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Impact Of Financial Performance on The Innovation and Development of Research and Development in Electric Vehicle Industry

Pangeran Alif El Gibran[1], Yunieta Anny Nainggolan[2]
[1,2]Master of Business Administration Program, Institut Teknologi Bandung
pangeran_alif@sbm-itb.ac.id[1], yunieta@sbm-itb.ac.id[2]

ABSTRACT

This thesis explores the relationship between financial performance and technology development decisions in Indonesian electric vehicle (EV) companies. The EV industry is crucial for Indonesia's sustainable transportation and environmental goals, but the country faces challenges such as limited infrastructure, high costs of adoption, and inconsistent government incentives. To address these issues, the research focuses on identifying the role of financial performance metrics, such as revenue growth, profit margins, cash flow, investment levels, and cost control, in influencing decisions related to technology development, innovation, and new product launches. The study employs a quantitative approach to examine the relationships between financial performance indicators and technology development outcomes. Secondary data will be collected from publicly available financial statements, company reports, and relevant industry databases of Indonesian EV manufacturers. Statistical tools, including regression analysis and correlation testing, will be used to identify patterns, relationships, and the significance of financial indicators in driving innovation and R&D investments. The findings will offer practical insights for policymakers, investors, and industry stakeholders. Policymakers can use the research outcomes to design targeted incentives and regulations that support innovation and financial growth. Investors will benefit from a clearer understanding of financial health indicators that influence technological progress, enabling better decision-making in EV-related investments. The research contributes to academic literature and industry practice by examining the financial-technology nexus within emerging markets, a domain often overlooked in favor of studies focused on developed economies. By addressing financial and policy barriers to innovation, the study supports Indonesia's broader goals of reducing carbon emissions, enhancing energy security, and fostering economic growth.

Keywords : financial performance, technology development, electric vehicles, government incentives, R&D investment, regression analysis, innovation.

INTRODUCTION

The electric vehicle (EV) industry is undergoing rapid transformation, driven by advancements in technology and increasing consumer demand for sustainable mobility solutions (McKinsey & Company, 2021). As global environmental concerns rise, governments and industries alike are emphasizing the shift toward clean energy transportation. However, one of the most significant factors influencing the pace of innovation in this sector is financial performance. Firms with strong financial standing can allocate substantial resources toward research and development (R&D), thereby maintaining a competitive edge through continuous technological advancements (PwC, 2022).

Financial performance plays a critical role in determining the extent to which companies invest in R&D initiatives. Stable revenue streams enable firms to fund new technological developments, enhance production efficiency, and scale

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their operations to meet growing market demands (OECD, 2020). Conversely, companies facing financial constraints may struggle to invest in innovation, limiting their ability to compete in an industry that requires rapid technological progress (IEA, 2021). Given the capital-intensive nature of the EV sector, securing sufficient funding for R&D remains a key challenge for many manufacturers.

Beyond internal financial capabilities, government policies serve as a crucial external factor influencing corporate innovation strategies. Many governments worldwide have introduced policy measures, including subsidies, tax benefits, and infrastructure investments, to support EV manufacturers and accelerate industry growth (Deloitte, 2023). In regions where financial barriers exist, these incentives can act as a catalyst for technological advancements, helping firms overcome cost-related constraints and enhance their innovation capabilities (IEA, 2023).

According to Sun et al. (2020), the degree of financial flexibility determines a company's ability to absorb risks and capitalize on new market opportunities. A well-structured policy environment, combined with robust financial performance, fosters a more dynamic innovation landscape, allowing firms to develop and deploy cutting-edge EV technologies. However, while financial health is a strong predictor of R&D investment, the effectiveness of government intervention in supporting corporate innovation varies across markets (Mazzucato, 2013). Understanding the interplay between financial performance, policy incentives, and innovation strategies is essential for identifying sustainable pathways for EV industry growth.

