



Analysis of Tesla's Innovation Strategy and Influence of Leadership

Keyi Qin^(✉)

Imperial College London, London SW7 2AZ, UK
keyi.qin2000@gmail.com

Abstract. Tesla has attained a benchmark in the electric vehicle industry but it faced issues such as ownership protection rights, chip shortage and delivery delays. Tesla's real competitors are not new energy operators, therefore despite leading the capital market, Tesla is not in a stable position. The future of Tesla is restricted due to factors like capacity, market, finance and chip, hence Tesla needs to focus on its innovation ability and leverage its business model to promote development. Hence this research aims to answer the question – how effective is Tesla's innovation strategy and how do leadership and internal and external factors affect its innovation and performance? To achieve this aim, Tesla analyses its business canvas model, innovation framework and internal and external actors, as well as how it affects its innovation strategy and performance. The results show that Tesla integrated innovation in its business canvas model and created value for its customers, however it lacked focus on commercial costs and channels. Moreover, Tesla uses an incremental product innovation strategy, external and internal factors like market demand, creative culture, and leadership and team working supports the innovation strategy of the company.

Keywords: Electric vehicles · Tesla · innovation · leadership · Gigafactory

1 Introduction

Despite the rapid advancement of technology and increasing awareness towards environmental protection, environmental pollution and energy shortage still exist. In order to balance the needs of environmental and energy protection, innovative practices like new energy vehicles have come into demand. Continuous technology development and improvement of clear power generation can enable electric vehicles to minimize environmental pollution [1]. Demand for the electric car is also increasing because of rising fuel prices. Across the world, consumption of electric vehicles is growing with four leading manufacturers, General Motors, Tesla, Nissan and Toyota dominating the global market [2].

In 2020, Tesla's market value was increased by seven times thereby exceeding \$600 billion. It became the highest car company in terms of market value thereby surpassing Toyota [3]. Tesla is very unique in its style. Its technology of autopilot system, unique distribution system and valued organizational structure contributed towards it being one

of the most creative and innovative organizations in the world [4]. The performance of the company is to plan, develop and manufacture tech-savvy electric vehicles, as well as powertrain components, resulting in the development of electric vehicles like Model S, Model X, Model 3, roasters and energy solutions like Powerwall, Solar Panels and Solar Roof [4].

Although Tesla has established a benchmark in the electric vehicle industry, however it has faced several issues in 2021 such as chip shortage, ownership protection rights and delivery delays that caught the attention of the market [5]. Since its real competitors are not new energy operators but traditional organizations, and with new energy power generation market being small, Tesla in spite of heading the capital market is not in a stable position. The ongoing and potential development of the firm is restricted by several factors such as finance, market, capacity and chip [5]. Therefore, Tesla needs to focus on its innovation ability, and take advantage of its business model to promote development. This research will focus on analyzing the current business model of Tesla, its innovation strategy related to process, product and position, how leadership, internal and external environment factors influence its innovation strategy and its impact on Tesla's performance. The primary aim of the research is to analyze the innovation strategy of Tesla and influence of leadership on its innovation success.

2 Analysis

2.1 Current Business Model

Business model canvas, as per Osterwalde, can be divided into four categories – Customer interface, Product, Financial Aspects and Infrastructure Management. These categories include nine subcategories – customer segments, channels, key partners, key resources, customer relationship, key activities, value proposition, cost structure and revenue streams [6]. It is a model that provides the business with aims, it needs to attain and analyzes the strategic elements that have a huge influence on the business.

For the customer segments part, Tesla has built vehicles for customers ranging from affordable prices for the mid-market segment to expensive sports cars for the high-end luxury segment. Tesla also caters to the commercial vehicle sector, offering them greener options for shipping and transport. Vehicles designed by Tesla comprise autopilot and are eco-friendly [7].

For the value propositions part, Tesla provides sustainable solutions which provide flexibility, long-range, high performance, efficiency, and free recharging. The company also offers batteries and solar panels to commercial as well as residential customers [8]. It also sells its systems to other vehicle manufacturers with leases and loans.

For the channel's part, Tesla employs its stores, website, and sales events to reach its audience. The company does not spend a lot on advertising and promotions [8].

For the customer relationships part, Tesla considers its customer relationships one of its strong pillars, because the company has concentrated on providing a satisfactory customer experience since its inception [7]. The company sells through its stores rather than dealerships. The company is also investing a lot in the charging network, so that the customers owning Tesla vehicles can charge their cars quickly with low or absolutely no cost.

