

*Research Article*

# **Competitive Advantage and Policies of Japan's Electric Vehicles in Southeast Asia**

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## **Abstract**

Due to growing environmental awareness, governments and people all over the world started to show concern and place importance on energy efficiency. The transformation from fossil-fuelled energy to renewable energy has been attracting attention and has become the solution that is expected to be more sustainable. This immense potential brings a new idea and innovation for automakers to adopt green technology by creating electric vehicles (EVs). Consequently, the electric vehicle industry has led many automakers, including Japan, to compete in order to dominate the market in Southeast Asia. As one of the longest-running automakers, Japan is unexpectedly left behind and surpassed by other competitors such as China and South Korea. This article aims to identify the policies and strategies Japan implemented to keep up with the competition. The descriptive qualitative method is used to analyse the concept of competitive advantage and government policies. The result shows that Japan implemented both economic and political strategies based on costs and differentiation, as a way to achieve its competitive advantage in the EVs market in Southeast Asia.

**Keywords:** Japan; electric vehicles; competitive advantage; government policies

## **Introduction**

As the consequence of global climate change becomes increasingly significant, the interest and perspective for creating a novel ecosystem is getting higher. Many businesses focus on the development of transportation by observing the demand and needs of the people. The transportation sector spends about 17% of global carbon emissions, which lead to the adoption of electric vehicles (EVs) in the market (Farmer, Gupta, & Manuel, 2022). Asia has been a pivotal market for electric vehicles and became an opportunity for the region to accelerate its growth through new green businesses. Many Asian countries are most affected by

climate challenges and are home to the most polluted countries, due to relatively high demand in energy (IQAir, 2021).

In Asia, the interest in electric vehicles is growing, more specifically in East Asia and Southeast Asia. East Asian countries have been consistently positioning themselves as automakers and plan to increase their sales by creating and targeting the market of Southeast Asia. As the population and economic development increased tremendously in the past decades, governments have started to come up with different options in order to fulfill the high demand of fuel consumption. Environmental awareness, human health, and energy efficiency have started to receive attention from both governments and people all over the world, including Asia.

With that being mentioned, the automotive industry initiated a new transformation by shifting from fossil fuel-powered vehicles to electric vehicles. Many governments in East Asia, including Japan, have ambitious plans to get involved in the electric vehicle market and are clearly aiming toward the regional industry (Uchida, 2022). The drive to adopt green technology encouraged the electric vehicle production in Southeast Asia. Due to its large population, the potential for EVs can grow even more. Southeast Asian countries are slowly taking steps to establish their domestic industries and partner with big automakers in Asia such as China, Japan, and South Korea (Fallin & Lee, 2022). This step is an essential part of the EV ecosystem in the region, which is why some countries have started to support supply chain resilience, developing materials, promoting products, and implementing economic policies to facilitate the adoption of EVs.

As Southeast Asian countries strive to remain the epicenter of the EV ecosystem, governments have held numerous discussions and shared a common understanding on the subject. The emphasis of this discussion is on guaranteeing energy security in order to enable the transition from fossil to renewable energy (Shofa, 2023). Indonesia, one of the Southeast Asian countries, is ready to work with Japan on investment and technology transfer. Southeast Asia's EV industry is expected to reach US\$ 2.7 billion in 2027, with 600,000 electric automobiles and 2.45 million electric motorcycles produced by 2030 (Shofa, 2023). However, because nickel is a vital component of EV batteries, the development of EVs require support to gain the specific resources.

Along with the rising demand for EVs, many new Asian automakers namely China and South Korea, plan to expand their factories and destabilize the dominant position of Japan in the market (Yamamura, 2022). Japan has dominated 80% of the automobile market in Southeast Asia and focused on hybrid vehicles while its electric vehicles industry lags behind comparatively. Japan only started to produce electric vehicles last year in Bangkok and signed a memorandum of understanding with the government for incentives (Yamamura, 2022). Japan's long-time relationship with Thailand can be traced to 1962 when Nissan Motors partnered with Siam Motors and transformed it into an automotive pioneer, which led Siam Motors to become a profitable company (Ghoshal & Kongkunakornkul, 2023). However, Siam Motors has recently been in talks with Chinese automakers for potential partnerships in electric vehicles. With Chinese investments underway, a new front in the vehicle industry that Japan has initially dominated started to appear. Japanese automakers were faced with a battle for key players in the Southeast Asian market due to Japan's slow approach is in the EV industry.

As Southeast Asia's largest car producer and exporter, Thailand and Indonesia have been the extended home market for Japan for decades. However, China surpassing Japan as a top investor since 2022 drew Chinese EV automakers to build overseas production hubs and ramp up exports (Ghoshal & Kongkunakornkul, 2023). The inclination towards Chinese EV makers is due to its purchasing power that could support market growth, while Japanese EV producers are said to only target premium segments. Apart from competition, the level of commitment shown by Southeast Asian countries to support EVs has soared. These countries started to establish a comprehensive policy framework on EV adoption. Looking at the possibility of prices falling and recharging stations increasing, Japan decided to rethink its strategies to accelerate its EV manufacturing.

This paper is intended to unfold the strategies Japan implemented to face the competition and move forward following the needs and trends in the market, as its way to achieve competitive advantage. The Japanese government underwent new policies focusing on improving EV development, including infrastructure. Furthermore, the latter part of the paper will cover the role of Japanese government policies on EVs economically and politically. The analysis will focus on Porter's generic strategies based on cost and

differentiation in order to achieve a competitive advantage. On the other hand, the role of Japanese government policies are observed from economic and political aspects, such as trade promotion, investment policy, economic negotiations, resource exploration rights, international collaboration, and international projections. Further analysis of the issue will be addressed in order to see how Japan started to pay attention to EVs since the competition emerged and might threaten its position as the dominant player in the automaking industry of Southeast Asia.