This study aims to analyze the correlation between financial performance and R&D investment in the EV industry while assessing the moderating effect of government policies. By examining financial data from major EV manufacturers and evaluating policy frameworks across different markets, this research provides insights into the key drivers of innovation and the strategic factors shaping the future of the EV industry. The findings will contribute to a deeper understanding of how financial and policy-related variables interact to influence technological advancements in the sector.

RESEARCH METHODS

This study employs a quantitative research approach to examine the relationship between financial performance, government policies, and R&D investment in the EV industry. A multiple linear regression model is used to assess the impact of revenue, profit margins, and policy intensity on R&D spending, following methodologies established in previous financial performance studies (Sun et al., 2020). By using secondary data from company annual reports and government policy documents, the research ensures a robust and data-driven analysis.

RESULTS AND DISCUSSION

This chapter presents the results of the analysis conducted to evaluate the relationships and interactions proposed in this study. The results of the regression analysis indicate a strong positive relationship between financial performance and

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R&D investment, confirming previous studies that suggest revenue growth enables companies to allocate more resources toward innovation (PwC, 2022). Firms with higher revenues demonstrate a greater capacity to invest in cutting-edge battery technology, software development, and vehicle automation, reinforcing the role of financial stability in shaping technological advancements (OECD, 2020).

Furthermore, the results underscore the moderating influence of governmental initiatives. Firms in high-policy-intensity markets demonstrate markedly greater R&D expenditures compared to those in lower-policy contexts, reinforcing the notion that policy interventions can enhance the relationship between finance and innovation (IEA, 2023). Deloitte (2023) underscores that subsidies, tax incentives, and research grants mitigate financial obstacles and motivate corporations to undertake more ambitious technical initiatives.

The analysis indicates that although financial performance is a crucial factor influencing R&D investment, the efficacy of government policy differs by area. Companies in China and South Korea, characterized by strong policy frameworks, demonstrate more assertive innovation strategies compared to those in nations with weaker policy backing (McKinsey & Company, 2021). This indicates that a properly calibrated combination of financial robustness and governmental incentives is essential for fostering sustained growth in the electric vehicle industry. These results highlight the essential importance of financial stability and policy assistance in promoting innovation in the electric vehicle sector. Manufacturers can enhance their R&D plans by utilizing internal financial resources and external governmental incentives, so securing long-term competitiveness and technological leadership (World Economic Forum, 2022).

Analysis

This research performs a descriptive analysis, detailing the variables through descriptive statistics, which encompass the minimum, maximum, mean, and standard deviation values of the research variables. Descriptive statistics outline the characteristics of the sample utilized in this study. This study presents the complete descriptive statistics in Table IV.1.

Table IV.1 Descriptive Statistics of Research Variables

Variabel	N	Minimum	Maximum	Mean	Std. Deviation
Revenue	60	0.22	310.00	61.10	77.28
Policy Intensity	60	4.00	10.00	8.32	1.86
Interaction Term	60	1.32	2170.00	482.10	573.53
RnD Investment	60	0.02	10.50	2.20	2.62
Valid N (listwise)	60				

This research utilizes a dataset comprising 60 samples. Table 4.1 can be interpreted as follows.

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1. There is a large amount of diversity in income among the samples, as indicated by the fact that the Revenue variable has a minimum value of 0.22 and a maximum value of 310.00, with an average value of 61.10 and a standard deviation of 77.28.
2. The majority of the sample has a high policy intensity, despite a small range of values, as indicated by the Policy Intensity variable, which has a minimum value of 4 and a maximum of 10, with an average of 8.32 and a standard deviation of 1.86.
3. The Interaction Term variable (Revenue × Policy Intensity Score) shows a very wide range of values, The range spans from 1.32 to 2170.00, with a mean of 482.10 and a substantial standard deviation of 573.53. This indicates a significant difference among the samples regarding the interaction of the analyzed variables.
4. With an average of 2.20 and a standard deviation of 2.62, the R&D Investment variable ranges from a minimum of 0.02 to a maximum of 10.50. This value indicates a relatively low level of research and development investment in most samples, although there are some samples with significantly higher investment levels.

