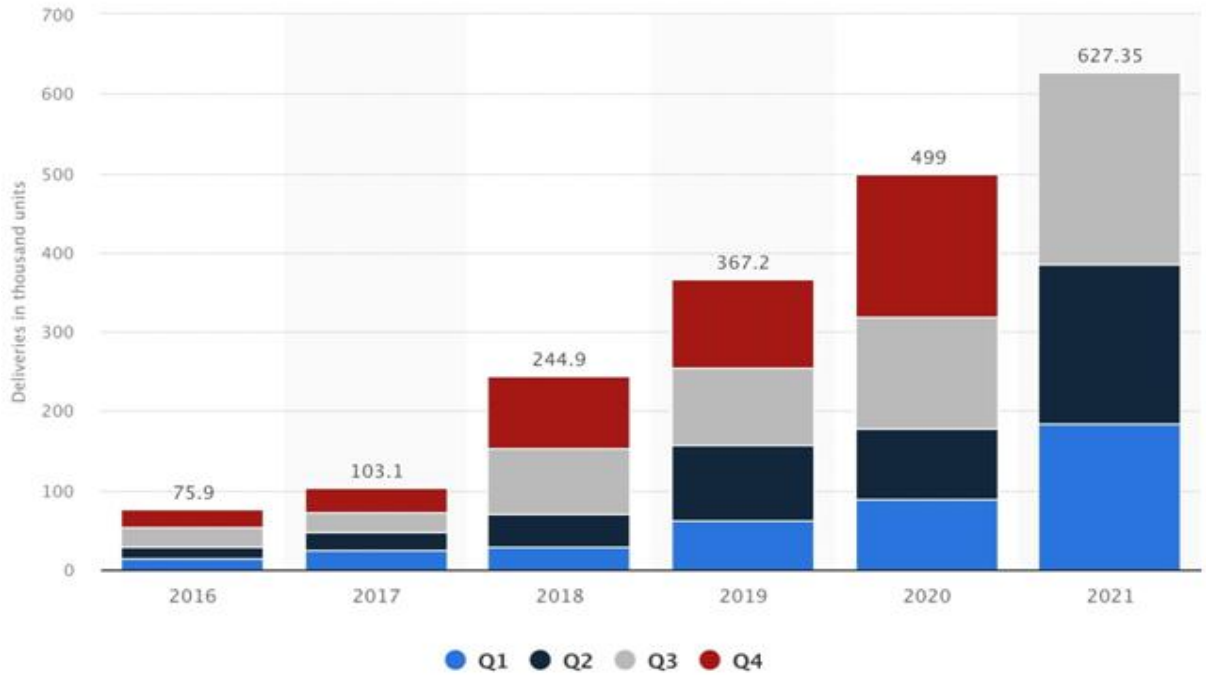
Worldwide income exceeded 250, 000 gadgets in September 2017, and Tesla produced its 300, 000th automobile in February 2018. Tesla's worldwide sales executed the five hundred, 000 unit milestone in December 2018. Tesla international vehicle sales increased 50% from 245, 240 gadgets in 2018 to 367, 849 devices in 2019. On March 9, 2020, the business enterprise produced its 1 millionth electric automobile. Tesla deliveries vary appreciably through month because of nearby issues inclusive of car carrier availability and registration. Tesla does no longer comply with the former car industry general of month-to-month reporting; GM and Ford changed from monthly to quarterly income reporting in 2018 and 2019. some month-to-month sales are envisioned through media.

It is quite essential to know to following when studying the vehicle sales of Tesla:

- Model Y started production in January 2020 and started shipping in March 2020.
- Tesla is reporting sales of Model 3 and Model Y as combined sales, starting with 2020-Q1.
- Sales are only counted as sold when delivered to end customer and all paperwork is correct
- Goods in transit are produced but not counted as sold until delivered.
- Tesla no longer reports in transit numbers.
- Sales by model do not add up to total, these were preliminary figures reported by Tesla.
- Only total sales is final figures are reported by Tesla, as breakdown by model is not typically provided.
- Production of Model S and X was suspended during Q1 2021 to prepare for production of refreshed models later in the year.