## Literature Review

### Competitive Advantage

Michael Porter (1985) states that competitive advantage is the capacity a company develops via its traits and resources to outperform rival businesses in a certain market or industry (Rita, 2019). The competitive advantage strategy states that anything the firm does will have an effect on the company itself based on the ability to adapt quickly, learn from competitors' market algorithms, and be accurate in executing their plans (Darmanto, 2015). The foundation of the company's competitiveness lies in its capabilities, which are continuously developed by internal resources, including the leadership support of the company, financial stability, internal motivation to develop strengths, growing innovation, and having a competitive edge in the market.

Competitive advantage creates the ability for corporate organizations to achieve market advantage over their competitors. Maximum performance can be achieved through long-term, sustainable adoption of a competitive advantage strategy (Kaswan, 2012). It conveys competitive strategy as one of the used core concepts, where the success or failure of businesses is primarily determined by competition. The relevance of a firm's performance-enhancing actions, such as inventions, a strong corporate culture, or effective implementation, is determined by competition. The pursuit of a favourable competitive position in the primary industry setting is referred to as competitive strategy. Establishing a profitable and long-lasting stance against the factors affecting industry rivalry is the goal of competitive strategy (Porter, 1985). According to Michael Porter (1985), a company's ability to compete on a global scale is dependent on a network of geographical advantages enjoyed by distinct sectors of the economy in several nations (Lane, 2023).

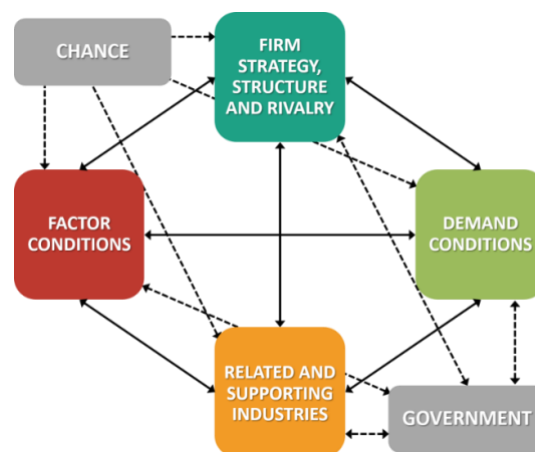


Figure 1. Porter's Diamond Model of National Competitive Advantage  
 Source: (Bruin, 2016)

1. Firm Strategy, Structure, and Rivalry. Companies are more driven to innovate and upgrade in order to keep their competitive advantage as domestic competition heats up.

2. Factor Conditions. The available natural, financial, and human resources are referred to as a country's factor conditions. Human resources refer to human-created conditions such as a skilled workforce, robust infrastructure, and a solid scientific foundation.
3. Demand Conditions. The presence of complex demand conditions from local consumers also encourages business expansion, innovation, and quality improvement.
4. Related and Supporting Industries. The presence of related and supporting sectors lay the groundwork for the focus industry to expand. Businesses commonly rely on alliances and partnerships with other businesses to increase consumer value and boost competitiveness.
5. Government. It serves as both a catalyst and a challenger. Governments should encourage firms to set higher goals and achieve higher levels of competitiveness by increasing early demand for cutting-edge products (demand factors), focusing on specialized factor creations such as infrastructure, education, and the health sector (factor conditions), encouraging change, and promoting domestic competition through antitrust enforcement.
6. Chance. Outside influences such as war and natural catastrophes can boost or hinder a country or industry. It also incorporates random events, such as the location and timing of key scientific breakthroughs.

After analysing Porter's Diamond Model, the basic fundamental of above-average long-term performance is durable competitive advantage. Each company's strength or weakness is determined by how it influences relative cost or distinctiveness. Industry structure causes differentiation and cost advantage. Cost leadership, differentiation, and focus are the three generic tactics for achieving above-average success in an industry. These strategies are founded on the two fundamental categories of competitive advantage and the range of operations for which a corporation strives. The focus of the strategy comes in two factors: cost and differentiation. The framework below will be used to discuss the generic strategies (Porter, 1985).

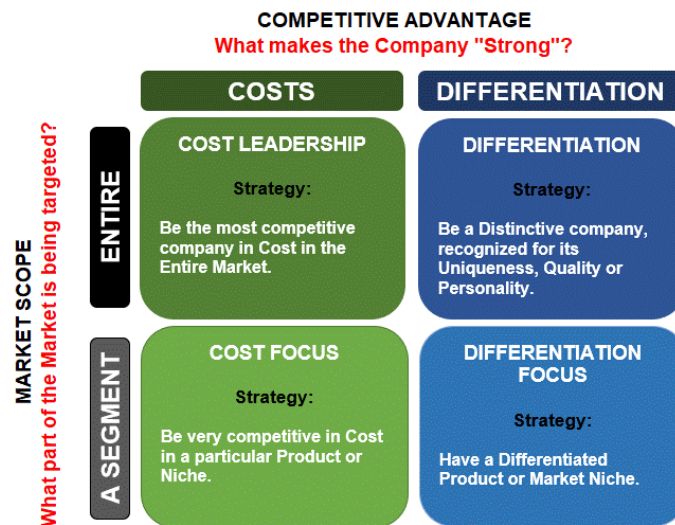


Figure 2. Porter's Four Generic Strategies  
 Source: (Consuunt, 2021)

1. Cost Leadership. This strategy aims for a diverse market while keeping costs as low as possible. There are two options: to grow the market while maintaining the average price or reduce the cost of the product as much as possible. Both options will help the organization reduce expenses while increasing revenue.
2. Differentiation. This strategy aims to appeal to a diverse range of consumers while providing a product with distinct features. They should concentrate on exploiting the product's distinguishing features to attract customers and increase their market share.