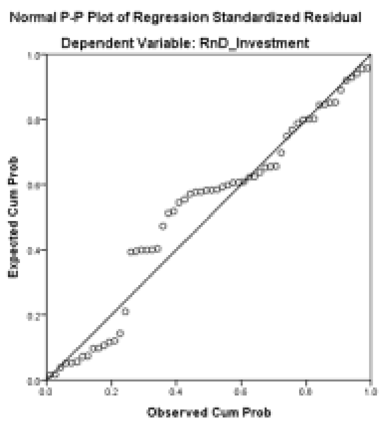
Overall, the variability in the data indicates significant differences among the samples for several variables, which provides opportunities for further analysis to identify patterns and relationships between variables. All valid data were used in this analysis because there were no missing data (listwise valid N = 60).

Normality Test

The The normality test assesses the distribution of data for adherence to a normal distribution. The normality test assesses the distribution of the residuals to ascertain their adherence to a normal distribution. The Kolmogorov-Smirnov test can be employed to assess the normality of the data distribution. A significance value exceeding 0.05 in the Kolmogorov-Smirnov test indicates that the data can be considered normally distributed. Results of the plot graphs are illustrated in Figures IV.1 and IV.2**.**

Equation (H1):

Figure IV.1 Normal Probability Plot H1 Graph



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In Figure IV.1 illustrates that the normal probability plot exhibits a typical normal distribution pattern. The distribution of points around the diagonal line demonstrates a pattern that aligns with the diagonal itself. The H1 regression model is deemed suitable for use as it satisfies the assumption of normality.

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Equation (H2):

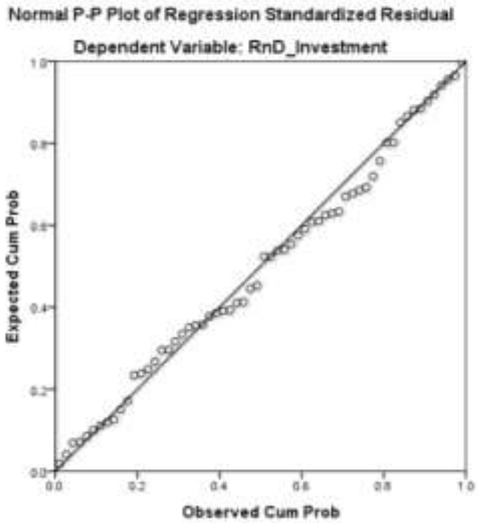

Figure IV.2 Normal Probability Plot H2 Graph

In Figure IV.2, The normal probability plot exhibits a typical normal distribution pattern. The points are distributed around the diagonal line, indicating that the distribution adheres to the diagonal line. In conclusion, the H2 regression model is appropriate for application as it satisfies the normality assumption. The results of the Kolmogorov-Smirnov test are presented below.

Table IV.2 Kolmogorov Smirnov Normality Test Results

Model	*Kolmogorov Smirnov*	*Asymp. Sig (2-tailed)*	Summary
H1	*R&D Investment* (H1)	0,093	Normally Distributed Data
H2	*R&D Investment* (H2)	0,200	Normally Distributed Data

Based on the Kolmogorov Smirnov Test in Table IV.2, it is found that the Asymp Sig. for the H1 equation, the value is 0.093 which is greater (>) than α (0.05) and the value of Asymp Sig. for the H2 equation the value of 0.200 is greater (>) than α (0.05) so it can be concluded that the data used is normally distributed.

Multicollinearity Test

The multicollinearity test assesses the presence of correlations among independent variables within a single model. An effective regression model must exhibit no correlation among independent variables. Multicollinearity is assessed by examining a Tolerance value of at least 0.1 and a Variance Inflation Factor (VIF)

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value of no more than 10, indicating that the model is free from multicollinearity. Table IV.3 presents the results of the multicollinearity test.

