BYD's Path to Globalization: A Comprehensive Analysis of Strategies for its International Expansion

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Introduction of BYD

To begin an analysis of BYD, it is helpful to first briefly examine its founder, Wang Chuanfu. He led BYD from a battery manufacturer to today's near-number one electric car company. He is recognized as an innovative, socially responsible, and sustainability-focused leader, and he is now gradually expanding the global reach of his brand (Nolan, 2024). This essay will begin with a brief introduction of BYD and its advantages, then analyse the challenges and opportunities BYD will face in globalization, and finally develop recommendations for BYD.

Mr. Wang founded BYD in 1995 after establishing a cell phone battery factory to compete with Japanese battery makers and then started making cars in 2002 by acquiring a bankrupt car company. According to BYD's official website (BYD, 2022), BYD has a long history of development. Several key milestones are that in 2008, Buffett bought 10% of BYD, making BYD more famous. In 2016, famous designers were introduced to make up for the shortcomings of the original appearance (BYD has been more focused on the research and development of battery technology). Third, BYD completed the release of the Dynasty series in 2020 where BYD incorporated Chinese historical and cultural elements and had its own unique style. For instance, the Dynasty series cars are named after important Chinese dynasties, such as "Tang" and "Song". The letters 'BYD' on the steering wheel have been replaced with the Chinese characters '唐' (Tang) and '宋' (Song), as shown below:

Before After

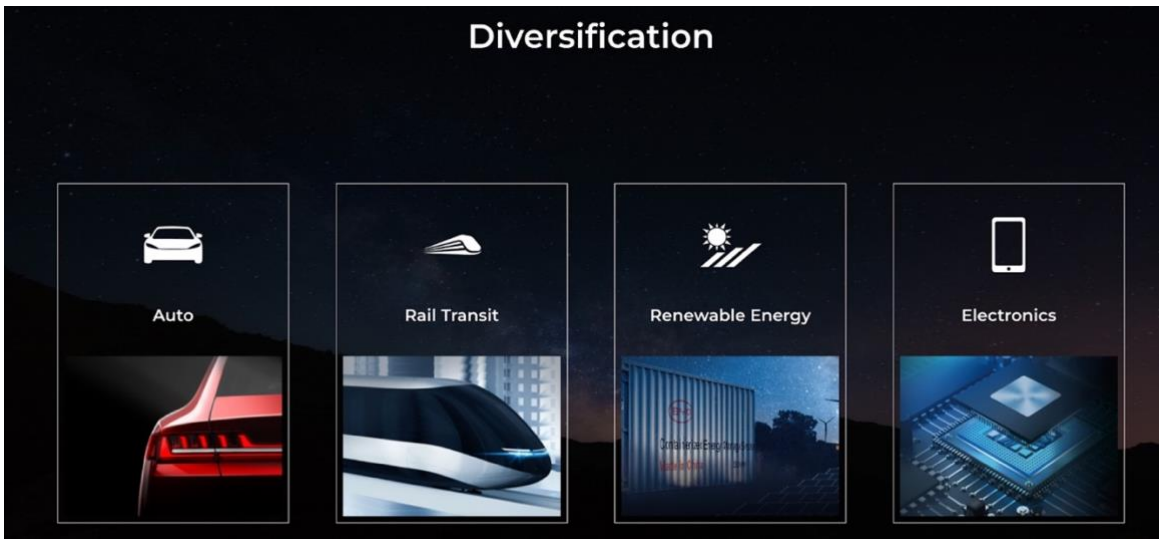
Source: MyDrivers, 2022; 太平洋汽车网, n.d.

Additionally, the Dynasty Series incorporates the "Dragon Face" design: The shape inspiration of "dragon" is added to the front face, symbolizing the sense of majesty brought by "dragon" in Chinese culture (iF Design, n.d.).

Source: 万南, 2018

Finally, in April 2022, it announced that it would stop producing gasoline vehicles and focus on the development of electric vehicles (BYD, 2022).

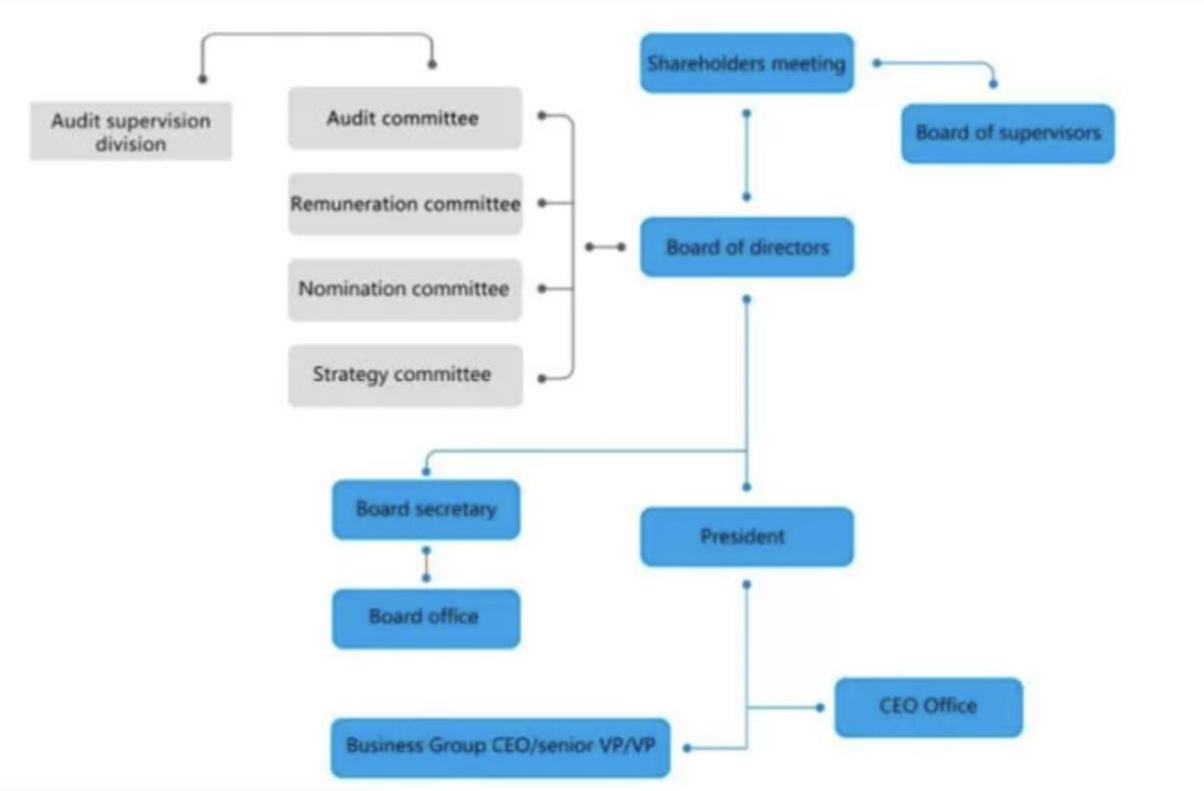
BYD's subsidiaries and business distribution are complex. BYD Automotive, BYD Electronics, BYD Semiconductor, BYD Rail Transit, BYD Energy, and BYD Commercial Vehicles all create a unique and diverse business distribution for BYD, allowing it to master core technologies while providing itself with opportunities to grow in multiple markets at the same time (Pereira, 2024).