3. Cost Focus. When implementing the cost focus strategy, the company seeks a specialized niche market with less competition in which the product will be supplied to the market at the lowest price possible.
4. Differentiation Focus. When a company employs differentiation as its major marketing approach, it selects a niche market and offers a unique product to that market. The customers' strong brand loyalty to the product is required since it is formed based on a product's uniqueness and is critical to maintaining its uniqueness.

### *The Role of Government Policies*

According to Bull (2002), firstly, foreign policies are made to accommodate actors entering a relationship with political groups in other countries; business enterprises, trade unions or workers, political parties, professional associations, holy lands or places of worship, all involved in transnational activities (Spohr & da Silva, 2017). Secondly, actors can enter into established relations with other countries, such as transnational corporations entering into agreements with local governments, political groups engaging in protests with foreign ministries or foreign embassies, or revolutionary groups, helping revolutionary groups in other countries that have the same ideology that is to overthrow the government. Lastly, actors can enter directly into international organizations (Erbas, 2013).

Foreign policy plays a more vital role today than in the past due to globalization. Marsh (2001) claims, based on a realist view, that foreign policy is an attempt to strengthen security through force (Erbas, 2013). The main goal will take the form of a pursuit of national interests in foreign relations. National interests are also involved in economic welfare, political values, and security.

The role of the state in development strategy is a part of political economics because a country has the strategy to promote and influence other countries. There is a strong line of thought that view developing countries as demonstrating their reliance on developed countries, which are frequently formed to bridge economic and political gaps (Spohr & da Silva, 2017).

When analyzing the role of foreign policy in fostering development, the state divides it into two major categories: economics and politics. There are three economic policies: (1) trade promotion; (2) investment policy; (3) economic, financial, and commercial negotiations. In the political arena, acts are indirectly tied to the promotion of development, as the practical result does not immediately affect the social and economic scope, but rather aids in the creation of a favourable atmosphere for some actions to be effectively performed. At the same time, (1) resource exploration rights; (2) international collaboration; and (3) international predictions are three acts in the political arena of foreign policy (Spohr & da Silva, 2017).

### *Trade Promotion*

Trade promotion consists of actions aimed to increase national exports quantitatively and qualitatively. They include actions to encourage exports with higher value-added components. To do so, foreign policymakers usually try to reach new markets – previously less interested in national goods – and promote high-value-added goods in their trade with traditional partners. These actions rely heavily on domestic policies to increase the competitiveness of domestic goods, which is aided by increasing levels of workers' skills (Spohr & da Silva, 2017). In the end, it will affect the number of selling goods and increase the GDP.

### *Investment Policy*

Investment policy comprises of two stances a country might take: the attractiveness of foreign direct investment (FDI), which is frequently emphasized in the early stages of production diversification, and the expansion of domestic investment overseas. According to Fonseca (2018) FDI has the potential to be advantageous for both investors and beneficiaries (Spohr & da Silva, 2017). Expanding a country's reach to other regions creates additional options for national corporate actors to invest abroad (Spohr & da Silva, 2017).

This policy follows the laws and requirements on investment/trade-related investment measures (TRIMs) as a part of the incentives and regulations created to influence FDI, but are limited to those that have a direct impact on international trade (Brooks & Simulong, 2003). The principles of making an investment are as follows: (1) non-discrimination; (2) transparent; (3) proportionally regulated; and (4) accountable (OECD, 2022).



### *Economic, Financial, and Commercial Negotiations*

The strategy is to demand appropriate development conditions, the elimination of any unfair trade practices by developed countries (such as subsidies, tariff and non-tariff barriers (NTB), and dumping), fairer intellectual property, and the possibility of developing programs that are not bound by rules. As a result, a plan is required to strengthen the negotiating process, with the goal of increasing responsiveness to changing market needs and any focal points that emerge (Buchur, n.d.). Making a clear distinction between their goals and demands can lead to cost-time optimization of some activities to promote both national and international transactions as well as the long-term development needs of the national economy's genuine potential export-import supply (Buchur, n.d.).

### *Resources Exploration Right*

To ensure its right to explore natural resources, a state could request the right to explore resources concerning both ownership and environmental negotiations. Once linked to the worldwide regime of all ownership and exploration of resources on both land and water, the state must deal with the challenge of ensuring that the necessary resources stay available (Spohr & da Silva, 2017). Licenses and contracts are legal documents that regulate the rights and responsibilities of governments and companies during extractive projects. Licenses or permits are the standard form of legal documents that are used by a state to be able to grant exploration rights or resource extraction in the state's territory in accordance with a set of generally accepted requirements, with limited variations from one project to another (Natural Resource Governance Institute, 2015).

### *International Cooperation*

International collaboration appears to be a dual policy that can benefit both parties. A state can use this technique to accept technology, build a collaborative resource exploration project, or construct a program to reduce inequality. This type of collaboration is critical to securing long-term advantages (Spohr & da Silva, 2017). In the neorealist view, countries will gain significant benefits from cooperation if they can trust each other to fulfil the agreements they have agreed on. All states that sign an agreement could take absolute advantage, which refers to an increase in the general welfare of interested countries although not necessarily equal, because the state is more concerned with absolute gains than relative gains (McGlinchey, Walters, & Scheinpflug, 2017).

### *International Projections*

International forecasts include the consequences of various facets of foreign policy. Autonomy is central to it, and it encompasses a wide range of international issues that have an impact on states. Influence has many different properties, such as being relational, causal, and having goals (Meierding & Sigman, 2021).