**Volume of vehicles sold over a period of 10 years (2012-2021)**



| Quarter | Cumulative production | Total production | Model S sales | Model X sales | Model 3 sales | Model Y sales[a] | Total sales | In transit |
|---|---|---|---|---|---|---|---|---|
| Q3 2012 | N/A | 350 | 250 | | | | 250 | |
| Q4 2012 | N/A | 2,750 | 2,400 | | | | 2,400 | |
| Q1 2013 | N/A | 5,000 | 4,900 | | | | 4,900 | |
| Q2 2013 | N/A | N/A | 5,150 | | | | 5,150 | |
| Q3 2013 | N/A | N/A | 5,500 | | | | 5,500 | |
| Q4 2013 | ~34,851 | 6,587 | 6,892 | | | | 6,892 | |
| Q1 2014 | ~41,438 | 7,535 | 6,457 | | | | 6,457 | |
| Q2 2014 | ~48,973 | 8,763 | 7,579 | | | | 7,579 | |
| Q3 2014 | ~57,736 | ~7,075 | 7,785 | | | | 7,785 | |
| Q4 2014 | 64,811 | 11,627 | 9,834 | | | | 9,834 | |
| Q1 2015 | 76,438 | 11,160 | 10,045 | | | | 10,045 | |
| Q2 2015 | 89,245 | 12,807 | 11,532 | | | | 11,532 | |
| Q3 2015 | 1,02,336 | 13,091 | 11,597 | 6 | | | 11,603 | |
| Q4 2015 | 1,16,373 | 14,037 | 17,272 | 206 | | | 17,478 | |
| Q1 2016 | 1,31,883 | 15,510 | 12,420 | 2,400 | | | 14,820 | 2,615 |
| Q2 2016 | 1,50,228 | 18,345 | 9,764 | 4,638 | | | 14,402 | 5,150 |
| Q3 2016 | 1,75,413 | 25,185 | 16,047 | 8,774 | | | 24,821 | 5,065 |
| Q4 2016 | 2,00,295 | 24,882 | 12,700 | 9,500 | | | 22,254 | 6,450 |
| Q1 2017 | 2,25,713 | 25,418 | ~13,450 | ~11,550 | | | 25,051 | ~4,650 |
| Q2 2017 | 2,51,421 | 25,708 | ~12,000 | ~10,000 | | | 22,026 | ~3,500 |
| Q3 2017 | 2,76,757 | 25,336 | 14,065 | 11,865 | 222 | | 26,137 | 4,820 |
| Q4 2017 | 3,01,322 | 24,565 | ~15,200 | ~13,120 | 1,542 | | 29,967 | 3,380 |
| Q1 2018 | 3,35,816 | 34,494 | 11,730 | 10,070 | 8,182 | | 29,997 | 6,100 |
| Q2 2018 | 3,89,155 | 53,339 | 10,930 | 11,370 | 18,440 | | 40,740 | 15,058 |
| Q3 2018 | 4,69,297 | 80,142 | 14,470 | 13,190 | 56,065 | | 83,725 | 11,824 |
| Q4 2018 | 5,55,852 | 86,555 | 13,500 | 14,050 | 63,359 | | 90,700 | 2,907 |
| Q1 2019 | 6,32,952 | 77,100 | 12,100 | | 50,900 | | 63,000 | 10,600 |
| Q2 2019 | 7,20,000 | 87,048 | 17,650 | | 77,550 | | 95,200 | 7,400 |
| Q3 2019 | 8,16,155 | 96,155 | 17,483 | | 79,703 | | 97,186 | |
| Q4 2019 | 9,21,046 | 1,04,891 | 19,475 | | 92,620 | | 1,12,095 | |
| Q1 2020 | 10,23,718 | 1,02,672 | 12,230 | | 76,266 | | 88,496 | |
| Q2 2020 | 11,05,990 | 82,272 | 10,614 | | 80,277 | | 90,891 | |
| Q3 2020 | 12,51,026 | 1,45,036 | 15,275 | | 1,24,318 | | 1,39,593 | |
| Q4 2020 | 14,30,783 | 1,79,757 | 18,966 | | 1,61,701 | | 1,80,667 | |
| Q1 2021 | 16,11,121 | 1,80,338 | 2,030 | | 1,82,847 | | 1,84,877 | |
| Q2 2021 | 18,17,542 | 2,06,421 | 1,895 | | 1,99,409 | | 2,01,304 | |