Source: BYD, n.d.

BYD's organizational structure is effective and sound, in short, has the following important characteristics. First, BYD has a matrix structure that allows its R&D department and product department to work together to better understand the market and respond to market responses. Second, BYD attaches great importance to R&D innovation. Each brand (dynasty, ocean, etc.) and core technology departments have independent research institutes. Third, BYD has vertically integrated key parts of its supply chain, expanding BYD's organizational structure while ensuring cars' quality and cost. Fourth, BYD's organizational structure is prepared for globalization because it already has localized teams in China that are tailored to different

provinces and markets (Dudovskiy, 2024). The chart below is an example of BYD's high-level organizational structure.



Source: Dudovskiy, 2024

BYD's main models are Dynasty series and Ocean series. The Dynasty series combines traditional Chinese style with business charm:

- Qin: The first generation was launched in 2012 and was equipped with second-generation DM (dual mode) technology, which can achieve 0-100 km/h acceleration in 5.9 seconds (Green Car Congress, 2014). "DM" stands for dual mode, meaning it can use electricity and fuel at the same time. The DM-i version (i stands for intelligent or innovative) is more efficient and economical. Qin L uses fifth-generation DM technology and is priced at 99,800 yuan, with lower fuel consumption and longer driving range (Andrews, 2024).
- Tang: This model is part of BYD's SUV series.

- Song: A smaller SUV than the Tang. Song Pro is an upgraded version of the Song, while Song L is a BEV SUV that offers a stylish aesthetic and targets young users who value a sporty appearance, catering to a diverse customer base (BYD, 2023).
- Yuan: Positioned as a compact SUV.
- Han: A mid-to-large luxury sedan that accelerates from 0 to 100 km/h in just 3.9 seconds and adopts traditional Chinese design elements. This model represents BYD's entry into the higher-end market and has been a huge success.

The Ocean Series targets young and fashionable consumers including models such as the Seagull, Dolphin, Seal, Sea Lion, Destroyer and Frigate. In addition, BYD has launched its independent high-end brand “Yangwang” and also a joint high-end brand called “Tengshi” with German automaker Daimler, Denza, which specializes in SUV and MPV models (BYD, n.d.).

After examining BYD’s founder, organizational structure, and main product lines, attention now shifts to BYD’s current global market share. First of all, BYD offers two types of vehicles: BEV (Battery Electric Vehicle) and PHEV (Plug-in Hybrid Electric Vehicle), whereas Tesla only produces BEVs. Thus, if we look at the sales of both PHEV and BEVs, according to EVMarketsReports.com (2024), BYD has far exceeded Tesla in the January-May of 2024, about twice Tesla's sales.

Source: EVMarketsReports.com, 2024

However, for the BEV market, Tesla still leads the global market share with 19.9% in the year 2023, while BYD lags behind Tesla by 2.8% in second place (Lu, 2024) (Figure 1 & 2). In addition, looking at the first half of this year, this trend is still continuing. Tesla delivered 830,766 electric vehicles (BEV) in the first half of this year, 104,000 more than BYD's 726,153 vehicles (Dyer, 2024) (Figure 3). Therefore, if BYD wants to surpass Tesla and become the world's leading BEV brand, it needs to further globalize and strengthen its brand presence to win more global market share.

Rank	Brand	Country	Market Share in 2023
1	Tesla	US	19.9%
2	BYD	China	17.1%
3	GAC Aion	China	5.2%
4	SAIC-GM-Wuling	China	4.9%
5	Volkswagen	Germany	4.6%
6	BMW	Germany	3.6%
7	Hyundai	S. Korea	2.9%
8	Mercedes-Benz	Germany	2.6%
9	MG	China	2.3%
10	KIA	S. Korea	2.0%

Source: Lu, 2024

Brand	Market Share in 2023 (BEVs)	Sales Volume of BEVs (Jan - June, 2024)
BYD	17.10%	726,153
Tesla	19.90%	830,766