For the revenue streams part, Tesla engages in car sales, maintenance, and upgrades [7]. It also sells batteries and solar energy panels.

For the key resources part, Tesla's key resources facilitate the enterprise to carry out its main operations and implement its value proposition [8]. Hence its key resources are its competitive engineering and technology, brand recognition, autonomous driving feature, design, software, and long-life battery systems.

For the key activities part, Tesla manufactures electric cars. It also invests in the production of solar energy panels and batteries. Furthermore, the company engages in R&D to provide advanced, innovative, and eco-friendly technology. Tesla also differentiates itself because of its innovative design and applies algorithms and agile principles for enhancing and developing its software [9]. Tesla is investing in charging stations so that more and more people can buy electric cars.

For the key partners part, Tesla purchases some parts from third parties, so the suppliers are one of its key partners. Tesla allied with Toyota to develop electric vehicle manufacturing plants, features, and systems. It also joined with Panasonic to form battery and solar cells. The federal government of the US provides Tesla with Tax incentives as it has managed to create a lot of jobs by developing eco-friendly and sustainable vehicles [9]. In addition, some of Tesla's partners comprise resorts, shopping centers, hotels, and restaurants where the company has established its car recharging stations.

For the cost structure part, Tesla comprises an extensive cost structure, including research and development costs, manufacturing, and administrative costs.

Therefore, Tesla engages in enterprise innovation strategies by producing electric cars and energy solutions. Tesla has made significant advancements in battery innovation, which might provide substantial power to Tesla's engine. The following section analyses the position, process, innovation framework, and Tesla's leadership.

Business model cobweb was also used to analyze Tesla's strategies. It was seen from the analysis in Fig. 1 and 2 that Tesla primarily focuses on customer and infrastructure management while its business model emphasizes on value. Hence, Tesla is a value creative and innovative business model that focuses on creating value for customers by offering differentiated services [5].

Tesla's business model is also analyzed using [10]. Value proposition has three components: revenue/cost model, value network, and value network. This business model adds the value network factor that is mainly applicable to electric vehicles. Because customers' value proposition is different, therefore companies select different market segments that reflects their corporate identity and target customers. Moreover, value proposition changes with automobile use, therefore it divides different automobile firms, and shows how each enterprise responds to electric vehicles. This business model needs path dependence to analyze it, which shows the current and future states, decisions and actions based on previous conditions, decisions and actions. Based on those four electric vehicle prototypes were produced – luxurious multipurpose, luxury specific-purpose, economy specific-purpose and economy multi-purpose [10].

Based on this model, when Tesla started its operations, its customers belonged to luxury segment, because it targeted a niche segment of rich customers who were not price sensitive to luxury electric vehicles. Under this model, car's image and driving experience were more important than mileage. Because these customers saw Tesla as a status symbol,

Building block		Tesla
Customer Segments	identify code	Diversified and niche markets high
Customer Relationship	identify code	One-to-one service, self-service high
Channels	identify code	Own channel low
Key Partners	identify code	Strategic and cooperative cooperation high
Key Activities	identify code	external high
Key Resources	identify code	Diversity resources high
Value Propositions	identify code	Basic services low
Cost Structure	identify code	Fixed cost and variable cost low
Revenue Streams	identify code	Income from fixed assets low

Fig. 1. Tesla business model building block coding

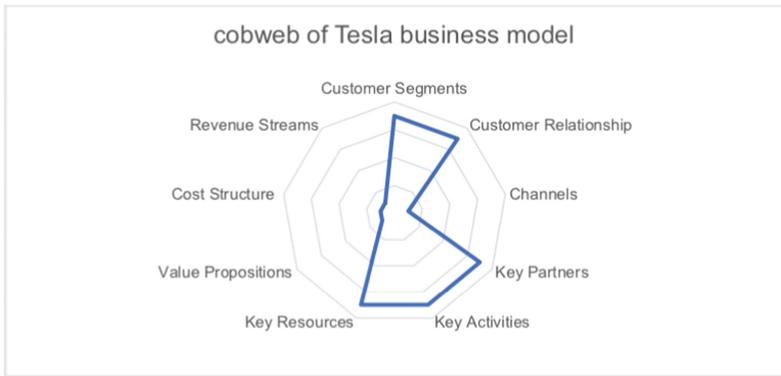


Fig. 2. Cobweb of Tesla Business Model

Tesla provided special services to them and promoted online ordering and offline test drives [5]. Tesla did not have an efficient dealer network, however this method ensured high quality. Analysis shows that Tesla puts a lot of focus on its commercial value like brand value and ignores commercial channels and costs. Therefore, it is recommended that Tesla should invest in making transactions with third parties and save operating costs using logistics outsourcing [5].