Table IV.3 Multicollinearity Test Results

Equation	Variable	Tolerance	VIF	Summary
H2	*Revenue*	0.216	4.254	No Multicollinearity
	Policy Intensity	0.645	1.550	No Multicollinearity
	Interaction Term	0.222	4.953	No Multicollinearity

Table IV.3 indicates that the regression model (H1) is a simple linear regression model; therefore, a multicollinearity test was not conducted. In equation (H2), the variables Revenue, Policy Intensity, and Interaction Term do not exhibit multicollinearity, as indicated by a Tolerance value greater than 0.1 and a Variance Inflation Factor (VIF) value less than 10.

Heteroscedasticity Test

Heteroscedasticity testing assesses the presence of variance discrepancies among residuals across different observations. Heteroscedasticity frequently arises in cross-sectional data, which consists of observations collected from multiple respondents at a specific point in time. A regression model that satisfies the necessary conditions exhibits uniform variance of the residuals across observations, a property known as homoscedasticity. One method for detecting heteroscedasticity is the application of the glacier test. If the significance test in the Glacier test exceeds 0.05, heteroscedasticity is not present. Table IV.4 presents the results of the heteroscedasticity test conducted using the SPSS program.

Table IV.4 Glacier Heteroscedasticity Test Results

Equation	Variable	Sig	Summary
H1	*Revenue*	0.053	No Heteroscedasticity
H2	*Revenue*	0.055	No Heteroscedasticity
	Policy Intensity	0.088	No Heteroscedasticity
	Interaction Term	0.085	No Heteroscedasticity

According to the Glacier heteroscedasticity table, Table IV.4, the independent variables in equations (H1) and (H2) exhibit a significance value greater than 0.05. Therefore, it can be concluded that the independent variables in both models do not display symptoms of heteroscedasticity.

Autocorrelation Test

The autocorrelation test evaluates the presence of correlation among confounding errors in a linear regression model at time t-1 (previous period). When correlation is present, it is referred to as an autocorrelation issue. The Durbin-Watson statistic provides insight into the autocorrelation test. A Durbin Watson

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value between 1.6 and 2.1 indicates the absence of autocorrelation in the regression model. Table IV.5 presents the results of the autocorrelation test.

Table IV.5 Autocorrelation Test Results

Equation	Durbin-Watson	0	dL	Summary
H1	1,609	0	1,5889	No Autocorrelation
H2	1,658	0	1,5420	No Autocorrelation

Based The results of the Autocorrelation Test presented in Table IV.5 indicate the following Durbin-Watson values:

1. In The Durbin-Watson statistic in the H1 equation is 1.609. According to the criterion, the Durbin-Watson statistic ranges from 1.6 to 2.1, indicating that the H1 regression model is free from autocorrelation.
2. The Durbin-Watson statistic in the H2 equation is 1.658. According to the criteria, the Durbin-Watson statistic ranges from 1.6 to 2.1, indicating that the H2 regression model is free from autocorrelation.

Linear Regression Analysis

Based on the regression results using the SPSS program, the regression coefficients were obtained which can be seen in the following table.

Table IV.6 Results of Multiple Linear Regression Coefficient H1

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
H1	*(Constant)*	0,251	0,149		1,684	0,097
	Revenue	0,032	0,002	0,940	21,004	0,000

Based on table IV.6, a simple linear regression equation is obtained as follows:

***R&D Investment* = 0,251 + 0,032 *Revenue* + e**

The equation mentioned previously can be elaborated as follows:

1. The regression equation yields a constant value of 0.251. This signifies, if the condition of the Equation (1):
   Revenue variable is considered constant, then the resulting R&D Investment variable is 0.251.
2. The regression coefficient for the Revenue variable is 0.032, indicating a positive association with the R&D Investment variable. A one-unit rise in the Revenue variable leads to a 0.032 increase in the R&D Investment variable.
   Equation (2):