## **Methods**

This paper focuses on conducting a deep analysis of the phenomenon and collecting the data through a literature review. The authors use a qualitative research method that features an analysis on substance and meaning. The focus leans towards the process and result of data interpretation (Mohamed, Abdul Majid, & Ahmad, 2010). The research will collect the data from documented sources, such as books, journals, media articles, official statements, and texts. Furthermore, it will be interpreted and disseminated in the form of a narrative text.

## **Results and Analysis**

### *Current Developments of the Electric Vehicles Market in Southeast Asia*

The urgency for a new mode of transportation that is environmentally friendly is needed whilst persisting the original purpose as a vehicle. The development of electric vehicles (EVs) answered some of these concerns by placing battery as the substitute for conventional gasoline machines. This trend also

occurred in Southeast Asia, which becomes a potential emerging market for electric vehicles (EVs). It is estimated that the EV market in Southeast Asia amounts to around US\$ 500 million and is expected to continue to thrive to US\$ 2.5 billion in 2027 (SEADS, 2022).

Notable countries in the region have developed regulations, efforts, and incentives to keep up with the development and implementation of EVs by pursuing investments, including in spare parts. Indonesia, for example, has set a goal of providing solely electric automobiles and motorcycles by 2050. Furthermore, Brunei Darussalam aspires to attain roughly 60% of annual EV sales over the next program until 2035. Malaysia has set an aim of establishing over 10,000 EV charging stations by 2025, while Thailand is generating a large number of electric vehicles that are not taxed. These instances demonstrate that the region has begun to recognize the relevance of EV transition for long-term investment (SEADS, 2022).

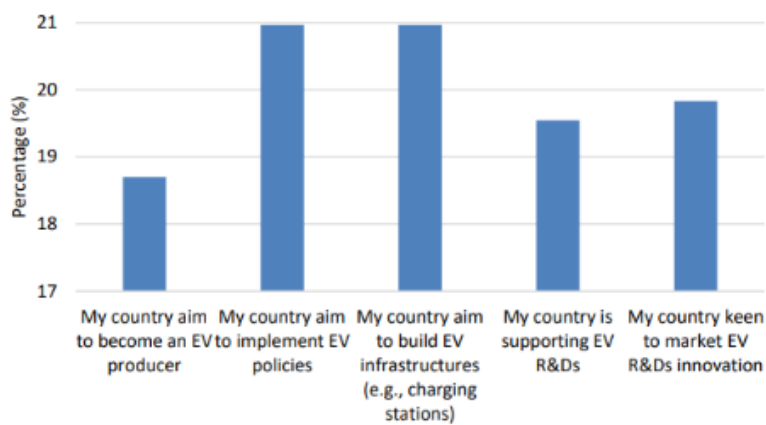


Figure 3. Readiness Level of EV implementation in ASEAN countries  
 Source: (Jeng Shiun Lim, 2021)

Based on Figure 3, about 18% of the respondents from the above survey said that their country aimed to become an EV producer while, 21% of respondents mentioned that their country aimed to implement EV policies. If the previous responses were regarding the initiative and policy making, the following data are focused on how these countries provide required supports. Around 21% said that their country's goal is to build EV infrastructure whilst 19.5% supported EV research and development (Jeng Shiun Lim, 2021).

Despite the optimistic prospects for the electric vehicles' existence in Southeast Asia, the obstacles would continue to persist, given that most countries in the region are classified as middle income. The challenges include higher prices of EVs, the dispute on energy sources, and the lack of power supply reliability. The biggest challenge is the lack of infrastructure for public charging as well as the standardisation of driving range, safety, and operation and maintenance of electric vehicles (SEADS, 2022). These concerns shall be addressed seriously by both government and private sectors altogether to elaborate and meet the needs to find the best solution.

### Electric Vehicles Production in Japan

Japan is one of the most advanced industrialised countries in the world, and is also known to excel in the automobile-making industry for years. Few notable Japanese car manufacturers are Toyota, Mazda, Honda, Daihatsu, Mitsubishi, and many more. In Japan, automakers utilised advanced components such as artificial intelligence (AI), new power sources, new materials, high-tech features, and information technology (IT). Japan has been developing its electric vehicles since the early 20<sup>th</sup> century, where EVs were the pioneer at the time. Automakers have innovated to push the effort for the mass production of EVs and PHEVs (Alam, 2019).

There were over 746,102 total units of Natural Gas Vehicles (NGV) produced in 2010 and about one million units the following year. In the same year, over 16,169 units of EVs were produced whilst 42,036 units

was produced the following year despite some deduction in 2012 amounting to 29,757 units only. Famous automakers from Japan such as Honda, Toyota, Nissan, and Mitsubishi are some of the examples of companies that produce electric vehicles. Toyota and Panasonic agreed to a partnership in developing batteries for EVs at the end of 2017 (Alam, 2019).

Year	Items	Toyota		Nissan		Honda		Mitsubishi	
		All	PHEV	All	Leaf	All	Fit	All	i-MiEV
2012	Production	3,492,913	480,640	1,148,265	14,000	1,029,313	300,644	517,088	12,585
	Sales	1,597,608	317,676	662,963	11,115	745,204	209,275	140,493	4,782
2013	Production	3,356,899	601,913	964,546	29,230	840,650	250,000	591,893	2,264
	Sales	1,597,608	253,711	682,659	13,021	763,388	181,414	139,016	2,952
2015	Production	3,188,444	267,800	872,796	9,300	730,207	191,000	635,441	5,597
	Sales	1,435,934	127,403*	594,181	9,057	726,927	154,838	102,009	1296
2016	Production	3,166,338	471,000	950,054	22,400	820,240	215,600	555,018	5,248
	Sales	1,586,822	248,258*	539,719	14,795	707,044	148,176	85,720	408

Table 1. Production of The Overall General Vehicles and EVs by Automakers in Japan  
 Source: (Alam, 2019)

From the table above, we can see that there was a significant growth on EVs and PHEVs for several years. Nissan has been consistently promoting EVs while Toyota has its own plug-in style for their Prius. Prius as the worldwide first mass-produced hybrid vehicles (HVs) since 1997 contributed for the global environmental-friendly vehicle transition. Their volume of EV sales in 2016 had reached over 9.11 million units. Nissan and Mitsubishi also do not miss the competition with LEAF and iMiEV, mass produced EVs, which skyrocketed the quantities of EV customers (Alam, 2019).

