Managerial Report: "NIO: Battling Tesla with Battery as a Service"

Haowen Wang

Individual Assignment 1

AD 715 Krystie Dickson

Boston University

Table of Contents

Executive Summary

Battery-as-a-service, an innovative business strategy offered by NIO, has strong correlations to climate change, EV trends and circular economy. With its unique features offered by NIO such as battery swapping station and battery leasing options, it has gained certain competitive advantages and attractiveness from customers. However, NIO must continue to improve and innovate newly technology as well as its business strategy to meet its demand of expand globally.

Despite its dedication of reducing carbon dioxide emission and meet the requirements of climate change, how to create a circular economy loop becomes the priority for not only NIO but also all other EVs' manufacturers. Recycling used batteries through its swapping station by frequently upgrading its battery technology and Blue-sky-lab are methods listed in this case study to promote circular economy.

Business models are deployed to analyze strategies between NIO and Tesla. Results indicate that NIO's battery-as-a-service strategy indeed provides them with certain competitive force in the short run, but potential limitations of its sustainability exist in the long run. Large capital requirements for NIO to establish enough swapping station attributes to its cash crisis in 2019 and stock price dropping. In addition, Baas is predicted to be weaken in the future EVs' market since battery charging time and range problems will not exist due to frequent battery technology updates.

Introduction

NIO's innovative business strategy, battery-as-a-service, has gained certain competitive advantages in the EVs' market. With its dedication to expand globally, Tesla is one of the largest competitors in the world. This case study analyzes correlations of Baas to climate change and circular economy, its competitive advantages in the market and potential problems in the long run compared to Tesla.

Correlations of Baas to three categories

Battery-as-a-service strategy launched by NIO in 2020 which offers both battery charging and swapping (Power Swap) for their customers along with home charging solution (Power Home), mobile charging service through on-call service trucks (Power Mobile) and pick-up charging service (Power Express) with monthly subscription fee serves as their competitive advantage against Tesla and significantly correlated to climate change, EV trends and circular economy. (Bhattacherya, 2021)

Climate change

From environmental factors of PESTLE Analysis, EVs have been announced as the direct method to reduce oil use and carbon dioxide emissions. (Bhattacherya, 2021) Approximately 131,484 tons of carbon emission was reduced due to their production of EVs. According to their dedication of reducing carbon emissions, NIO continuously launched their plan of establishing an ecosystem in the Sanjiangyuan National Park as well as the Blue Point Plan to minimize carbon emission (NIO, 2022) Moreover, Baas offers customers with the opportunity to purchase their product without the battery, which significantly reduces the selling price and

promotes their product coverage. (Bhattacherya, 2021)

EV trends

China is known as one of the largest markets of EVs which is approximately 41% worldwide. (Bhattacherya, 2021) With the unique feature of battery swapping station from NIO, Baas can provide both swapping demand of customers and battery upgrade function to connect their product with the newest EV trends since they dedicated to maintaining their battery size similar to each other initially. (Bhattacherya, 2021) Based on VRIO model of the organization of NIO, Baas strategy can count as their sustained competitive advantage. Although Baas strategy must encounter the high cost of swapping station, it offers two revenue income which are monthly subscription fee and battery upgrade demand by customers. (Bhattacherya, 2021) The increasement of EVs demand in Chinese market will drive NIO to continuously develop their product and battery technology of the latest EV trends.

Circular Economy

Despite the fact of reduction of carbon dioxide emission by EV, majority materials of battery are detrimental to the environment. Baas strategy contributes significantly to circular economy by offering the option of removing the battery price and extending or upgrading battery usage. (Bhattacherya, 2021) However, with certain limitation in the long run such as high cost of swapping station, NIO must overcome their bottleneck of both their cash flow and battery technology development. Moreover, with the announcement of Blue-Sky-Lab, NIO has gone one step further to their circular economy by reusing the remaining parts from car manufacturing. (NIO, 2022)

Key features of Baas

Baas strategy includes key features of six times a month of battery swapping at swapping station, an opportunity for customers to purchase the car without the battery itself and battery recycle function to either upgrade or extend current usage. (Bhattacherya, 2021)

Advantages of Baas strategy will be analyzed by deploying SWOT analysis model. To begin with, Battery swapping options offers significantly shorter time compared to a 75-minute charging time at charging stations. (Bhattacherya, 2021) In addition, analysists indicate that swapping stations offer a cheaper option of approximately 0.1 dollars per mile compared to 0.104 dollars per mile of Tesla supercharge station. (Bhattacherya, 2021) Moreover, Baas strategy overcomes difficulties of both battery degradation and technology innovation since NIO keeps battery size identical initially and offers battery recycle and upgrade functions at swapping stations. (Bhattacherya, 2021) Baas strategy deployment promotes NIO's product coverage and results in two additional revenue income which are monthly subscription fee paid by customers and additional battery upgrade request. (Bhattacherya, 2021)

However, certain limitations need to be considered in the long run whether NIO should stick with that strategy. Swapping station costs much higher than supercharge station. NIO fails to achieve its original goal and results in its cash flow crisis in 2019. (Bhattacherya, 2021) Moreover, with technology development in EVs' market, majority competitors are investing large amount of resources to develop advanced battery technology as well as artificial intelligence driving system to attract potential customers. Battery charging time will not become a concern sooner or later. Last but not least, swapping station is not standardized for all brands. It left NIO with concerns of how to promote a circular economy.

