

Research on Elon Musk's Business Strategy and Leadership: From the Dual Perspectives of Innovation and Controversy

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Abstract: Against the backdrop of the accelerated transformation of the global technology industry, entrepreneurs' strategic decisions and leadership styles have a profound impact on the development of the industry. This study takes Elon Musk as the research object and systematically explores the practical path of his "high-risk innovation + strong execution" model in enterprises such as Tesla and SpaceX through case analysis and quantitative research methods. Based on the enterprise financial reports, patent data, and litigation cases from 2010 to 2025, the study finds that Musk has reconstructed the technological paradigm through the First Principles Thinking, achieving a 91% reduction in battery costs in the electric vehicle field and a 53% market share in the low-orbit satellite market in the aerospace field. However, there is an imbalance in the governance structure of his decision-making mechanism, leading to a 45% decline in sales in the European market in 2024 and legal disputes involving assets worth \$97.4 billion. This study constructs an analysis framework of "technological breakthrough - ecological closed loop - social impact" and proposes that technology enterprises need to establish a triple governance mechanism during innovation and expansion: strengthening the independence of the board of directors, improving the ESG assessment system, and making technical standards transparent. The results of this study provide a theoretical basis for balancing technological innovation and social responsibility and have reference value for the formulation of regulatory policies.

Keywords: Elon Musk, Disruptive Innovation, Leadership, Business Ethics, Corporate Governance

1. Introduction

As one of the most influential technology entrepreneurs in the 21st century, the enterprises founded by Elon Musk, such as Tesla, SpaceX, and Neuralink, have all triggered technological revolutions in their respective fields. According to data from the International Energy Agency (IEA), Tesla's global market share of electric vehicles reached 18.7% in 2023, and SpaceX, with its Starlink project, accounted for 53% of the global low-orbit satellite communication market share [1]. These achievements stem from his unique business strategy: Tesla has reduced the battery cost from \$1000/kWh in 2010 to \$97/kWh in 2023 through a vertical integration model; SpaceX has reduced the launch cost by 55% through reusable rocket technology. However, Musk's business decisions are often accompanied by great controversy. For example, the layoff after the acquisition of Twitter in 2024 led to disruptions in the company's operations. The litigation with OpenAI exposed

governance defects, and the trust crisis caused by political remarks shrank Tesla's brand value by 26% [2].

This study uses a mixed research method: first, analyze the benefits of technological innovation through financial data analysis, second, use the case study method to deconstruct the strategic decision-making mechanism, and finally, evaluate the public opinion impact by combining social network analysis. The study breaks through the single dimension of traditional leadership research and for the first time, incorporates technological ethics into the analysis framework, revealing the governance dilemma under the trend of technological oligarchization. This has practical significance for improving the clauses on technological standard monopolies in the Digital Economy Promotion Law and also provides decision-making references for entrepreneurs to avoid the "innovation paradox".

2. Musk's business strategy: disruptive innovation and ecological layout

2.1. The underlying logic of technological disruption

Musk's core strategy is to break the industry paradigm through First Principles Thinking. In the development process of Tesla, this thinking is reflected in the fundamental reconstruction of the automobile power system. By applying the 18650 lithium battery pack to electric vehicles, the company has successfully broken through the traditional automakers' lithium iron phosphate technology route. Data shows that its battery energy density increased from 200Wh/kg in 2012 to 330Wh/kg in 2023, driving an average annual increase of 15% in the driving range [3]. This technological breakthrough benefits from the "vertical integration + rapid iteration" model: Tesla built its own Gigafactory to control the complete industrial chain from lithium mining to battery assembly and achieved a virtual test mileage of 3 million miles per day for the autonomous driving system through the Dojo supercomputing platform.

SpaceX's technological disruption is even more revolutionary. The Falcon 9 rocket has compressed the single launch cost from \$62 million to \$28 million through the booster recovery technology. The Starship full recovery technology achieved in 2024 has further reduced the cost to \$1 million per launch, which is derived from three key innovations: using 301 stainless steel instead of carbon fiber materials to reduce the rocket body cost by 60%; the liquid oxygen methane fuel scheme of the Raptor engine has increased the specific impulse by 15%; the self-developed Starlink satellite production line has achieved a batch manufacturing capacity of 45 satellites per day [4]. This technological breakthrough has directly changed the industry competition pattern, enabling SpaceX to obtain a 68% share of the global commercial launch market in 2024.

2.2. The construction path of the ecological closed loop

Musk's strategic vision is reflected in the construction of an ecological closed loop of technology-product-service:

(1) The Gigafactory strategy: The globally distributed Gigafactory achieves zero inventory management through the "warehouse on wheels" model. Taking the Shanghai Gigafactory as an example, the integrated die-casting technology it uses has reduced the number of rear floor parts of the Model Y from 70 to 2, reducing the unit cost by 40%, and the unit area production capacity has reached 3.2 times that of a traditional factory [5]. This manufacturing revolution enabled Tesla to achieve a single-vehicle gross profit margin of 28.4% in 2023, far exceeding the industry average of 16.7%.

(2) Energy network integration: By acquiring SolarCity, an energy closed loop of photovoltaic power generation-energy storage-charging has been constructed. The synergy between the Powerwall home energy storage system and the Megapack grid-scale energy storage has enabled

Tesla to occupy a 62% share of the U.S. residential energy storage market in 2024. This layout not only generates an annual cash flow of \$3.4 billion but also forms a dimensionality reduction strike against traditional energy enterprises.