This trend did not develop without its downsides. In fact, Japanese EVs were trailing behind China, Europe, and the United States altogether in terms of sales rates. Comparing the EV sales to Europe (720,000), the United States (250,000), and the biggest of them all, China (1 million), Japan was only be able to sell 14,604 electric vehicles domestically in 2020. The culprit behind the poor sales outcomes for EVs in Japan is the car manufacturers themselves. They have not yet played the integral role of activeness in electric vehicles. Albeit, both Mitsubishi with its i-MiEV and Nissan with their Leaf, none of them found as much success as they have expected. Despite government efforts to subsidize EVs, PHVs, and other environmentally-friendly vehicles through their clean energy vehicle subsidy schemes (Tatsuya, 2021).

#### *Competitive Advantage Strategies of Japanese Electric Vehicles in Southeast Asia*

Japan is known as a world leader in technology, both in automotive and electronic technology where these two fields were a source of foreign exchange for the Japanese economy (Widayanti & Khoiriati, 2015). Some automaker companies and world-renowned brands include Toyota, Honda, Mitsubishi, Nissan, Suzuki, Mazda, Isuzu, Daihatsu, and Subaru, as well as motorbike manufacturers including Kawasaki, Yamaha, Suzuki, and Honda are all from Japan. Japanese-made products are highly known for their superior quality, sturdiness, and refinement. On top of that, the Japanese firms have strong connections throughout the world, particularly in Asia. Manufacturing in Japan is a viable choice due to its superior infrastructure and connections to global trade in Asia and beyond. Japan is already recognized as a producer of high-quality automobiles and motorcycles.

Yet, other developed and developing nations like China, Europe, India, South Korea, and the United States see this as a great chance for the global automobile business to expand. Japan's "position" as a pioneer in this area of automotive technology is threatened by competitors who are highly "unsettling," disquieting, and even upsetting. Japan is also threatened by the fact that it is at the forefront of the electric vehicles trend.



In addition, Japan is reluctant to embrace the possibilities or benefits from the present trend of demands. Automobile manufacturers from China and South Korea are among those competing to create the most economical and effective electric vehicles (Linkz, 2022).

Japanese automakers, Toyota and Honda, are leaders in their respective markets worldwide, but they do not appear to be committed to compete in the market for electric vehicles. Up until this year, only Nissan entered the market with the product Leaf and was successful in selling more than 500,000 cars. In 2020, Leaf was selling as many vehicles as Tesla was (Muhtarom, 2021).

As a result of their scepticism for EVs as the most effective way to lower exhaust emissions, the majority of Japanese automakers were hesitant to take part in the development of environmentally friendly electric cars. Hybrid vehicles (cars that run on both gasoline and electricity) are said to be promoted in the transition from fossil fuel vehicles to electric vehicles. However, they have not observed a significant market demand for EVs, thus this strategy was seen as being awfully expensive. It matches the actual data, which shows that less than 3% of automobiles sold worldwide are electric cars. This is because these vehicles are significantly more expensive, in addition to having a shorter range and a lengthy charging time. As a result of these factors, Japan has lagged behind and finds it challenging to compete in the market for electric vehicles. In this article, there will be an analysis about competitive advantage strategies of Japanese electric vehicles in Southeast Asia using Porter's four generic strategies that has been discussed about.

#### Cost Leadership

Japan is proven to be one of the best automakers in the world. Japan's automobiles are known for its affordability, comfort, and best price for customers. Yet, there are niches for their luxury and sports cars such as Lexus (Toyota), NSX (Honda), GTR (Nissan), and many others. Cost leadership, which focuses on the highest sales, most cost-saving, and productivity increasing are the main goals for Japan's companies. According to the data below, Japan is dominating in car sales in the Southeast Asian market.

No.	Type of Car	Number of selling (units)	Percentage (%)
1	Toyota Hilux	176.062	6.2
2	Isuzu DMax	163.137	5.6
3	Honda City	88.590	3
4	Mitsubishi Xpander	85.296	2.9
5	Toyota Vios	85.047	2.9
6	Perodua Myvi	82.351	2.8
7	Toyota Rush	68.687	2.4
8	Ford Ranger	67.575	2.3
9	Perodua Axia	67.267	2.3
10	Toyota Avanza	66.109	2.2
	Total	950.121	

Table 2. Best Selling Cars in ASEAN 2021  
 Source: (Yasyi, 2022)

Toyota Motor Corp., one of Japan's automobile brands, appears to demonstrate a cost leadership strategy. Toyota's overall business strategy is adopted by the business model of the company's main brand, which accounts for the vast majority of sales. Toyota's competitive advantage is enabled by a lean manufacturing methodology and standardized procedures and practices that decrease costs and increase productivity. The company's culture leads to the development of hard innovation, which has resulted in distinctiveness, as well as the maintenance of cost leadership through supporting lean manufacturing prices. In addition to the aforementioned methods, Toyota also gives its customers warranties, mobility services, financial services, and auto services. Surprisingly, the company's wide range of products are also the consequences of extensive product customisation for regional markets (Business Wire, 2022).