**Finances**

*"If your hate could be turned into electricity, it would light up the whole world."*

-Nikola Tesla

The company reported a net income of $721 million for the year 2020, which was the company's first annual profit. An increase of 28% over the previous fiscal year 2019 was recorded as the annual revenue became $31.5 billion in 2020. Over $19 billion of cash in hand was accounted for in the end of 2020, after Tesla raised almost $12 billion in stock sales, as opposed to the $6.3 billion cash in hand at the end of 2019.

Noteworthy revenue is generated from the sales of regulatory credit to other producers. Based on the maker's sales volume, which in turn can be sold to other makers who need credits to offset their sales volume of internal combustion engine vehicles, various governments issue the credits to battery electric vehicle automakers. $1.6 billion were incurred from such sales in 2020, without which, a net loss would have been incurred in the same year.

Tesla had invested around $1.5 billion in bitcoin, as per a Form 10-K (an annual report required by the U. S. Securities and Exchange Commission that gives a comprehensive summary of a company's financial performance) in February 2021, indicating that the company would soon be using bitcoin as a means of payment. This was met with a lot of criticism as the critics countered how investing in crypto currency can oppose teslas sustainable goals. However, it was observed that due to the bitcoin price increase after the investment was announced, Tesla made a lot of gain from the 2021 investment than the profit from selling cars in 2020. The quarter ending June 2021 was the first time Tesla made a profit independent of Bitcoin and regulatory credits.

On 11th November, 2021, Tesla's Chief Executive officer Elon Musk sold around $5 billion of shares after he asked his 63 million Twitter followers whether he should sell 10% of his stake in Tesla. The trust sold almost 3.6 million shares in Tesla, also another 934, 000 shares for about $1.1 billion after exercising options to acquire nearly 2.2 million shares. However, the sell was not spurred by the survey's outcome, because on September 14, it was put into motion. On 6th November, 2021, the CEO polled his Twitter followers about whether he should sell 10% of his Tesla shares and the people voted yes. After the poll, the share price of Tesla plunged heavily on 8th November, 2021, which implied that Elon Musk sold his stock at a significantly lower price that if

he had sold it before his tweet, losing tens of millions dollars in unrealised profit.


Source: groww.in/us-stocks/tsla


Source: groww.in/us-stocks/tsla

| Year | Revenue (mil. USD) | Net income (mil. USD) | Total assets (mil. USD) | Employees |
|---|---|---|---|---|
| 2005 | 0 | -12 | 8 | |
| 2006 | 0 | -30 | 44 | 70 |
| 2007 | 0.073 | -78 | 34 | 268 |
| 2008 | 15 | -83 | 52 | 252 |
| 2009 | 112 | -56 | 130 | 514 |
| 2010 | 117 | -154 | 386 | 899 |
| 2011 | 204 | -254 | 713 | 1, 417 |
| 2012 | 413 | -396 | 1, 114 | 2, 914 |
| 2013 | 2, 013 | -74 | 2, 417 | 5, 859 |
| 2014 | 3, 198 | -294 | 5, 831 | 10, 161 |
| 2015 | 4, 046 | -889 | 8, 068 | 13, 058 |
| 2016 | 7, 000 | -675 | 22, 664 | 17, 782 |
| 2017 | 11, 759 | - 1, 962 | 28, 655 | 37, 543 |
| 2018 | 21, 461 | -976 | 29, 740 | 48, 817 |
| 2019 | 24, 578 | -862 | 34, 309 | 48, 016 |
| 2020 | 31, 536 | 721 | 52, 148 | 70, 757 |