How to promote circular economy

EVs' production intention was to mitigate climate change and reduce carbon dioxide emission in the environment. However, with majority production of batteries, detrimental materials are introduced when battery usage is at the end. Government and regulatory departments are promoting circular economy to EVs production industry, and certain legislations are in deployment as internal controls. (Dr. Zlatev, 2022) Despite the fact that circular economy is necessary for the great goods, achieving circular economy loop could also generate optimal revenue income and reduce potential production cost by reusing materials from recycle. (Dr. Zlatev, 2022)

Circular economy is driven by certain needs from both customer' side and providers' side. From PESTLE analyze model, we will focus on economic aspects when analyzing circular economy.

From provider's side, collecting used products is priority among the needs of circular economy. It provides them with raw materials to generate second-used opportunities. (Dr. Zlatev, 2022) The technology of battery reusage counts as another important need for circular economy since it is the determinant of whether the entire circular economy loop will success or not. Other needs for circular economy include the location of manufacturing industries since it should be separated from its original production line and logistics of how to collect those materials. (Dr. Zlatev, 2022)

The entire loop requires both customers and providers to complete to achieve circular economy. Potential issues remain still at customers' side. To drive circular economy, customers

need to provide manufacturer with used materials. Thus, availability of providing used batteries or materials from customers counts significantly. Moreover, Pricing and cost issues are always important factors when dealing with business problems. Under this scenario, pricing and cost affect both of them in circular economy.

NIO's Baas strategy contributes optimally to circular economy so far. With the opportunity of six times swapping options, NIO owners actively provide their used batteries to swapping stations. I believe one of the methods to promote a circular economy by NIO is frequent battery upgrade. It is a virtuous circle between battery upgrade launched by NIO and used battery collection from customers at the swapping station. (Dr. Zlatev, 2022) Since NIO intentionally kept all batteries identical, all customers can request their battery upgrade at swapping station. Thus, it left them without problems when developing new battery technology. If the cost of innovation of battery reusage rise in the future, it optimally benefits customers who choose to select Baas and meet their need for material collections. (Dr. Zlatev, 2022) Despite the large investment they have made in battery reusage technology, NIO has also launched Blue-Sky-Lab to recycle used materials of their EVs as another method to promote circular economy as I mentioned previously.

Comparison of NIO and Tesla

As far as I considered, Battery-as-a-service strategy obtains competitive advantage in the short term, but its sustainability remains questionable in the long term compared to Tesla for several reasons.

To begin with, the idea of Bass is to replace traditional EVS' charging time with battery

swapping and lower the selling pricing by offering leasing battery options to attract more customers. Within the technology of battery charging time so far, battery swapping indeed solves the traditional long-time charging. However, it comes with two potential problems in the long run. The cost of establishing a swapping station is much higher than supercharging station of Tesla, although they occupy identical landscape. (Dr. Zlatev, 2022) NIO has already experienced a cash flow crisis in 2019 due to the swapping station. (Bhattacherya, 2021) Moreover, swapping station only exists in large city, and the capacity to meet the swapping demand is not enough. Tesla's supercharging stations cost much lower than the swapping station, and it provides customers with home-based charging station. (Dr. Zlatev, 2022)

In addition to compare their strategy from range aspects, increasing swapping station to meet customers' range anxiety need requires large capital compared to creating more supercharge stations. The swapping station does provide shorter charging time to reduce range anxiety for now, but range anxiety will not seem to exist in the future with battery technology improvement. (Dr. Zlatev, 2022) Moreover, analysts predict that the selling price of EVs will reduce in the future with technology development, which reduces the competitive force of Baas strategy since it provides leasing battery to lower the selling price. (Bhattacherya, 2021)

In conclusion, Battery-as-a-service strategy is indeed valuable in the short-term, but it is less sustainable compared to Tesla's supercharge station and home-based charging station in the long term due to several reasons I mentioned above.

References:

(n.d.). (rep.). Case Problem "NIO: Battling Tesla with Battery as a Service" by Bhattacherya, S., and Bhattacherya, L., SMU108, 2021-12-12

In-Class Discussion W4: Evaluation of Strategic Decision Success in Organizations -Case "NIO, Inc." by Dr. Zlatev, 2022

What is pestle analysis? an important business analysis tool. PESTLE Analysis. (2022, April 22). Retrieved September 25, 2022, from https://pestleanalysis.com/what-is-pestle-analysis/

NIO's continued sustainability initiatives. (n.d.). Retrieved September 25, 2022, from https://www.nio.com/blog/nios-continued-sustainability-initiatives

Nio Life Unveils Automotive Circular Fashion Icon, Blue Sky Lab. NIO. (n.d.). Retrieved September 25, 2022, from https://www.nio.com/news/nio-life-unveils-automotive-circular-fashion-icon-blue-sky-lab