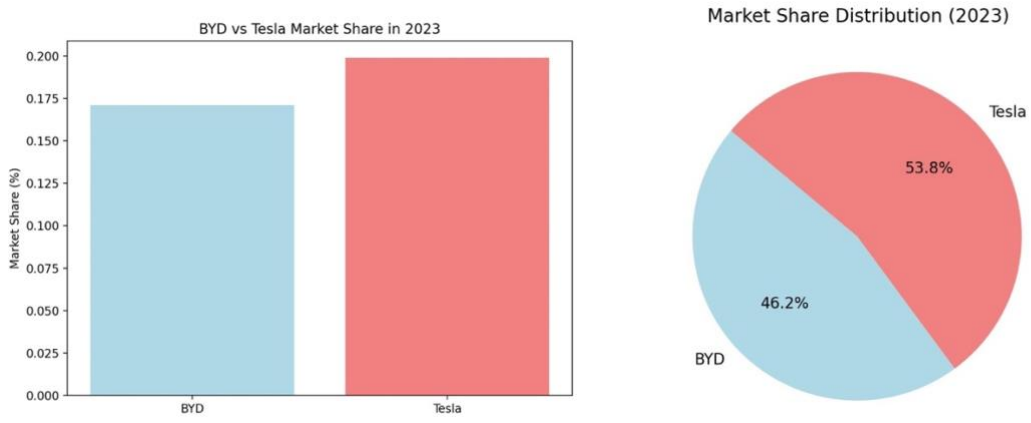


Figure 1 & 2: BEVs Market share comparison between BYD and Tesla in 2023

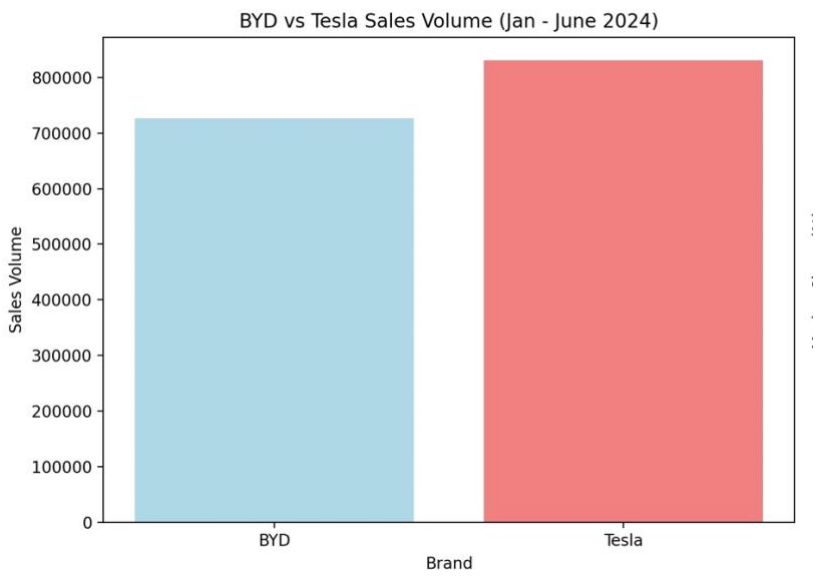


Figure 3: The number of BEVs sold comparison between BYD and Tesla in January-June 2024

Next, the strengths that BYD possesses to achieve this goal will be analysed in this essay, combining the analysis of the political, economic, social, technological, legal, and environmental aspects of each region and country, recommendations will be provided for BYD.

Analysis of BYD's Competitive Advantages

Vertical Integration

As mentioned above, vertical integration allows BYD to control every stage of the production line, from advanced blade battery technology to exterior design. BYD's own control of the upstream, midstream, and downstream segments of the supply chain helps it control costs, control quality, and avoid potential issues that may arise from relying on third-party suppliers. To be more specific, the complete automotive industry chain of BYD is “BYD + Fuyao (glass) + Zhongce (rubber tires) + Baosteel (steel)” (eCommerce Basis, 2023). BYD is vertical in manufacturing its own batteries, control systems, motors, automotive electronics, molds, power semiconductors, etc. (e-commerce basics, 2023), all of which are core technologies for EVs and are cost-intensive components if outsourced.

Blade Battery Technology

BYD's blade battery technology is its second and crucial advantage. Since BYD originated as a battery manufacturer, they have accumulated extensive expertise in battery technology and are also leading in battery innovation. The quality of a BEV car largely depends on the core technology of its battery, and BYD’s blade battery is competitive in the world. BYD's Blade Battery is made from lithium iron phosphate (LFP) prismatic cells, but its unique blade-shaped design allows for higher space utilization inside the battery pack, which improves both energy density and safety. Tesla also uses LFP batteries in low-end models like the Model 3, but it does not incorporate the "blade" technology. Higher-end models like the Tesla Model Y use cylindrical ternary lithium batteries (Pistilli, 2024; Find My Electric, 2024). For example, Tesla's battery supplier, LG Energy Solution (LGES), recently updated its production plan for the 4680 ternary lithium battery, named for its cylindrical size (46 mm in diameter, 80 mm in height) (Alvarez, 2024).

Compared with Tesla's ternary lithium battery, BYD blade battery has the following major advantages: improved safety, longer life, and lower cost. Lithium iron phosphate material will not burn in the case of short circuit, and its high temperature resistance is much better than that of ternary lithium batteries. The second is that in terms of cycle life, lithium iron phosphate batteries are superior to ternary lithium batteries (LiFePO4 Battery, n.d.). Although ternary lithium batteries are lighter and more efficient to charge (LiFePO4 Battery, n.d.), the safety and money saving of blade batteries are still favored by many consumers.

Product Diversification

Third, BYD has a product advantage. BYD's products are very diverse and have a unique cultural style, which can meet a variety of customer needs. From the mature business style of

the Dynasty series to the young fashion style of the ocean series, and from the Qin L priced at 99,800 RMB to the luxury Yangwang models priced at over a million RMB, BYD shows its ability to match different market demands. Furthermore, BYD has its own design philosophy and culture, which can also make it stand out from many car brands, making it memorable to consumers.

Visionary leadership

From a managerial perspective, Wang Chuanfu has demonstrated visionary leadership in recognizing the need for BYD to transform into an international company and to continue to develop electric vehicles. He realized that BYD needed to transform itself into a global company and set that goal through rational planning, which is the key to BYD's success today. This leadership approach is largely top-down, making Wang's role especially critical in this context. One of my favourite quotes from Wang is, "If you're not strong enough, they won't fear you (Lilli, 2024)". As mentioned earlier, he is widely regarded as an innovative, socially responsible, and sustainability-focused leader (Nolan, 2024), which is an advantage for BYD. Under Mr Wang's leadership, BYD will benefit greatly.

Leading with Sustainability

BYD places great importance on sustainable development; Since the early 21st century, the company has pursued a vision of advancing electric vehicles. As founder Wang Chuanfu said, "BYD has always focused on solving problems through innovation and fulfilling the mission of scientific and technological innovation to achieve a better life" (Fortune Brand Studio, n.d.). BYD has leading sustainable development solutions that are in line with the world's future trends. This will allow BYD to benefit in regions where governments and consumers prioritize environmentally friendly solutions. By highlighting its strengths in sustainable innovation,

BYD can capture the growing international demand for EVs to provide vehicles that are in line with global trends in emission reduction and renewable energy use. This commitment to sustainability could set BYD apart from traditional automakers and enable BYD to sell more cars.

Analysing Opportunities and Threats in Exporting EVs Overseas

To analyse the opportunities and threats of BYD's electric vehicle exports, it is essential to conduct a detailed analysis of different regions based on the PESTEL framework, including Southeast Asia, Asia, Europe, North America, South America, Australia and New Zealand, and the Middle East.