For the electric vehicles (EVs) sales strategy of Japanese automakers, Nissan Leaf is the perfect example of cost leadership. It has become the best-selling electric car in the US since its launch in 2010, with the features of battery-powered, 107-mile-range, and price of US\$ 30,000. However, the dominance is being challenged by new, more alluring, and reasonably-priced competitors such as the Chevy and Tesla. In 2017, Nissan unveiled Leaf 2.0 as a way to extend its range while continuing to be the most affordable EV in the market. In 2018, Leaf even decreased their price to US\$ 29,990 (a US\$ 690 reduction from its 2017 product) with a promise to increase the range by 40% to 150 miles and the updated design (Payne, 2017). Even now, in 2023, Nissan Leaf has reduced their prices to US\$ 27,800 with updated condensed model line-ups, new aluminium-alloy wheels, standard technology, and redesigned exterior and interior outlooks (Nissan, 2022).

### *Differentiation*

This differentiation strategy will be used to explain some of Japan's electric vehicles in terms of quality. Toyota has launched the Toyota bZ4X as the first BEV (Battery Electric Vehicles) from this company. This electric car is powered by a 355 Volt, 71.4 kWh lithium-ion battery. It can travel up to 500 km (for the FWD version) and 460 km (for the AWD kind) after the battery is fully charged. Toyota promises that after 10 years of use or 240,000 kilometres, the battery capacity will still be 90% of its initial capacity (Sudjatmiko, 2022). Positive remarks were made about this Toyota model, including its exceptional ride quality and suspension system which is ideal for daily use (Simone, 2022).

Another example came from Nissan, as it is considered as one of the brands that promotes simplicity and luxurious sensation while the price maintains to be considerably reasonable. All Nissan models are extremely comfortable, and comes with the Safety Shield 360 array of driver-assistance systems. The brand's innovative ProPilot Assist semi-autonomous driving mode is the biggest superiority for this product. The safety features are (Dorian, 2023):

- Pedestrian identification in automatic emergency braking standards
- Blind-spot detection with rear cross-traffic alert as standard.
- Adaptive cruise control with a setting for partially autonomous driving is accessible.

### *Cost Focus*

In discussing the cost focus factor, Japan is currently focusing on the ASEAN market to maintain their position in this industry, and dedicates to offer their consumers affordable electric vehicles. The cost of electric vehicles is still relatively high and difficult for many people to afford. Nissan successfully produced this idea in cooperation with the government, manufacturers, and private sectors. The company tried to introduce goods that are simple to use in the near future, especially since most of Southeast Asian consumers now are more aware of electric vehicles as a green mode of transportation (Dananjaya, 2021).

On the other hand, Toyota also joined the crowd of EVs and promoted Toyota bZ4X as its main product for 2022 Southeast Asian EVs market. Yamashita announced Toyota Thailand's plans to introduce electric cars that same year in an online announcement about the performance of Toyota Thailand 2021 (Sudjatmiko, 2022). In addition, the collaboration between Japan and Indonesia also projected by Mitsubishi Motor Company (MMC) committed to invest 10 trillion rupiah and planned to get launched within 2022 to 2025. Meanwhile, Toyota Motor Corporation (TMC) will add 27.1 trillion rupiah in investment for the next five years (2022-2026) (Ray, 2022).

### *Differentiation Focus*

As the popularity of Japanese automobiles rose due to various films, most people became dedicated to Japanese items. One of the vehicles, the Mazda RX-7, gained widespread prominence because the brand was introduced to people outside of Japan by the film "Fast and Furious" (Songalia, 2023). Nonetheless, Nissan Leaf became a famous example of customer engagement. Nissan maintained advantage in terms of consumer loyalty in 2016, where Nissan Leaf won first place in the non-luxury traditional compact vehicle category of the IHS Automotive Loyalty Awards for the second year in a row.

The drive toward environmentally friendly vehicles have received a lot of attention in recent years. Electric and hybrid vehicles, in addition to helping cut emissions, assist to promote customer loyalty among new car purchasers looking for exceptional gas mileage (or charge times) and the assurance that comes with picking an environmentally responsible vehicle. The majority of loyal customers claimed that they enjoy the benefits of driving an electric car, such as not having to use gas, having quick acceleration, and feeling like they are driving a green vehicle (Loyalty360, 2016). As a result, Japanese EV automakers were eager to join the movement in support of the zero-emission car industry and gradually improve their quality.

### *Japan's Government Policies' Role: The Economic and Political Areas Trade Promotion and Investment Policy*

Japan is targeting the Southeast Asian EV market as demand grows. Total car sales in ASEAN member countries reached 3.4 million units in 2019 (Schröder, Iwasaki, & Kobayashi, 2021, p. 1). This figure is expected to rise over the next 50 years due to economic and population development. It is critical to find a way to cut fuel use and avert more severe air pollution. The presence of EVs will have a positive influence on the environment and human health. Japan, as one of the leading manufacturers, is attempting to enter the new automotive business while focusing on the differentiation strategy (Tachev & Fousert, 2022). Japan focuses on the development of the quality of EVs and its infrastructures and promotes it through many commercials.

For Japan, the Toyota company has released the Innova hybrid electric car, Toyota BZ24X, and the Honda E which have been exported to Southeast Asia (Gareta, 2023). Apart from Indonesia, these electric vehicles have entered Malaysia, even though it did not hit the market officially. Meanwhile, in Indonesia, these vehicles have shown signs of presence (Arifin, 2021). This shows how Japan has also started promoting its electric vehicles consistently and competing with the neighbour automakers. However, Japan still has to carry out intensive promotions so that it can catch up with China and South Korea which have entered the market earlier compared to Japan. For marketing in the region, Japanese electric vehicles are currently still developing factories in Southeast Asian countries, so it would be able to compete with electric vehicle manufacturers from other countries.