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Table IV.7 Results of Multiple Linear Regression Coefficient H2

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
H2	*(Constant)*	-1,834	0,537		-3,416	0,001
	Revenue	0,079	0,008	2,317	9,446	0,000
	Policy Intensity	0,269	0,064	0,190	4,238	0,000
	Interaction Term	-0,006	0,001	-1,365	-5,644	0,000

Based on table IV.7, the following multiple linear regression equation is obtained:

***R&D Investment* = -1,834 + 0,079 *Revenue* + 0,269 *Policy Intensity* – 0,006 *Interaction Term* + e**

The equation mentioned previously can be elaborated as follows:

1. The regression equation yields a constant value of -1.834. If the variables Revenue, Policy Intensity, and Interaction Term are held constant, the resulting R&D Investment variable is -1.834.
2. The regression coefficient for the Revenue variable is 0.079, indicating a positive association with the R&D Investment variable. A one-unit rise in the Revenue variable leads to a 0.079 increase in the R&D Investment variable.
3. The regression coefficient for the Policy Intensity variable is 0.269, indicating a positive association with the R&D Investment variable. An increase of one unit in the Policy Intensity variable will result in a 0.269 increase in the R&D Investment variable.
4. The regression coefficient for the Interaction Term variable (Revenue × Policy Intensity Score) is -0.006, indicating a negative connection with the R&D Investment variable. This indicates that a one-unit increase in the Interaction Term variable will result in a decrease of -0.006 in the R&D Investment variable.

Coefficient of Determination

The coefficient of determination (R^2) assesses the existence of a perfect relationship, indicating if variations in the independent variables, compensation and discipline, correspond proportionately with changes in the dependent variable, service quality. This assessment is conducted by examining the R Square (R^2) value. The coefficient of determination ranges from 0 to 1. A low R^2 value indicates that the independent variables have a little capacity to account for variations in the dependent variable.

A score around 1 indicates that the independent variables supply nearly all the information required to forecast the dependent variable's fluctuation. This research utilizes the R Square value, as it can fluctuate with the addition of an

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independent variable to the tested model. The Adjusted R-Squared value is presented in Table IV.8.

Table IV.8 Results of Determination Coefficient

Equation	*R-Square*	*Adjusted R-Square*
H1	0,884	0,882
H2	0,927	0,923

According to Table IV.8, the Adjusted R Square value in equation (H1) is 0.882, equivalent to 88.2%. The independent variable Revenue accounts for 88.2% of the variance in the dependent variable R&D Investment, with the remaining 11.8% attributable to the components in equation (H1).

In equation (H2), the Adjusted R Square value is 0.927, equivalent to 92.7%. The independent variables Revenue, Policy Intensity, and Interaction Term account for 92.7% of the variance in the dependent variable R&D Investment, with the remaining 7.3% attributed to unexamined components in equation (H2).

Linear Regression Hypothesis Testing

Simultaneous Testing (F Statistical Test)

The F test in this study assesses the relationship between the independent and dependent variables, determining if the independent factors collectively influence the dependent variable. The outcomes of the F test in this study are presented in Table IV.9.

Table IV.9 Simultaneous Test Results (F Test)

Equation	*F-statistic*	*Prob (F-statistic)*
H2	237,543	0,000

According to Table IV.9, the F test results for equation (H1) are unnecessary in simple linear regression. For equation (H2), the computed F value was 237.543, with a P value of 0.000 at a significance level of 95% ($\alpha = 0.05$). The significance figure (P value) is 0.000, which is less than 0.05. The F test findings indicate that Revenue, Policy Intensity, and Interaction Term significantly influence the R&D Investment variable concurrently, hence validating the appropriateness of the regression model.

Partial Testing (t Statistical Test)

This study employs a t-test to determine the significance of the association between the independent variable and the dependent variable, R&D Investment. The outcomes of the t-test in this investigation are presented in the subsequent table.