PESTEL Analysis – Environmental factor

"The Paris Agreement" invites countries to develop and submit long-term low greenhouse gas emission development strategies (LT-LEDS) by 2020, setting out a vision for comprehensive technology development and transfer to increase resilience to climate change and reduce greenhouse gas emissions (The Paris Agreement, n.d.). In the years since the agreement came into effect, more countries, regions, cities and companies are setting carbon neutrality targets.

PESTL Analysis – Regional Overview (Political, Economic, Social, Technological, Legal)

(Detailed analysis in Appendix 1)

⑩ **Southeast Asia**

Since the signing of "The China-ASEAN Free Trade Agreement" and the change of dependence, Southeast Asia has implemented tax exemptions and other policies for foreign investment and encouraged the development of the electric vehicle market to meet sustainable development goals (*China-ASEAN Free Trade Agreement ("10+1") Upgrade,*

n.d.). The overall market has a high acceptance of the BYD brand and has received positive feedback. In the sales volume and market share rankings of EVs in Thailand in 2023, BYD ATTO 3 and BYD DOLPHIN models ranked first and third respectively (Sun & Wang, 2024). On July 4, 2024, BYD's Rayong factory in Thailand was officially completed, and the Southeast Asian market has become one of BYD's key overseas development markets in the future. Indonesia is one of the important partners of China's "Belt and Road" initiative. Since China proposed BRI in 2013, Indonesia has actively participated in it, and the two countries have reached a number of cooperation agreements in the field of infrastructure construction (Embassy of the People's Republic of China in the Republic of Indonesia, 2023).

⑩ Asia

In Asia region, Japan is the main country for analysis. It has strict policy constraints on the import of automobile-related technologies and products. Japan has become one of the world's technologically advanced countries and its local brands such as Toyota and Honda have matured related technologies and high national loyalty.

⑩ Europe

"The European Green Deal" sets a goal of achieving carbon neutrality by 2050 and encourages member states to actively introduce policies to encourage the popularization of electric vehicles (The European Green Deal, n.d.). Based on the protection of the domestic market, the EU imposed temporary tariffs on Chinese electric vehicles (BEVs) on July 5, 2024. BYD's Chinese-made cars sold in the EU are subject to an additional tariff of 17.4% (Brinley, 2024). As the largest automobile market in Europe, the German government has provided a lot of support policies for new energy vehicles and is committed to gradually phasing out traditional fuel vehicles (Regulatory Environment and Incentives for Using Electric Vehicles and Developing a Charging Infrastructure, n.d.).

However, since local brands such as Volkswagen and BMW already have a certain degree of international fame, and citizens generally support local brands, this is a strong competition for BYD.

⑩ North America

North America, especially the United States, is in the lead in the promotion of 5G networks and has the most extensive charging infrastructure in the world, covering public places and multi-use building areas (EV Turning Point: Momentum Builds for U.S. Electric Vehicle Transition, n.d.). The development of 5G lays the foundation for V2X (Vehicle to Everything) communication of electric vehicles, further enhancing the real-time data exchange of V2V (Vehicle to Vehicle), V2I (Vehicle to Infrastructure), and V2P (Vehicle to Pedestrian), minimizing EV traffic accidents and improving safety (On 5G-V2X Use Cases and Enabling Technologies: A Comprehensive Survey, n.d.).

Top universities and colleges, such as MITOS, the EV research team of MIT, have cooperated to promote the progress of electric vehicles to achieve the college's goal of achieving net zero carbon emissions by 2026 (Electric Vehicles Research Report, n.d.). States in North America offer varying degrees of subsidies and preferential policies to the EV industry to encourage consumers to purchase (CHINA EV100, n.d.). However, due to the trade conflict between China and the United States, the United States has imposed strict tax policies on China. It is expected that every 1 percentage point increase in U.S. tariffs will reduce imports from China by 2.5% in the long run, allowing the United States to maintain its market leadership (Li, 2024). Under Section 301, import tariffs on electric vehicles are increased from 25% to 100%, and battery component imports are increased from 7.5% to 25% and investigate China's intellectual property and subsidy practices (Briefing, 2024). In addition, to protect its own "national security", the U.S. Department

of Commerce is expected to ban the use of Chinese software and hardware in connected cars and autonomous vehicles on U.S. roads, and prohibit the import and sale of vehicles with key communication or autonomous driving system hardware and software from China (Wei, n.d.). Thus, BYD has difficulty entering the market.

❿ South America

South American governments are gradually increasing their policy support for the EV industry. Brazil is the region with the largest middle-class income in South America, but its consumers are still price sensitive and BYD has a moderate brand awareness in the South American market (Santos, 2024). In terms of regulations, Brazil imposes high tariffs on imported goods. BYD plans to complete the construction of a factory in Camacari on October 9, 2024 to reduce some tariffs (clickrweb.com, n.d.).

❿ Australia & New Zealand

As the two countries continue to introduce and improve EV policies, there are challenges to import tariffs, which facilitates the entry of foreign brands. Consumers pursue sustainable development but are generally price sensitive. Among the more than 30 brands currently selling electric vehicles in Australia, BYD's EV has surpassed Tesla to become one of the most popular brands, and Australia's electric vehicle sales have increased by 16.5% (Chowdhury, 2024). From a technological perspective, EV still faces challenges in Australia. Due to the remote location, the construction of charging infrastructure cannot meet the market and faces high costs (Chowdhury, 2024).

❿ Middle East

In the Middle East, with the UAE as the focus, foreign investment is allowed to own 100% of the enterprise in terms of policy, which encourages foreign investment to enter the market (HKTDC Research, n.d.-b). Consumers in the UAE region generally have high

purchasing power. Although they are price sensitive, they are willing to pay a premium for sustainable development. With high-cost performance and beautiful design, EVs made in China are favoured by more and more industry insiders and consumers in the region and are expected to grow at an annual rate of 30% between 2022 and 2028 (LI, 2024).