*Source:*
https://en.wikipedia.org/wiki/Tesla,_Inc.#Vehicle_sales

## Board of Directors

*"What we now want is closer contact and better understanding between individuals and communities all over the earth, and the elimination of egoism and pride which is always prone to plunge the world into primeval barbarism and strife. . . Peace can only come as a natural consequence of universal enlightenment…"*

- Nikola Tesla

Tesla's stock is not going to go down any slow. In the previous year, 2020, tesla stock gained more than 130%, surpassing the broader market and notched several all-time highs because of CEO Elon Musk's on instruction to speed up production of its commercial semi-truck, the Cybertruck. Although the CEO may take home maximum from Tesla's profit, the other board members also greatly benefit from the soaring price. Nine other board members hold Tesla shares, ranging in value from hundreds of thousands of dollars to billions. Tesla's board members would have to sell part of depositions to reap any of the stocks recent gains. Here's how many Tesla shares the nine board members hold, and the value of those positions:

Elon Musk, the Chief Executive Officer, board member of Tesla, is also the CEO of SpaceX. He is also the founder of the Boring Company and Neuralink Corp. Elon Musk holds more than 35, 000, 000 shares in Tesla. The value can be estimated to be around $35 billion. Elon Musk however is not an independent director of the company which implies that he has a material or pecuniary relationship with the company or related persons. He joined the board of directors in the year 2004.

Next up, we have Larry Ellison who is a board member of Tesla. He is the founder CEO, Chief Technology Officer and a board member of Oracle Corp. Larry Ellison holds approximately 3, 000, 000 shares in Tesla, accounting to about $3 billion. Larry Ellison is an independent director which means that he does not have a material or pecuniary relationship with the company or related persons. He joined the board of directors in the year 2018.

Steve Jurvetson was a board member of Tesla, SpaceX and D-wave. Steve Jurvetson is also a venture capitalist. He was a member of the Tesla board of directors since 2006 to December 2020. Steve Jurvetson held approximately 160, 000 shares in the company accounting to $146 million.

Kimbal Musk, is a board member of Tesla and the co-founder of The Kitchen. He holds an estimate 130, 000 shares in the company. The value is around $122 million. Kimbal Musk however is not an independent director of the company which implies that he has a material or pecuniary relationship with the company or related persons. He joined the board of directors in the year 2004.

Ira Ehrenpreis is a board member of Tesla. He is also the general partner of Technology Partners. He holds approximately 24, 000 shares accounting to $22 million. He being an independent partner or no is disputed. Hence, we do not know if he has a material or pecuniary relationship with the company or related persons or he does not have a

material or pecuniary relationship with the company or related persons. He joined the board of directors in 2007.

James Rupert Murdoch is a board member of Tesla. He is the CEO of 21st Century Fox. He has been a member of the board since July 2017. He holds approximately 11, 000 shares having a value of $10 million. He is an independent director which means that he does not have a material or pecuniary relationship with the company or related persons. He joined the board of directors in the year 2017.

Robyn Denholm is the chairman of the board of directors of Tesla. She is the former chief operating officer of Telstra Corp. She holds thousand shares having a value of around $900, 000. She is an independent director which means that she does not have a material or pecuniary relationship with the company or related persons. As of March 2020, Denholm is the only Board member with automotive experience besides Musk (Denholm served in finance and corporate reporting roles at Toyota Motor Corporation Australia from 1989 to 1996). She joined the board of directors in 2014.

Antonio Gracias was a board member of Tesla. He is also the CEO of Valor. Antonio Gracias holds a mere 500 shares having a value close to $480, 000. Antonio served as lead independent director at Tesla from September 2010 until April 2019 and continues to serve as director of the company.

Kathleen Wilson-Thompson is a board member of Tesla. Thompson is also the executive vice president and global chief human resource officer of Walgreens Boots Alliance. She holds 360 shares of the company having a value of close to $340, 000. She is an independent director which means that she does not have a material or pecuniary relationship with the company or related persons. She joined the board of directors in their 2018.