Nevertheless, Japanese automotive companies invest in three Southeast Asian countries. Toyota Motor invested in Indonesia for US\$ 2 billion, in Malaysia for the amount of US\$ 65 million, and in Thailand. Other manufacturers also showered the Southeast Asian countries with investment, such as Mitsubishi Motors with US\$ 819 million, Toyota Motor with US\$ 741, Nissan with US\$ 367, and FOMM with US\$ 31 million (Ahdiat, 2022). At the same time, the Philippines and Singapore received investments from South Korea and China while Brunei Darussalam, Laos, Myanmar, Vietnam, and Cambodia did not receive any foreign direct investment (FDI).

Japan is also being more straightforward in supporting the energy transition and movement on the zero-emission car industry. Along with Indonesia's support for the growth of the electric vehicle ecosystem at the ASEAN-Japan High Level Conference, Japan has maintained its significant capacity in green infrastructure and industry, as well as the highest potentials for electric automobiles. Southeast Asia has significant potential in the development of electric vehicles, with an anticipated market of US\$ 2.7 billion in 2027, which is why Japan seeks to preserve its position as the region's primary partner in technology and investment. Indonesia's president personally asked Japan to discuss boosting investment in electric vehicle manufacturing and battery production (Kementerian Komunikasi dan Informatika, 2022).

### *Economic, Financial, and Commercial Negotiation*

Many Southeast Asian countries are discussing the implementation of eco-friendly ecosystems, particularly electric automobiles. Indonesia, as ASEAN's chair, has transformed the region into a hub of economic growth and even invited Japan to collaborate in developing the EVs ecosystem. This presents an excellent chance for Japan to sell its electric vehicles all over Southeast Asia. Based on its cost focus, Japan is known for its production of affordable-priced vehicles. As the competition aims on designing the most efficient EVs with affordable prices, the government of Japan set a target to do the same. The Japanese government even offered to subsidize part of the costs to purchase its eco-friendly cars called Clean Energy Vehicles (CEVs) (International Trade Administration, 2021). The subsidy program helped increase the sales of CEVs and the market is growing. Recently, Japan also struck a deal with the United States on electric vehicle battery minerals and EVs tax credit (Lawder, 2023). It is considered as a key to strengthen the battery supplies and Japanese access to the tax credit. Another aim of this deal is to reduce the dependence on China for minerals.

During the ASEAN-Japan Post Ministerial Conference (PMC) in Jakarta on 13th July 2023, the intention on collaborating and striking an agreement between Japan and ASEAN is mentioned. The collaboration focused on two areas, which are the development of the EV ecosystem in ASEAN and cooperation in maintaining peace and stability through the negotiation. Japan is expected to support the cooperation through the Green Innovation Fund as a way to bring ASEAN closer to a carbon-free society. The importance on strategic cooperation in energy transition became the core subject of this deal. The government of Japan committed to continue supporting ASEAN through the implementation of the ASEAN Outlook on the Indo-Pacific (AOIP) and provide a US\$ 100 million supporting fund (Ministry of Foreign Affairs of the Republic of Indonesia, 2023). Although negotiations are still ongoing, the administration has begun to negotiate and explore any commercial chances with various Southeast Asian countries.

### *Resources Exploration Right*

Japan has been working on rechargeable batteries since the 1980s even though this business has lost their edge due to the appearance of CATL (China) and LG (South Korea). These two companies have surpassed Japan's Panasonic, as the world's largest EV battery suppliers (The Economist, 2021). Japan aims to regain their position on producing solid-state batteries using anode and cathode of lithium ions to make them more powerful and durable.

To maximize the cost and differentiation strategies, the government of Japan is increasing funding for natural resource exploration and is considering to raise it by 50%. This enables Japanese oil, metal, and gas businesses to share more than half of the costs of finding and producing natural resources. The Ministry of Economy, Trade, and Industry (METI), which controls metal resources and energy security in Japan, as well as the Ministry of Finance, are now addressing economic security concerns. However, the government wants to restrict the rights of any corporations or organizations to the exploration of lithium, cobalt, and cerium as the primary materials for creating EV batteries, as well as neodymium and dysprosium for producing motor drives (Nikkei Asia, 2021). All of these minerals are being scrutinized as the world shifts away from carbon-based energy sources, however, questions regarding their availability have arisen. Some constraints will be relaxed under the new guidelines to allow enterprises to function more flexibly in the private sector (Nikkei Asia, 2021).

In 2030, the demand for batteries will be 24.8 GWh, which is 5.5 times more than the demand in 2018. Nickel demand surged the greatest, while lithium use increased 9.3 times as it became the primary component for electric vehicles. Even with battery recycling, greenhouse emissions will be reduced by just 1.7-3.8% at the manufacturing stage by 2030. Because the demand for batteries exceeds the number of waste batteries that can be recycled, and recycling emits greenhouse gases (Sakunai, Ito, & Tokai, 2021).

Car manufacturers in Japan have begun to produce vehicles equipped with lithium-ion batteries. Among the second batteries, lithium-ion batteries perform best due to its superior characteristics such as energy density and power (Kawamoto, 2011). With this reason alone, it becomes the mainstream power source, especially with the development of electric vehicles (EVs). Japan was the largest importer of lithium in the world from 2008-2009 even though it since has been on decline since the country wanted to reduce the reliance on this raw material. Japan tried to secure the rights and recycle this material due to its aim to increase the self-sufficiency rate of lithium by 50% in 2030 (Kawamoto, 2011). Securing the mining exploration right in

other countries is the only way to purchase lithium as a raw material at a low cost. Many Japanese trading firms actively acquire the mining rights for lithium. Furthermore, Sumimoto Metal Mining, a Japanese mining business, invested more than 200 billion yen (US\$ 1.77 billion) in Indonesia for electric car batteries, as nickel is a key component of lithium-ion batteries (Nikkei Asia, 2018).