Top 3 Rankings of Different Factors in PESTEL Analysis (Excluding Environmental) Across Regions

Factor	Ranking		
	1st	2nd	3th
Political	Southeast Asia	Europe	Middle East
Economic	Middle East	North America	Southeast Asia
Social	Southeast Asia	Middle East	Europe
Technological	North America	Europe	Asia
Legal	Southeast Asia	Middle East	Australia and New Zealand
Overall ranking	Southeast Asia	Middle East	Europe

Figure 4: Rankings Across Regions

Overall analysis shows that the most favourable regions for BYD's EV exports are Southeast Asia and the Middle East. If narrowing down to specific countries, with BYD's Thailand factory has been fully completed and put into production, it is recommended for BYD to further develop the Indonesian market in Southeast Asia because of its size, the largest automobile market in the region, large population base, and strong demand. The government plans to make electric vehicle sales account for 20% of new car sales by 2030 (Strangio, 2024).

In fact, if BYD sells as well in Indonesia as it does in China, it would be enough for BYD to comprehensively surpass Tesla and become the world's leading electric car brand. For detailed evidence and analysis, please refer to Appendix 2. Accordingly, the focus now shifts to a detailed examination of the Indonesian market.

Analysing BYD's opportunity and threat in developing Indonesian market

Importing cars from China (including traditional fuel cars and electric cars) involves luxury goods sales tax. A sales tax of 75% is imposed on motorcycles with an engine displacement of 4000cc and 4x4 jeeps or trucks, and a sales tax ranging from 10% to 30% is imposed on cars with an engine displacement of less than 1500cc. Depending on the engine size and vehicle appearance, a sales tax ranging from 20% to 40% is imposed on cars with an engine displacement of 1500cc to 3000cc (*Indonesia*, n.d.).

Starting from January 15, 2023, the government will exempt import duties and luxury sales tax on the import of completely built-up (CBU) electric vehicles for industries that meet certain regulatory requirements. Industries eligible for this incentive include automotive industry companies planning to build battery electric vehicle production facilities in Indonesia (Isaac, 2024). The value-added tax for EV buyers has also been reduced from 11% to 1% to promote electric vehicle consumption (Strangio, 2024). For BYD, the drop in taxes has boosted consumers' purchasing power which is an opportunity.

The Indonesian government issued Regulation No. 6/2023, which provides for a 0% import tariff incentive for completely knocked down (CKD) four-wheel electric vehicles. Vehicles will enter Indonesia in the form of parts that meet the government-set domestic component level (TKDN) regulations and be assembled in the country, and the final vehicle local content will be at least 20% and less than 40% (at least 20% of the domestic content to reach the basic preferential subsidy, and more than 40% can get more subsidies) (Isaac, 2024; Admin, 2024). This percentage requirement poses a threat to BYD's business development in Indonesia to a certain extent. As a brand going overseas, BYD needs to establish a close relationship with local suppliers to meet the requirements and enjoy tax exemption policies.

Recommendations

Joint Venture

BYD can develop the Indonesian market by forming a joint venture with local dealers through its sales team, using the resources and experience of local partners to promote better localization and internalization of the company. Take PT Astra International Tbk (Astra) as an example, it is the largest independent automotive group in Southeast Asia. The company cooperates with Toyota and other companies to provide automobile and motorcycle product sales. Its subsidiary PT Astra Otoparts Tbk occupies an important position in the field of automotive parts (Investments, n.d.). Astra currently only cooperates with Toyota in the electric vehicle market and plans to vigorously promote the electric vehicle market in the next two years (minichart, 2024). Therefore, for BYD and Astra, form joint venture is a win-win strategy. Astra could obtain a wider EV product line through BYD, and BYD could obtain market channels and localization support through Astra. Furthermore, the localization of the top management team enables BYD to capture market opportunities more acutely in terms of market insights and facilitates decision-making that is more in line with the overall market situation in Indonesia, while also helping BYD companies to stay on top of market changes in order to launch products that are more in line with market demand. The use of local staff promotes a deeper understanding of local culture and buying preferences across the team, which improves engagement with customers and earns consumer loyalty and goodwill towards the brand.

Establishing a component manufacturing factory

BYD could also consider establishing a component manufacturing factory in Indonesia to enable a localized supply chain. First of all, Indonesia is an important participant country in China's Belt and Road initiative (Embassy of the People’s Republic of China in the Republic

of Indonesia, 2023), and the stable political relations between China and Indonesia can make BYD invest in Indonesia to build a component manufacturing factory with less risk and potential high return, because China is also investing heavily in Indonesia's infrastructure (Embassy of the People's Republic of China in the Republic of Indonesia, 2023). As mentioned above, BYD's vertically integrated organizational structure is one of BYD's strengths, so this move will allow BYD to maintain its original advantages, strengthen its global supply chain, reduce production costs, and ensure quality. Moreover, since labour costs in Indonesia are lower than in China (DG.hire, n.d.), the component manufacturing factory can further reduce BYD's production costs, improve profit margins, and create more job opportunities for Indonesia.

It can also help BYD achieve its sustainable development goals and expand its global footprint in new energy vehicles. Due to the geographical location of Indonesia, close to Southeast Asia and the Asia-Pacific region, establishing a factory in Indonesia enables BYD to export components more conveniently to neighbouring countries, shorten the supply chain, and ensure a sufficient and timely supply chain. It lays the foundation for its further global expansion. In addition, it is worth noting that BYD has purchased multiple RO-RO vessels to strengthen its international transportation capacity and support its determination to expand globally (Jin, 2023). As Indonesia is surrounded by seas on all sides and has many export ports, establishing a component supply chain centre in Indonesia can help BYD use its existing resources to fulfill its globalization goal.

Finally, this is also an important measure for BYD to be more localized in Indonesia. The localized supply chain enables it to produce products that meet the needs of the market and respond quickly to the updating and diversified needs of the Indonesian market.

Implementing Market Penetration and Monitoring Strategies

It is important to produce a good car, but how to penetrate the Indonesian market and establish ongoing monitoring are also very important for BYD. BYD should leverage the advantages of its diversified products and carry out multi-channel brand promotion and car purchase incentives to build Indonesian consumers' awareness of BYD brand.

In addition, because of BYD's leading awareness and position in sustainability, BYD can cooperate with local governments or environmental organizations to promote electric vehicle policies and green energy projects; Or by sponsoring and participating in local environmental protection activities, establish BYD's brand image of advantages in the field of environmental protection.

Lastly, monitoring and feedback are important because they allow BYD to track its progress and make adjustments as necessary (P, 2022). Given that Indonesia is a relatively new market for electric vehicles, consistent monitoring is even more critical to understand consumer behaviour, assess market trends, and refine strategies in real time.