2.2 Tesla’s Innovation Strategy

Four P’s of innovation dimension framework is used to explain the innovation strategy of Tesla [11]. This focuses on product, process, position and paradigm, as seen in Fig. 3.

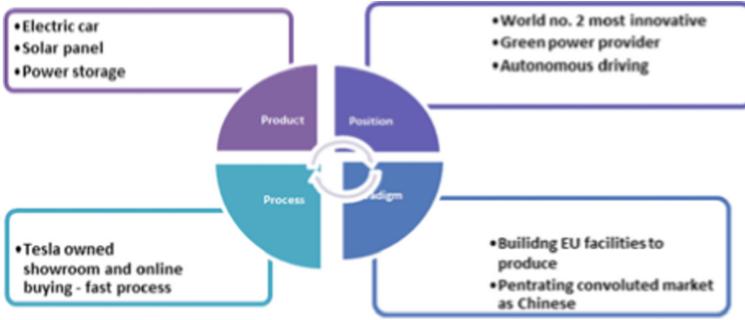


Fig. 3. Innovation Dimensions (4Ps)

2.2.1 Product and Innovation

Tesla’s product innovation strategy can be described as an incremental innovation strategy, with high system level when producing electric vehicles and energy solutions. It uses technologies like autopilot program, which is a radical innovation in the automotive sector [12]. Tesla has emphasized on battery innovation that gives potential power to its vehicles’ engines. Battery pack innovation makes Tesla’s products more affordable. In addition, its partnership with Panasonic also contributed to the company’s innovation strategy. Tesla’s Model S and Model X are the biggest range of all sedans and SUV across the world and with reduced cost, its range is nearly 500 miles [13]. However, Tesla’s in Germany faced technical security issues and had been working on improving the quality of its software. This included powerful sensors and processors, low price of software and more reliable mechatronics for suitable operating systems [14]. This combination of strong hardware and software contributes to Tesla’s product innovation and advantage when compared to its competitors.

2.2.2 Tesla’s Process and Paradigm

In order to enter into an existing automobile industry, a company has to face several barriers. There are significant barriers for companies, such as economies of scale, cost of entry and network effects related to distribution. Tesla even though managed to enter the market, but was unable to attain effective economies of scale with high cost. To improve its production process, it established more Gigafactories, such as one in Nevada and other in New York. Not only this, but it also established Gigafactory in China, and is establishing others in different parts of the world to attain economies of scale, as well as produce lower-priced products. It also operates overseas with its facilities located in the Europe and has also established stronger supply chain system by having stronger relationships with suppliers of cells, and other key parts from across the world [13].

In order to provide more valued products, Tesla has established key partnership with Panasonic to increase its quality and reduce its cost. The company does not consider traditional distribution system and uses a direct selling approach [12]. Tesla offers its products through its galleries, showrooms, website, and auto shows. Its innovation

strategy provides reliable and quicker purchasing when compared to the 8-step traditional purchase process. Tesla's innovation process includes visiting the website or store, selecting the payment, awaiting the order, paying and delivering it [14].

2.2.3 Tesla's Position

Tesla entered the automobile industry in 2003 as an electric vehicle producer, and made a public announcement in 2010. It entered into a contract to purchase SolarCity shares worth \$2.6 billion and thereby merged with the company [15]. Tesla expanded its position by adding Powerwall, Solar Panels and Solar Roof as its products, and also provided the products and services to residential owners [15]. This is a critical element for innovation positioning, and has hence gained the position of the most creative and innovative company of the world by Forbes [4].

Tesla positions itself in the competitive market using broad differentiation strategy. It uses this strategy to target premium as well as low-price consumers in the automobile industry [16].

Many other businesses are starting to develop electric vehicles, but Tesla aims to maintain its competitive advantage by making its products challenging to copy. The significant investment in R&D aims to create more progressive technologies for their products, increasing the entry barrier for batteries and EVs. The fact that Tesla invested substantially more in R&D than did other market players, as seen in Fig. 4 gave it the spot of being the market's innovator, which keeps Tesla in the unique place of having a sustained competitive advantage in the (electric) motor vehicle market [17].