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Table IV.10 Partial Test Results (T Test) H1

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
H1	*(Constant)*	0,251	0,149		1,684	0,097
	Revenue	0,032	0,002	0,940	21,004	0,000

According to Table IV.10, the t-test hypothesis in the H1 equation indicates that the Revenue variable possesses a significance level of 95% (α = 0.05). The significance figure (P Value) is 0.000, which is less than 0.05. Based on this analysis, H0 is rejected, indicating that the Revenue variable significantly influences the R&D Investment variable.

Table IV.11 Partial Test Results (T Test) H2

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
H2	*(Constant)*	-1,834	0,537		-3,416	0,001
	Revenue	0,079	0,008	2,317	9,446	0,000
	Policy Intensity	0,269	0,064	0,190	4,238	0,000
	Interaction Term	-0,006	0,001	-1,365	-5,644	0,000

Based on table IV.11, the hypothesis of the t test results in the H2 equation obtained the following results:

a. The Revenue variable is analyzed at a significance level of 95% (α = 0.05). The significance figure (P Value) is 0.000, which is less than 0.05. Based on this analysis, H0 is rejected, indicating that the Revenue variable significantly influences the R&D Investment variable.
b. The Policy Intensity variable exhibits a significance level of 95% (α = 0.05). The significance figure (P Value) is 0.000, which is less than 0.05. Based on this comparison, H0 is rejected, indicating that the Policy Intensity variable significantly influences the R&D Investment variable.
c. The Interaction Term variable exhibits a significance level of 95% (α = 0.05). The significance figure (P Value) is 0.000, which is less than 0.05. Based on this comparison, H0 is rejected, indicating that the Interaction Term variable significantly influences the R&D Investment variable.

Business Solution

To strengthen the financial capacity of EV manufacturers and enhance innovation capabilities, this study proposes a strategic approach combining internal financial optimization with external policy support. According to Deloitte (2023), companies that integrate government incentives into their financial planning

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experience lower production costs and greater R&D efficiency. By leveraging tax incentives, subsidies, and public-private partnerships, manufacturers can mitigate financial constraints and sustain long-term technological advancements (IEA, 2023).

1. Strategic Allocation of Revenue to Research and Development.
   Companies must prioritize dedicating a substantial amount of their revenue to research and development for innovation. The OECD (2020), contends that capital-intensive businesses, like electric vehicle manufacturing, necessitate substantial financial investment in technical advancement to sustain competitiveness. Furthermore, revenue allocation models must account for disparities in policy intensity across various markets to optimize policy-driven advantages.
2. Utilizing Government-Industry Cooperation
   Cooperation between governmental entities and manufacturers is essential for the advancement of the electric vehicle sector. Subsidies, infrastructural investments, and tax incentives are crucial in stimulating technological progress. The International Energy Agency (2021) contends that robust governmental backing reduces operational costs and accelerates the adoption of electric vehicles. Countries like China have demonstrated the efficacy of these agreements in augmenting manufacturing capabilities.
3. Customizing Strategies to Policy Intensity
   Manufacturers must to formulate market-specific research and development, as well as product development plans, that are congruent with the efficacy of governmental policies. McKinsey (2021) asserts that enterprises in policy-intensive regions, like China and South Korea, may concentrate on growing output to capitalize on substantial incentives. Conversely, enterprises in growing economies, such as India, must tackle affordability issues while promoting robust policy frameworks.

Implementation Plan & Justification

The implementation plan converts the proposed solutions into actionable steps supported by evidence from academic and industrial research. This plan aims to optimize financial and technological outcomes for EV manufacturers by integrating revenue management, policy utilization, and market-specific strategies.

Revenue Distribution Framework

Establish a dynamic revenue allocation mechanism that prioritizes research and development expenditures according to financial performance and policy incentives. High-revenue corporations in robust policy environments (e.g., China) need to designate up to 30% of their revenue for R&D, concentrating on fundamental technologies such as battery efficiency and software integration.