Appendix

Appendix 1

Region	Political		Economic		Social		
	Trade Policy	Trade Relation	Economic growth	Rise in middle class	Environmental awareness	Changing consumer preferences	**Acceptance of BYD brand**
Southeast Asia	Southeast Asian governments tend to attract foreign investment through tariff reductions, investment incentives and other measures to promote the new energy EV industry	The China-ASEAN Framework Agreement on Comprehensive Economic Co-operation promotes the entry of Chinese high-technology products into Southeast Asian markets Belt and Road Initiative	The average annual economic growth rate of Southeast Asian countries reaches 5-7%.	The middle class in Southeast Asia is growing rapidly, and EVs are beginning to become a popular choice for the urban middle class.	Environmental protection organizations and governments are actively promoting climate protection actions in Southeast Asian. Urban residents are becoming more aware of environmental protection, and rise in demand for green transportation.	Owning an electric car is seen as a symbol of social status and environmental awareness and is widely favored by the middle class.	High Ranking of Sales volume and market share of pure EVs in Thailand: 1st BYD ATTO 3, 3th BYD Dolphin
	Political		Economic		Social		
Asia	The government tends to support local enterprises, especially in the EV market, by increasing the difficulty of market access for foreign enterprises, forming political barriers and adopting protectionist policies.		Consumers in developed countries have higher purchasing power and are generally willing to pay a premium for high-quality, technologically advanced and reputable local brands, and have lower trust in newly entered foreign brands.		People have high trust in local brands and tend to support local companies with advanced technology.		**Acceptance of BYD brand** Low Prefer Toyota, Honda and etc.

Region	Technological		Legal		E.g. of major countries	Key Factor	
	Infrastructure	Skilled labour	Market access	Business regulations			
Southeast Asia	EV market is still in early stages of development, charging infrastructure is relatively weak.	High demand for emerging technology support and a shortage of highly skilled talent.	Investors who intend to produce or sell new energy vehicles in Thailand must apply for type certification and a license to produce industrial products from the Thai Industrial Standard Institute in advance in accordance with the provisions of the Industrial Products Standards Act.	The manufacture of new energy vehicles is not included in the list of prohibited or restricted foreign investment stipulated in the Foreign Business Law, and does not require an application for a foreign business license or foreign business license stipulated in the Foreign Business Law.	Thailand	P	The Thai Board of Investment (BOI) offers tax breaks and tariff concessions to foreign EV manufacturers
							"EV Tax Incentive Package" mainly provides tariff reductions, consumption tax reductions and consumption tax subsidies to the imported EV market
						S	37% want to reduce dust, smog and greenhouse gases 71% buy EVs because of concerns about the impact on the environment
					Indonesia	P	Exempt import duties and luxury sales tax on the import of completely built-up (CBU) electric vehicles and completely knocked down (CKD) four-wheel pure electric vehicles. Final vehicle local content will be at least 20% and less than 40%
						S	Indonesia is one of the important partners of China's "Belt and Road" initiative. Since China proposed BRI in 2013, Indonesia has actively participated in it, and the two countries have reached a number of cooperation agreements in the field of infrastructure construction.
	Technological		Legal		E.g. of major countries	Key Factor	
Asia	Most countries have established relatively complete EV charging networks, countries like Japan and South Korea are global leaders in batteries and fuel cells.		Developed countries have extremely strict requirements on emission standards and regulations, and local brands enjoy more legal and policy protection.		Japan	P	The automobile technical certification system is complex, involves multiple departments, and is time-consuming.
						S	Brand loyalty is high, favouring large local brands like Toyota and Honda.
						T	Japan is one of the most technologically advanced countries in the world, and local companies have a strong position in cutting-edge technologies such as EV battery technology and autonomous driving.
						L	Extreme complex and strict requirements on environmental protection

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	Political	Economic		Social	
Europe	"The European Green Deal" sets a goal of achieving carbon neutrality by 2050. Member states have actively introduced policies to encourage the popularization of electric vehicles. Many countries provide car purchase subsidies, tax exemptions and other policies, and plan to gradually phase out traditional fuel vehicles.	Purchasing power	Europe's automobile market is mature and consumers are more receptive to electric vehicle technology, but at the same time, the market competition is fierce	European consumers have a high awareness of environmental protection, and the demand for low-emission and zero-emission vehicles is increasing	**Acceptance of BYD brand**
		European countries have higher purchasing power and consumers are willing to bear the high cost of electric vehicles.			Low
					Prefer local brands

	Political		Economic	Social	
North America	US	Canada	Consumers in North America have strong purchasing power, especially the middle and high-income groups have a rising demand for environmentally friendly cars.	Some major cities and coastal states have a high level of acceptance of low-emission and zero-emission vehicles	**Acceptance of BYD brand**
	In the United States, the federal and state governments have different policies on electric vehicles. California has strong support for electric vehicles, while other regions have more conservative policies.	The Canadian federal and provincial governments provide relatively consistent policy support for new energy vehicles, such as car purchase subsidies and tax breaks.			Low
	US-China trade friction				Strong competition with Tesla, which has extremely high brand loyalty

	Technological		Legal		E.g. of major countries	Key Factor	
Europe	Europe's charging infrastructure is relatively complete, and the EU also plans to further expand the charging network	Europe has high technical standards and safety requirements for new energy vehicles, and there are many automobile manufacturers and R&D institutions.	The emission standards of European countries are extremely strict, especially for the automotive industry, which needs to meet higher technical standards to comply with EU regulations.	Tariff The European Commission has imposed a temporary tariff on Chinese pure electric vehicles (BEVs) from July 5, 2024. BYD's Chinese-made cars sold in the EU will be subject to an additional tariff of 17.4%	Germany	P	Europe is the largest auto market, and the government has provided a lot of support policies for new energy vehicles, such as high car purchase subsidies and EV tax incentives
						S	Consumers have a high degree of acceptance of high-end EVs and have high purchasing power. Local brands such as Volkswagen and BMW have occupied most of the market share.
						L	Germany's automobile emission and safety standards are among the highest in the world and must pass strict environmental protection and safety certification.