2.3 Impact of External Factors on Tesla's Innovation

Tesla is known as the most innovative firm in the world [4]. Not only this, but it also established Gigafactory in China and is establishing others in different parts of the world, to attain economies of scale and produce lower-priced products. It has a strong brand name, maintains a good standing with customers, and gains favorable comments. Tesla is an example of innovation in other businesses. Tesla is known across the world for its innovative products and strategies. However, there are times when external environmental factors affect the operations of the company. The following is the analysis of Tesla's external environmental factors and how it affects the company's innovation strategies.

2.3.1 Global Electric Vehicle Outlook

As seen in Fig. 5, future sales of electric vehicles are going to increase. The electric vehicle market in the world is projected to touch \$823.75 billion by 2030 at CAGR of 18.2%, among which battery electric vehicle will be most preferred, thus giving Tesla the opportunity to increase its sales by focusing more on battery innovation, as seen in Fig. 6 [18].

2.3.2 Reduce Prices of Electric Vehicle and Increased Demand

Tesla introduced its lower-price segment car – Model 3, which has attracted numerous consumers in different target segments. The company is also undertaking continuous

Total expenditure on advertising and research and development per car for select manufactures in 2020
(expense in USD)

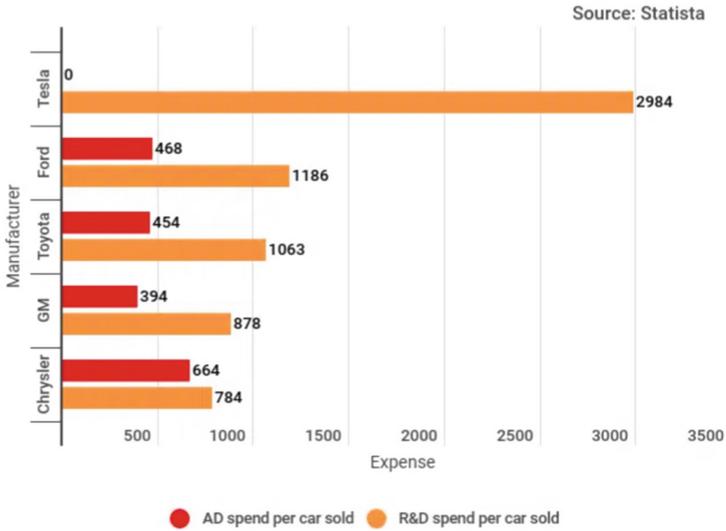
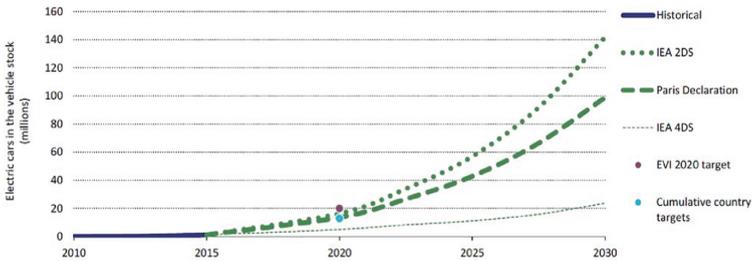


Fig. 4. Research and Development Investment of Tesla and its competitors



Source: IEA, Global EV Outlook 2016

Fig. 5. Deployment situations for the stock of electric cars to 2030

innovation to minimize battery that might affect the prices for Tesla products and offer lower-priced products that attract more demand [18]. Furthermore, Gigafactories across the world would help the company attain economies of scale, which would further reduce the prices and contribute to the company’s increasing market share in the future.