According to PwC (2022), leading electric vehicle businesses substantially engage in research and development, frequently dedicating a considerable share of

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their revenue to technological advancements, thereby immediately improving their market standing.

Optimizing Policy Advantages

Establish internal compliance teams to guarantee that manufacturers fully leverage available government incentives, including subsidies for electric vehicle production and grants for charging infrastructure construction.

Deloitte (2023), indicates that organizations utilizing policy-driven funding observe a decrease in manufacturing expenses, facilitating competitive pricing and increased adoption rates.

Localized Market Strategies

Tailoring R&D and product development to regional market conditions is crucial for maximizing competitiveness. The International Energy Agency (2023) emphasizes that localized strategies enhance market penetration and regulatory compliance, ultimately driving higher EV adoption rates. In high-policy-intensity markets, firms can focus on premium electric vehicles, leveraging advanced technologies and infrastructure incentives. Conversely, in developing markets, prioritizing affordable EV models and expanding charging networks can foster sustainable industry growth (PwC, 2022).

Collaborative Innovation Networks.

Forge collaborations with municipal authorities, research entities, and vendors to optimize the collective use of resources for research and development as well as infrastructure initiatives.

Justification: The World Economic Forum (2022) asserts that collaborative innovation networks are crucial for stimulating growth in new sectors, such as electric vehicle production, by enhancing resource efficiency and mitigating operational risks..

CONCLUSION

This study underscores the pivotal role of financial performance in shaping R&D investment strategies in the EV industry. Strong revenue streams enable firms to allocate more resources toward technological advancements, ensuring long-term market competitiveness (OECD, 2020). However, financial constraints remain a significant challenge, particularly for smaller manufacturers, necessitating well-structured government support mechanisms (IEA, 2023). The results confirm that government policies play a crucial moderating role in enhancing financial performance and innovation outcomes, with firms in high-policy-intensity markets exhibiting stronger R&D commitments (McKinsey & Company, 2021).

The analysis in Chapter 4 provides strong evidence supporting the hypothesis that revenue (financial performance) significantly influences R&D investment (technological development outcomes) among EV manufacturers in Asia.

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Companies with higher revenues demonstrate a greater capacity to invest in technological advancements, underscoring the importance of financial stability in driving innovation. Additionally, the results confirm the moderating role of government policies, as measured by the Policy Intensity Score, in enhancing this relationship.

The study reveals that in countries with robust policy frameworks—characterized by high financial incentives, infrastructure development, R&D support, and policy consistency—companies are better positioned to allocate revenue effectively toward R&D. For instance, EV manufacturers operating in China, with its maximum Policy Intensity Score of 10, exhibit stronger linkages between financial performance and innovation. This underscores the catalytic role of supportive policies in amplifying the financial-to-technological impact. Conversely, countries with lower policy scores, such as India, experience weaker interactions, highlighting the limitations of insufficient policy support.

The findings validate that the presence and strength of government policies not only facilitate innovation but also create a favorable environment for manufacturers to sustain growth and competitiveness in the EV industry. These results emphasize the interplay between private sector financial health and public sector regulatory support in fostering technological advancements.

To address these challenges, this study recommends three key strategies:

1. Enhancing financial planning for R&D: Firms should adopt cost-efficient production strategies and explore alternative financing mechanisms, such as green bonds and investment credits (World Economic Forum, 2022).
2. Maximizing policy utilization: Establishing dedicated compliance teams to monitor and integrate government incentives into financial strategies can significantly boost innovation capacity (Deloitte, 2023).
3. Implementing localized market strategies: Aligning product development with regional policy frameworks and market demands ensures sustainable industry expansion and higher adoption rates (IEA, 2023).

By implementing these strategies, EV manufacturers can strengthen their financial resilience, optimize policy benefits, and drive sustainable innovation in the industry. Future research should further explore the comparative effectiveness of different policy interventions and assess their long-term impact on the global EV market (PwC, 2022).

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