	Technological	Legal		E.g. of major countries	Key Factor	
North America	North America has highly developed 5G Internet coverage, which helps cars achieve autonomous driving and intelligent network positioning. The government and private companies are accelerating investment in research and development of electric vehicle charging facilities, similar to ChargePoints. In addition, North America has invested a lot of money and labour to promote technology research and development, and top universities (such as MIT) have laid a solid foundation for the electric vehicle industry in areas such as batteries and autonomous driving.	Must comply with the emission requirements of the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB), and meet the safety standards of the U.S. National Highway Traffic Safety Administration (NHTSA)	Tariff The "Section 301" tariff increase import tariffs on EVs imported from China from 25% to 100%, and battery component imports from 7.5% to 25%	The US	P	Different states in the U.S. have different policies on EV subsidies, with Atlanta, Georgia becoming the most economical city to buy an EV
						The import tariff on electric vehicles increases from 25% to 100%, and the import tariff on battery components increases from 7.5% to 25%
						"Section 301" investigates China's intellectual property and subsidy practices.
						US-China trade conflict: From August 1, 2024, the US will impose further tariffs on goods imported from China
					T	The United States is in the lead in the promotion of 5G networks and has the most extensive charging infrastructure in the world, covering public places and multi-use building areas
					L	The U.S. Commerce Department is expected to ban Chinese software and hardware from connected and self-driving cars on U.S. roads due to "national security" concerns.

	Political	Economic	Social	
South America	Gradually introduce policies to promote the popularization of clean energy and EVs. Chile and Colombia have announced the goal of phasing out fuel vehicles by 2035 and provide policy support and car purchase subsidies for new energy vehicles.	The economic development of the South American market is relatively unstable, and consumers are more sensitive to prices. The high initial cost of EVs may be prohibitive for low- and middle-income people.	South American consumers are becoming more interested in environmental protection and are gradually accepting foreign brands.	**Acceptance of BYD brand**
				Chinese-made EVs are winning over car buyers across Latin America.

	Political	Economic	Social	
Australia & New Zealand	Australia and New Zealand are open to foreign investment in the automotive market. The two governments actively attract foreign investment and local production in new energy vehicles, and provide funding and support for green transportation facilities.	Consumers in Australia and New Zealand have high purchasing power and are willing to pay for environmentally friendly products. Some states in Australia exempt electric vehicles from stamp duty or provide registration fee discounts.	Consumers in both countries have low acceptance of new and foreign brands	**Acceptance of BYD brand**
				Low
				Competition with Tesla

	Political	Economic	Social	
Middle East	The UAE has set a goal of achieving net zero emissions by 2050, and Saudi Arabia plans to reduce its dependence on oil and develop new energy markets through its "Vision 2030".	The overall purchasing power in the Middle East is high, and EV has a potential consumer group in the mid-to-high-end market.	In major cities in the Middle East (such as Dubai and Riyadh), environmental awareness is gradually increasing, and consumers are showing some interest in low emissions and sustainable development.	**Acceptance of BYD brand**
		The Middle East is rich in oil resources and low oil prices, resulting in relatively low consumer demand for electric vehicles.		High
				EV market share exceeds 15% in new passenger car and light commercial vehicle sales in the UAE

	Technological	Legal	E.g. of major countries	Key Factor	
South America	The overall charging infrastructure in South America is still in its early stages of development. South America's climate conditions are diverse and extreme, placing higher demands on the battery and cooling systems of electric vehicles.	Many South American countries impose high tariffs on imported cars and parts	Chile	P	Plans to ban the sale of fuel-efficient vehicles by 2035.
			Brazil	T	Brazil's charging infrastructure is limited and mainly concentrated in large cities, and Brazil's hot climate places special demands on battery performance.
				L	Brazil imposes higher tariffs on imported EVs
	Technological	Legal	E.g. of major countries	Key Factor	
Australia & New Zealand	The charging infrastructure in Australia and New Zealand is gradually being improved, but the overall coverage is low.	Emission regulations in Australia and New Zealand are becoming increasingly stringent. New Zealand's vehicle emission standards are already close to EU levels. The Australian government plans to further improve emission standards in the next few years.	/	/	/
	Technological	Legal	E.g. of major countries	Key Factor	
Middle East	The overall electric vehicle charging infrastructure in the Middle East is still insufficient, and developed countries are accelerating the construction of charging station networks to support the popularization of EVs.	Most countries in the Middle East have relatively relaxed import tariffs on new energy vehicles, especially for zero-emission vehicles, and tax exemption policies are gradually increasing.	UAE	P	The UAE Free Trade Zone has long allowed foreign investment to 100% own entities in the Free Trade Zone
				S	Chinese-made EVs are gaining favor among more and more industry insiders and consumers in the region due to their high cost-effectiveness and beautiful design.
	Suitable for BYD development	Generally suitable for BYD development	Not suitable for BYD development		

Excel file (To open, double-click)

Appendix 2

Tesla's BEV market share in 2023	19.90%
BYD's BEV market share in 2023	17.10%
Difference	2.80%
The number of BEV sales in 2023 (BYD)	1.6mn
The sales quantity corresponding to each 0.1% of market share (market share/number of sales)	0.094mn
The sales volume BYD needs to surpass Tesla (0.094mn*2.8)	0.263mn
Projected total BEV sales in Indonesia in 2025	2.5mn
BYD's BEV market share in 2023 in Chinese market	35%
The predicted number of BYD sales in Indonesia in 2025 (0.35*2.5mn)	0.85mn
RESULT: **0.85>0.263**, BYD could become the top electric vehicle brand by expanding into the Indonesian market	

Source: Lu, 2024; Mossalgue 2024; Bharadwaj, 2023; Zhang, 2024

Reference

A 3D view of Southeast Asia: Demographics, digitisation and dynamism. (n.d.). Retrieved October 25, 2024, from https://www.business.hsbc.com/en-gb/insights/growing-my-business/a-3d-view-of-southeast-asia

Admin, S. (2024, January 30). *Indonesia legal update: Incentives for four-wheeled battery electric vehicles*. SSEK Law Firm. https://ssek.com/blog/indonesia-legal-update-incentives-for-four-wheeled-battery-electric-vehicles/

Alcomendas, A. (2024, October 2). *Vietnam sets goal to supply car parts globally by 2045*. AfMA. https://afma.org.au/vietnam-sets-goal-to-supply-car-parts-globally-by-2045/