Lastly, we have Hiromichi Mizuno. He is the United Nations Special Envoy on Innovative Finance and Sustainable Investments; former executive managing director and chief investment officer of Japan's Government Pension Investment Fund. He is an independent director which means that he does not have a material or pecuniary relationship with the company or related persons. Join the board of directors in 2020.

## Views of Supporters and Critics

*"Everyone should consider his body as a priceless gift from one whom he loves above all, a marvelous work of art, of indescribable beauty, and mystery beyond human conception, and so delicate that a word, a breath, a look, nay, a thought may injure it. "*

- Nikola Tesla

Tesla is loved by everyone but not everyone can afford a Tesla. Model S, costing $70, 000 and Model X, costing $80, 000 are the company's two highest-end cars, but also the fastest, safety and most high-tech cars in the world. Many wealthy people, especially celebrities and high-end people love their Tesla cars. The American actor and film maker, Ben Affleck drives a Model S; American entrepreneur, producer, author, and retired actress and model, Cameron Diaz drives a Model S; Will Smith, the American actor, rapper, and film producer drives a Model S; Will Smith's son Jaden, an American actor and rapper drives a Model X; the American actor and film producer Leonardo DiCaprio drives a Tesla Roadster; Steven Spielberg, the American film director, producer, and screenwriter drives a Model S; Morgan Freeman, the American actor, director and narrator drives a Model S; American television host, comedian and writer, Jay Leno owns a Model S, among his massive car collection; Houston-born American actress and producer drives a Model S; Matt Damon, the American actor, producer and screenwriter drives the Tesla Roadster; the Canadian filmmaker James Cameron drives a Tesla Model S; Seth Green, the American actor, producer, writer and director drives a Model S; Mark Ruffalo, the American actor and producer drives a Model S; the American celebrity chef, author and travel documentarian, Anthony Bourdain drove a model S; Jeremy Renner, the American actor, drives a Model S; the American professional skateboarder, entrepreneur and the owner of the skateboard company BirdHouse, Tony Hawk drives a Model S (when he's not skateboarding); Zooey Deschanel, the American actress, model, musician, and songwriter drives a Model S; and, the American comedian, writer, producer, political commentator, actor, and television host, Stephen Colbert drives a model S. Also, Shakira drives a red convertible Tesla S, which is probably the most appropriate vehicle for this Colombian pop star. During an episode of the "Joe Rogan Experience, "Joe said he'd buy a Tesla to Elon Musk, which he did later, and Rogan called his new Tesla "preposterous" because of how strange and fast it was.

Grievance of Tesla, Inc., especially under CEO Elon Musk, ranges from potential safety problems to questionable commercial enterprise practices which encompass alleged fraud, a records of environmental violations, dismiss for employees' safety, and Musk's excessive repayment bundle. Tesla and Musk have also been criticised for his or her tries to intimidate and silence whistleblowers, news hounds, and other critics who've spoken out in opposition to the corporation. The fraud allegations of Tesla range from the SolarCity buyout debacle, the "funding secured" controversy, the accounting fraudulences, the full self-driving feature and the reselling defective vehicles controversy. The major safety issues include autopilot, fire risk, sudden and unintended acceleration, brake failures, stealth recalls, and misleading safety ratings. Elon Musk's unfulfilled promises, the whistleblower allegations and retaliation, misuse of taxpayer money, toxic fandom, misinformation from the CEO Elon Musk, environmental practices, quality issues, customer service issues and the Chinese relations. The working conditions are especially met with a lot of criticism including the underreported 'Total Recordable Incident Rate', injury policies criticised, anti-union efforts, alleged child labor in supply chain and the sweatshop allegations, this also includes workplace culture issues like racism and harassment, and Elon Musk's work behaviour. The promotion of Bitcoin and failure to abide by the license agreements also led Tesla. Inc, to become subject to criticism.