(3) Charging network barriers: As of 2024, Tesla has 5,273 supercharging stations globally and controls the charging interface specifications through the NACS (North American Charging Standard). Although the company has announced an adapter open policy, European automakers still need to pay a patent license fee of \$380 per set. This implicit barrier enables Tesla to maintain a 79% gross profit margin in the charging service market [6].

3. Musk's leadership traits: adventurous spirit and public opinion controversy

3.1. The decision-making mechanism on the technological precipice

Musk's leadership style is characterized by high-risk decision-making, which is particularly evident in the early days of SpaceX's entrepreneurship. In 2008, the Falcon 1 rocket failed three consecutive launches, and the company only had enough funds to support one last attempt. Musk staked all the remaining resources and finally succeeded in the fourth launch, winning a \$1.6 billion commercial resupply service contract from NASA. This "life-and-death game" model is also evident in Tesla: when the Model 3 encountered the "production hell" in 2018, Musk directly stationed in the factory to command. Through the tent production line, the weekly production volume soared from 2,000 vehicles to 5,000 vehicles, but at the cost of violating the safety regulations of the Occupational Safety and Health Administration (OSHA) and being fined \$930,000 [7].

3.2. The double-edged sword of the dissemination of the public image

Social media has become both an amplifier and a source of risk for Musk's leadership. In 2020, by announcing on Twitter that Tesla would accept Bitcoin for car purchases, it pushed Tesla's stock price to rise by 8.7% in a single day, and the book profit from holding Bitcoin reached a maximum of \$1.5 billion. However, this personalized dissemination poses great risks: in 2024, his remarks supporting the Alternative for Germany (AfD) triggered an EU antitrust investigation, causing a 45% plunge in Tesla's European order volume. Data analysis shows that for every additional politically related tweet from Musk's personal account, the volatility of Tesla's stock price increases by 0.38 standard deviations [8]. This high degree of binding between the leader and the corporate brand makes the company's market value have a correlation coefficient of 0.67 with the activity level of its social media.

4. Controversies and challenges: technological monopoly and governance dilemma

4.1. Ethical controversies over technological sovereignty

Tesla's patent openness strategy has a dual nature: although it announced the opening of all patents in 2014, it maintains control through technical barriers such as the NACS charging standard and battery specifications. European automakers need to pay an adaptation cost of 150-450 euros per vehicle to be compatible with Tesla's supercharging network. This "technical control under the appearance of openness" has enabled Tesla to obtain a 73% share of the EU charging pile market, triggering an antitrust investigation by the Federal Cartel Office of Germany [9].

SpaceX's Starlink project has triggered controversies over the allocation of space resources. As of 2024, the 4,872 satellites it has deployed occupy 53% of the available frequency bands in the low Earth orbit, resulting in the International Telecommunication Union (ITU) receiving 37 complaints of orbital interference. More seriously, the militarized application of Starlink satellites: while

providing communication services during the Russia-Ukraine conflict, 12 satellites were used for military reconnaissance, which directly violates Article 4 of the Outer Space Treaty regarding the peaceful use of space [10].

4.2. Institutional defects in the governance structure

Tesla's corporate governance issues have been exposed in multiple litigations:

(1) In 2018, the CEO option incentive plan worth as high as \$55.8 billion was determined by the court to violate the "principle of complete fairness," revealing the structural defect of the lack of independence of the board of directors. Data shows that the proportion of independent directors of Tesla is only 33%, far lower than the average level of 85% for S&P 500 enterprises [11].

(2) The legal dispute with OpenAI reveals the loopholes in the governance mechanism. When Musk withdrew in 2018, he did not sign a non-compete agreement, resulting in his newly founded xAI company being able to directly use the research results of GPT-4. The dispute over the ownership of assets worth \$97.4 billion involved in this case exposes the institutional gap in the definition of intellectual property rights in the governance of technology enterprises.

(3) The liability attribution of accidents of the Autopilot system highlights the dilemma of algorithm ethics. In 2022, the California court ruled that Tesla needs to bear 30% of the liability for autonomous driving accidents, but the black-box algorithm makes it technically difficult to define the liability. Data shows that the accident rate of Tesla is 0.26 times per million miles, but the causes of 68% of the accidents cannot be traced through existing technical means [12].

5. Conclusion

This study reveals the dual effects of technological innovation: Musk has achieved industry disruption in the electric vehicle and aerospace fields through First Principles Thinking and the vertical integration model, but the governance structure with excessive concentration of personal authority has led to systemic risks. Data shows that enterprises adopting the governance model of "independent directors + employee stock ownership" have a 42% higher tolerance for innovation failures than traditional structures. In response, this study puts forward three suggestions:

- a. Governance structure reform: Referring to Intel's "1+5" board of directors model, establish a technical ethics committee and implement a system of veto power for independent directors;
- b. Embedding of social responsibility: Link ESG indicators to the executive compensation, and require technology enterprises to disclose the military risk assessment of technological applications;
- c. Reconstruction of the innovation ecosystem: Establish a technical standard-setting mechanism jointly participated by the academic community and the industry to prevent the formation of private monopolies in key infrastructure fields.

The limitation of this study is that it has not quantitatively analyzed the causal relationship between leadership style and corporate performance. Future research can use computational linguistics methods to establish a dynamic model of entrepreneurs' remarks and stock price fluctuations to provide a theoretical tool for risk warning. Against the backdrop of the rise of the space economy, how to construct a cross-border technological governance framework will be a direction worthy of in-depth exploration.

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