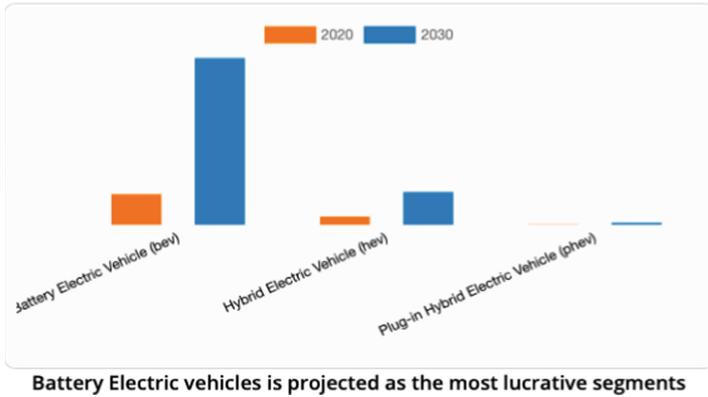


Fig. 6. Electric vehicle by type

2.4 Impact of Internal Factors on Tesla's Innovation

2.4.1 Innovate and Shared Vision

According to Tesla, the world should move towards a zero-emission future by taking advantage of advanced technologies, and stop the use of conventional energy. Its Secret Master Plan in 2016 revealed the affordable Model 3. Moreover, the purpose of Gigafactory 1 is to reduce the cost of batteries and increase efficiency and output to cater to the innovation needs of the company [19]. According to the company's vision, sustainable energy generation, inexpensive, clean transportation, and a stronger commitment to those goals are all delivered. Martin Eberhard, Tesla's co-founder, had a vision for the company that included bringing their first vehicle to the market fast and efficiently [13]. The company's primary goal is to promote the global shift to sustainable energy [13]. It is Tesla's shared vision and objectives that contributes to its innovation strategy.

2.4.2 Effective Team Working

According to [13] neither Solar City nor Tesla encountered any work stoppages, because it hired a combined total of 30,025 new employees [20], claims that Tesla and Space X work together in the R&D department. They are highly technological and scientifically advanced, and this enables them to innovate. In 37 locations throughout the world, Tesla has worked on approximately 1,300 team projects of \$70 million in value in the areas of technology, finance, research and marketing. The core project fields are community resilience, health, and education. Tesla collaborates expansively with businesses like Lotus and Panasonic to produce vehicles that effectively utilize partnerships with other companies [13]. Such strategies and effective teamwork between Tesla, its suppliers and other companies allow Tesla to become one of the most creative and innovative companies in the world.

2.4.3 Creative Climate

Tesla inventory management strategy focuses on storing small amounts of product at a low cost to reduce risk. In 2013, this strategy delivered benefits including cost savings, and reduced logistical expenses. Management savings are allocated to R&D, allowing the company to foster an environment for innovation. Tesla fosters a creative environment through cooperation and collaboration with partner companies. The major task in order to create an innovative culture is its R&D and global projects [21].

2.4.4 Leadership

Elon Musk, Tesla's CEO, is mostly credited with the company's expansion. Numerous news headlines have recently focused on him and his alternative company, Space X, which is a business whose mission is to "develop, produce, and launch sophisticated rockets and spacecraft." He has, however, also been investing his creative thinking in Tesla. It is claimed in an article that Musk's ingenuity is invested in creating and using innovation capital to gain support for his ideas [22]. Besides this, creative thinkers at Tesla like JB Straubel and Beth Davis, have elevated the company to the position of most valuable automaker in the world. Their efforts helped Tesla in expanding as company and became global leader in electric vehicles [23].

2.5 Impact of Tesla's Innovation on Performance

Tesla's innovation strategy had a positive impact on its performance with respect to sales. They point out the surprising fact that, in just one week Tesla managed to secure around 400,000 reservations for its Model 3— pre-orders that will result in more than \$16 billion in vehicle sales. Tesla stock soared after Musk hinted a product reveal in a single tweet. With a market cap of above \$30 billion and a sizable innovation premium, investors continue to support Tesla. Tesla was able to quickly attain the position of one of the top Forbes Most Innovative Companies list in 2015, and maintain that position because of this innovation premium. It keeps the top spot in the rankings for 2016 [24]. Furthermore, the two best-selling automobiles in the United States in Q1 of 2021 were Tesla's Model Y SUV and Model 3 sedan. Tesla's sales of the Model 3 and Model Y together represented an outstanding 68 percent of the overall EV market share in the first quarter, selling 46,707 Model 3 units. In contrast, Tesla's cars accounted for 75% of the EV market share in 2020 and 70% of the market for cars in 2021 [25]. This shows that Tesla's innovative strategies contributed to its performance, as it not only maintains a dominant position in the electric vehicle market but also records increasing sales of its products.

3 Conclusion

Analysis in the report shows that Tesla's business model is focused on creating value for customers. However, although it focuses on commercial brand value, it lacks the focus on commercial costs and channels, so it needs improvement. Furthermore, the analysis of Tesla's innovation strategy shows that the company uses an incremental

product innovation strategy that contributes to its high-quality products. Moreover, its processing and positioning strategy also contribute to innovation, as it can establish a new Gigafactory to attain economies of scale. The external factors like market demand contributes to company's innovation to produce lower priced goods whereas its internal environment like creative culture, leadership and team working supports the innovation strategy of the company. While the research answered the question by showing that its innovation strategy positively affects the sales performance of the company however an in-depth qualitative study can be conducted in the future to understand how leadership or other factors affected its innovation strategy.

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