During a 2013 interview with Esquire, George Clooney didn't have a glowing review for the electric vehicle that was developed, in part, by Elon Musk. "I had a Tesla. I was one of the first cats with a Tesla. I think I was, like, number five on the list, "Clooney told the publication when the writer asked why he was driving a Lexus instead of Hollywood's favourite new ride. "But I'm telling you, I've been on the side of the road a while in that thing. And I said to them, 'Look, guys, why am I always stuck on the side of the road? Make it work, one way or another." Mark Zuckerberg had said in 2016 when Zuckerberg's $200 million satellite exploded in a pre-launch "static fire test" accident while attached to one of Musk's SpaceX Falcon 9 rockets, "I'm deeply disappointed to hear that SpaceX's launch failure destroyed our satellite that would have provided connectivity to so many entrepreneurs and everyone else across the continent. " Elon Musk responded, "Yeah, my fault for being an idiot. We did give them a free launch to make up for it and I think they had some insurance. " The two tech giants also publicly feuded over the future of artificial intelligence. Zuckerberg is for it, Musk is vehemently against it, calling the technology "far more dangerous than nukes" (via CNBC). In a Facebook livestream, Zuckerberg called Musk's warning about A. I. as "pretty irresponsible, and Musk responded to the comments on Twitter. "I've talked to Mark about this. His understanding of the subject is limited, "he tweeted. In a lengthy 2013 Facebook post, the former Alaska governor and republican vice-presidential candidate Sarah Palin called Tesla a "loser, " and accused Musk's signature car of turning into "a brick" when the battery runs out. The crux of her argument was that electric car companies like Tesla and Fisker allegedly received a substantial amount of government funding in the early stages of development, then laid off most of their workforce to remain profitable. "Americans really need to get outraged by these wasteful ventures. As we've seen time and time again, We the People are always stuck subsidising the left's 'losers, '" she wrote. In addition, Jeremy Clarkson disputed a Tesla lawsuit in 2011 and Jeff Bezos went from friend to foe. One of their first public dustups happened in 2013 when NASA, who stopped using their launch pads two years prior, offered up their "historic launch complex 39A" for private use. Naturally, the two competitors vied for the rights to use it first. The fight led Bezos to file a complaint with the U. S. government's General Accountability Office to challenge Musk that he ultimately lost. Musk then signed a 20-year lease for the exclusive rights to the famous site, but the feud didn't end there. Six months later, Bezos hired Rajeev Badyal— the former Space X vice president of satellites who Musk fired (via CNBC)-to head Amazon's Project Kuiper, the initiative to use low Earth orbit satellites "to provide high-speed internet to anywhere in the world. "Other critics include Azealia Banks, San Diego's Democratic Assemblywoman Lorena Gonzalez and Ken Jennings.

## Future of Tesla

*"I do not think there is any thrill that can go through the human heart like that felt by the inventor as he sees some creation of the brain unfolding to success. . . Such emotions make a man forget food, sleep, friends, love, everything. "*

- Nikola Tesla

The growth of demand for fully-electric vehicles is on the rise, for many reasons. These reasons include, new regulations on safety and vehicle emissions, technological advances, and shifting customer expectations. Although, much of the mainstream acceptance and excitement for electric cars can be attributed to Tesla Motors Inc. and its unique business model. The mission of the company: "to accelerate the advent of sustainable transport by bringing compelling mass-market electric cars to market as soon as possible," which is the backbone of Tesla's successful business model was launched by the CEO Elon Musk. Tesla's business model is based on direct sales ans service, and not franchised dealerships unlike its contemporaries. Tesla's business model pays particular attention to rolling out charging stations which probably may be the biggest obstacle to the mass adoption of electric vehicles.

Tesla is continually restructuring its strategies to boost its profit-earnings as is visible by the pricing tactics applied in China and the pivot in retail sales experience, which could, together, set the direction for the company's future earnings. Tesla is, reportedly, lowering the price of its cars in China to attract market share, and is also planning to overhaul its retail sales strategy to emphasize on its online sales. And, as mentioned previously, these two changes could perhaps have a major impact on the future earnings.