Japan also put an effort to reinvigorate its battery industry by formulating a strategy to secure 30,000 trained workers for battery manufacturing and supply chains. It even set a larger target to increase the domestic production capacity for EV batteries at 150 gigawatt hours (GWh) by 2030. The government committed to support the expansion of Japanese companies by reinforcing alliances with other countries and buying mineral mines, such as cobalt, lithium, and nickel. Looking into the future, batteries are central for the government's goal to become carbon neutral by 2050 so it could fulfil the demands for renewable energy and secure supply chains away from China.

### *International Cooperation and Projection*

Japanese automakers are showcasing environmentally friendly automobiles at the 2021 Indonesia Electric Motor Show (IEMS), such as the Toyota Astra, which showcased three types of electrified vehicle goods, namely the Lexus UX 300e, C+pod, and the Prius PHEV Bluebird (Spherical Insight, 2023). Japanese manufacturers' participation in IEMS 2021 demonstrates their commitment to supporting the government's efforts to develop electrification vehicle technology and reduce CO2 emissions in Indonesia in a sustainable manner through the provision of electrification-based and environmentally friendly products. Mitsubishi Motors introduced two electric vehicles, the Mitsubishi Outlanders PHEV and the Mitsubishi Minicab MiEV (Shahnaz, 2021). The two companies, alongside Honda with its EM1 e electric motor (Arief, 2023), presented these electric vehicles in order to effectively reduce CO2 emissions, which Indonesia is trying to build a suitable environment for (CNN INDONESIA, 2023)

Three Japanese manufacturers have committed to investing in Indonesia, one of them include Honda, which intends to increase its investment by US\$ 361 billion including the creation of new models (HERMAN, 2021). Honda also plans to set up a global production centre for components and complete vehicles in Indonesia, then plans to move its factories there, where the latest battery-powered car models will be produced. This new model from Indonesia will later be exported to 31 other countries (Just Auto, 2021).

Recently, the company delivered components and automobiles to nine ASEAN, Middle Eastern, and Japanese countries. Not only did the Minister of Industry meet with executives from Honda, but also from Mitsubishi Motors, which is expected to invest US\$ 779 million in Indonesia over the next four years to exhibit Xpander hybrid and plug-in hybrid automobile cars (Just Auto, 2021). The company also plans to develop the Indonesian export market, from originally 30 countries to 39 countries until 2024 (Kementerian Perindustrian Republik Indonesia, 2022). Executives from the Suzuki company also plan to invest US\$ 83 million until 2024 (Bisnis.com, 2021), and present the new Ertiga minivan and XL7 SUV models. Toyota is also investing US\$ 2 billion by 2024 to encourage the government to develop electric vehicles. Car makers are also expected to develop their export market from Indonesia (Just Auto, 2021).

In short, Japan vows to achieve net-zero greenhouse gas emissions by 2050, where the government realizes how the energy transition and development of EVs are the means to assist the country's decarbonization efforts. Japan is projected to expand the sales of EVs by continuously increasing the efforts on research and development. During the projection period, the Japanese government regulates the carbon footprint, increases brand recognition, and builds solid EVs infrastructure.

## **Conclusion**

The way in which Japan is compelled to follow development trends in order to maintain its place as one of the top three automotive companies, and the strategies it has taken to catch up in the field of electric cars is not ideal. Five Japanese automakers recently formally unified and formed an alliance. Japanese automakers are making urgent advancements to catch up in the production of electric vehicles. The Japanese carmakers are changing their direction to concentrate on making hybrid (gasoline-electric) automobiles and collaborating with Tokyo technocrats who want to create hydrogen-fuelled vehicles (an innovative technology potentially greener or more environmentally friendly than EV cars).



Many electric car manufacturing companies in the world only seem to produce electric cars, but pay little attention to facilities supporting the needs of these electric cars, such as building charging infrastructure to maintain the booming demand for EVs. Therefore, EV mix, plug-in hybrid (PHEV), and hydrogen powered vehicles (HEV) are the most realistic option in such markets. Thus, Japan is currently concentrating on building easy-access to charging infrastructure, PHEV and HEV. Japan which has many years of experience as a leader in the market, uses its experience in distribution and service networks. This is something that newer electric car manufacturers cannot follow, for example BYD (a Chinese electric car manufacturer). In general, they are still not well known in many nations and have little expertise catering to international customers.

Nevertheless, Japan is likely to achieve its competitive advantage by implementing the strategies based on the cost and differentiation. Japan maximized its efforts on acquiring the highest sales, saving costs, and increasing the productivity of its electric vehicles production. Focusing on the costs, the government of Japan implemented policies such as resources exploration, international collaboration and projection, economic negotiation, as well as trade promotion and investment. Japan explored the main sources of EVs, namely minerals for batteries, both for production and providing the demands for renewable energy. Japan struck a deal with the US to fulfil their needs on the minerals, such as cobalt, lithium, etc. Japan also collaborated with the Indonesian and Thai government in building a new production hub in Southeast Asia and developing the EVs ecosystem. Japan pours its investment in this manner to drive China away. Trade promotion has been consistently done by Japan through its active participation in several multilateral meetings and bilateral cooperation. However, these strategies and policies have to be exercised further to achieve the competitive advantage that Japan is aiming for. The dynamics of EV development in the Southeast Asian market might shift depending on how Japan can keep up with its competitors, such as China and South Korea.

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