Tesla has already become an important player in the Chinese market. By the middle of last year, the company's China sales accounted for nearly a quarter of the overall figure, according to McKinsey. Its Model 3 was the single best-selling premium battery-operated electric vehicle model in China in the same year. Some analysts say China is the "linchpin" to Tesla's earnings. Even as reduced expenses may additionally assist Tesla garner market percentage in China, in addition they have the potential to crimp its margins. The Palo Alto, California-primarily based company will ought to carefully balance sales volumes for its vehicles with manufacturing costs. It has lots of leeway to mess around in that area. Consistent with evaluation through Guosen Securities released in January this year, a version Y produced at Tesla's Shanghai Gigafactory has a 29.4% gross profit margin. The model S, in step with the same file, has a gross income margin of approximately 40%.

The alternative huge alternate happening at Tesla is associated with its sales department. in line with a document in online publication Electrek, the corporation is making plans to overhaul its sales experience through emphasising an online sales revel in over offline income. As a part of this approach, it will get rid of expensive showroom area, as a substitute renting out less expensive area in mall parking masses, warehouses, and "other locations" for test drives and shipping of its automobiles. Tesla had already announced this sales plan, with accompanying store closures and layoffs, earlier in 2019. But it held off on getting rid of its real estate as it focused on growing its market and business in China. Tesla's operating expenses have ballooned in recent years as it expands its geographic footprint. During its most recent quarter, they were $10.6 billion, up 86% from the previous year. A virtual sales strategy will help the company expand without incurring significant costs to its bottom line.

India has already shown its keen interest to be a major part of this automotive paradigm shift. Adding to that, India has already put forward the desire to become the biggest hub for electric vehicles in the future. Industry leaders consider electric cars to be a promising option. Apart from the environmental benefits, Electric cars have much more to offer. Autonomous driving options, personalised smart assistance solutions, 5G embedded next-generation technologies, are just a few to mention. At a basic level, electric cars offer a dramatically lower operating cost compared to conventional internal combustion engines. On average, electric vehicles are 75-80% cheaper from a fuel and maintenance perspective, which ultimately translated in lower maintenance bills.

Consequently an important consideration for many consumers who have high usage. This reality holds true across form factors because it's materially cheaper to charge a battery compared to refuelling a conventional liquid fuel tank. India has a lot to gain from the widespread adoption of e-mobility. Under the Make In India programme, the manufacturing of e-vehicles and their associated components is expected to increase the share of manufacturing in India's GDP to 25% by 2022. On the economic front, large-scale adoption of electric vehicles is projected to help save $60 billion on oil imports by 2030 – currently, 82% of India's oil demand is fulfilled by imports. Price of electricity as fuel could fall as low as Rs 1.1/km, helping an electric vehicle owner save up to Rs.20, 000 for every 5, 000km traversed. Finally, electrification will help reduce vehicular emissions, a key contributor to air pollution which causes an average 3% GDP loss every year, reports suggests. India has a very great potential for the manufacture of full-electric vehicles because of it having an access to all the technology and other raw materials, except for lithium and cobalt.

## Conclusion

*"I am credited with being one of the hardest workers and perhaps I am, if thought is the equivalent of labour, for I have devoted to it almost all of my waking hours. But if work is interpreted to be a definite performance in a specified time according to a rigid rule, then I may be the worst of idlers."*

- Nikola Tesla

Tesla's current breakout market overall performance is proving a number of its skeptics incorrect. Through mid-January, Tesla's marketplace capitalisation had reached $107 billion, and it surged past the large German automaker Volkswagen to grow to be the arena's 2nd most valuable vehicle employer in the back of Toyota. Tesla's valuation now exceeds that of Ford and GM combined. The Wall street doubters may be in shock. But after complete disclosure, it makes things increasingly clear that the organisation's modern commercial enterprise version represents an existential risk to the auto industry as an entire. How so?" software program is eating the arena, "Marc Andreessen, co-founder and standard companion of challenge capital firm Andreessen Horowitz, wrote in a memorable 2011 essay. And software is a large a part of Tesla's benefit. It seems as though the conventional automakers are unwell prepared to compete in today's software-targeted international. Not like nimble Tesla, they are massive, bureaucratic, gradual to reply to customers, dependent on imparting client financing for unit income increase, and culturally special from a software program corporation.

The ultimate fall, the chairman of Volkswagen-nevertheless reeling from its vehicle-emission scandal-declared Tesla a "extreme competitor". The biggest project VW and different leading automakers face is that they lack the information required to compete inside the age of the software program vehicle. Tesla and its flamboyant, and once in a while erratic, innovator Elon Musk have turned the greater than a century vintage enterprise the other way up in a trifling 16 years. How ought to the disruption have passed off so fast? The answer starts via looking at how the arena's conventional car leaders were given in which they're these days. What started out as a fragmented market of a few 2 hundred car makers within the early Twenties progressively consolidated into a few behemoths who erected big, capital-intensive limitations to access that they assumed to be unassailable. Tesla's speed in innovation within the marketplace for high-stop vehicles is greater like a Google or an Amazon than an automaker. And its soaring marketplace valuation is a clear signal to all automakers that they'll need to broaden extra modern, Tesla-like commercial enterprise fashions on the way to live on.

Tesla currently does at least four things better than all the auto makers. Firstly, Tesla builds cars by using growing software program on specific hardware, an awful lot inside the way Apple develops the iPhone or Microsoft leverages Intel chips and Dell desktops. This enables the employer to improve its motors' software program functionality every few weeks. That is in sharp assessment to the traditional car enterprise version wherein the product is the identical for as long as you power it. With fewer elements, the whole fee of Tesla ownership is substantially lower than an internal combustion vehicle. There's no need for expensive oil changes, track ups, replacing mufflers, etc. The automakers, who derive considerable profitability from their provider agencies, know this. Secondly, Tesla doesn't market it in the Sunday newspaper or put commercials on the radio. Instead is makes use of the traditional software program "inbound" sales version: they realise clients are smart and will find them. They recognise the customer 'adventure thoroughly. Buying a Tesla is fantastically easy: you go browsing, select a version, upload your capabilities, place your deposit, and schedule pickup. Completed. Thirdly, Tesla's battery-powered motors are substantially simpler than their inner combustion competitors. With the aid of a few estimates they've notably fewer components in step with automobile-around 20-as opposed to the 2, 000 in inner combustion engines. This simplicity dramatically reduces the consumers overall fee of possession. Tesla has currently received battery manufacturing companies and could comprise new kinds of battery-related technology into its motors, which can similarly reduce value of possession. Even as other automakers also are rushing to acquire the proper electric powered battery knowledge, they'll nonetheless be playing seize up as this marketplace grows.

And lastly, from an advertising and marketing factor of view, Tesla already has a big advantage in some categories. Who wouldn't need to own an automobile that creates no pollutants, eliminates visits to fuel stations, and is simply inexperienced? Other automakers are going to be gambling catch up in this difficulty for a long term.

Given this case, what's the car industry to do? Traditional car makers could be imparting a growing range of electrical cars in 2020-but they aren't necessarily software program vehicles. They may be frequently the cars you're used to, equipped with electric powered cars. To make certain, there are security risks with software program motors, as with every type of connectivity. however Tesla could enlarge its management role by way of modeling the way to manage those dangers correctly. Conventional automakers must now imagine the way to come to be software program agencies, which, given how a ways at the back of they' re, means they may must do what legacy software program companies do while startups disrupt their center markets-they purchase competitors to consolidate the marketplace. We have to look ahead to this hobby, due to the fact it's miles probably about to start in earnest.

*"The gift of mental power comes from God, Divine Being, and if we concentrate our minds on that truth, we become in tune with this great power. My Mother had taught me to seek all truth in the Bible."*

-Nikola Tesla

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