Alvarez, S. (2024, July 25). *Tesla battery supplier LG provides update on 4680 cell mass production*. TESLARATI. https://www.teslarati.com/tesla-battery-supplier-lg-4680-cell-mass-production-update/

Andrews, M. (2024, May 28). Byd Qin l launches in China, PHEV with 2,100 km range. CarNewsChina.com. https://carnewschina.com/2024/05/28/byd-qin-l-launches-in-china-with-fifth-generation-phev-system/

Bharadwaj, R. (2023, July 21). Exploring the Indonesian EV market. Bolt Earth. https://bolt.earth/blog/ev-landscape-in-indonesia

Briefing, C. (2024, May 29). *US tariff increases on Chinese imports: Implications on bUSinesses*. China Briefing News. https://www.china-briefing.com/news/us-tariff-increases-on-chinese-imports-implications-for-trade-and-businesses/

Brinley, S. (2024, July 11). A breakdown on europe's chinese EV tariffs. *IHS Markit*. https://www.spglobal.com/mobility/en/research-analysis/a-breakdown-on-europe-chinese-ev-tariffs.html

BYD. (2022, February 28). BYD history. BYD Auto NZ. https://www.bydauto.co.nz/news/byd-history

BYD. (2023, April 23). BYD presents several new models at Auto Shanghai 2023. https://www.byd.com/us/news-list/BYD-Presents-Several-New-Models-at-Auto-Shanghai-2023.html

BYD. (n.d.-a). About Us: BYD USA. Retrieved October 27, 2024, from https://www.byd.com/us/about-byd

BYD. (n.d.-b). BYD HAN. https://www.byd.com/us/car/han-ev

CHINA EV100. (n.d.). *中国电动汽车百人会官网*. Retrieved October 25, 2024, from https://www.chinaev100.com/focus/detail/236

China-ASEAN Free Trade Agreement ("10+1") Upgrade. (n.d.). 中国自由贸易区服务网; MINISTRY OF COMMERCE PEOPLE'S REPUBLIC OF CHINA. http://fta.mofcom.gov.cn/dongmeng_phase2/dongmeng_phase2_special.shtml

Chowdhury, P. (2024, July 4). *Chinese electric vehicles are transforming Australia's car market. Are we getting a good deal?* The Conversation. https://theconversation.com/chinese-electric-vehicles-are-transforming-australias-car-market-are-we-getting-a-good-deal-232829

clickrweb.com, C. 力嘉-. (n.d.). *比亚迪计划于 10 月 9 日为其在卡马萨里市的工厂奠基*. 中葡论坛. Retrieved October 25, 2024, from https://forumchinaplp.org.mo/zh-hans/economic_trade/view/7289

DG.hire. (n.d.). 印尼人力资源概述 - 出海攻略. 全球用工与薪酬管理平台. Retrieved October 27, 2024, from https://www.dghire.com/info/guide/1e81aaeedc800d7568bbdcd8a7dd1ff9

Dudovskiy, J. (2024, February 17). BYD Organizational Structure Overview - Research-Methodology. Business Research Methodology. https://research-methodology.net/byd-organizational-structure-overview/

Dyer, G. (2024, July 5). Tesla and BYD: The global BEV production and sales race heats up. ShareCafe. https://www.sharecafe.com.au/2024/07/05/tesla-and-byd-the-global-bev-production-and-sales-race-heats-up/

eCommerce Basis. (2023, August 1). *Tesla vs. BYD: The vertical integration strategies of two leading automakers*. eCommerce Basis. https://www.ecbasis.com/blog/2023/08/01/tesla-vs-byd-the-vertical-integration-strategies-of-two-leading-automakers/

Electric vehicles research report. (n.d.). MIT Sustainability. Retrieved October 31, 2024, from https://sustainability.mit.edu/resource/electric-vehicles-research-report

Embassy of the People's Republic of China in the Republic of Indonesia. (2023, October 25). 中印尼关系的下个 10 年会更好， 中印尼"一带一路"合作的下个 10 年会更好_中华人民共和国驻印度尼西亚共和国大使馆. http://id.china-embassy.gov.cn/sgyw/202310/t20231025_11168124.htm

EV turning point: Momentum builds for U.S. electric vehicle transition. (n.d.). Yale E360. Retrieved October 31, 2024, from https://e360.yale.edu/features/ev-turning-point-momentum-builds-for-u.s.-electric-vehicle-transition

EVMarketsReports.com. (2024, August 21). BYD and Tesla lead the Global EV market as sales surge in 2024. EVMarketsReports.com. https://evmarketsreports.com/byd-and-tesla-lead-the-global-ev-market-as-sales-surge-in-2024/

Find My Electric. (2024, October 31). *Tesla Batteries: What Kind of Battery Does My Tesla Have?* Find My Electric. Retrieved from https://findmyelectric.com/blog/what-kind-of-battery-does-my-tesla-have/

Fortune Brand Studio. (n.d.). BYD creates innovative sustainability solutions for a changing world. Fortune. Retrieved October 27, 2024, from https://brand-studio.fortune.com/byd/byd-creates-innovative-sustainability-solutions-for-a-changing-world/?prx_t=MMAHAAAAAAjQ8RA

Green Car Congress. (2014, March 21). BYD's Qin Plug-in hybrid the best selling automotive EV in China - green car congress. Green Car Congress. https://www.greencarcongress.com/2014/03/20140321-qin.html

HKTDC Research. (n.d.-b). Retrieved October 25, 2024, from https://research.hktdc.com/sc/article/NzUyNjU5NzI4

iF Design. (n.d.). BYD SONG L. Retrieved October 31, 2024, from https://ifdesign.com/en/winner-ranking/project/byd-song-l/641130

Indonesia. (n.d.). 中华人民共和国商务部. Retrieved October 26, 2024, from https://images.mofcom.gov.cn/trb/accessory/200904/1240392635810.pdf

Innovation in Textiles. (n.d.). BYD's Shenzhen facility makes 5 million face masks per day. Retrieved October 27, 2024, from https://www.innovationintextiles.com/byds-shenzen-facility-makes-5-million-face-masks-per-day/

Investments, I. (n.d.). *Astra International*. Indonesia Investments. Retrieved October 31, 2024, from https://www.indonesia-investments.com/business/indonesian-companies/astra-international/item192?

Isaac, J. (2024, January 10). *Indonesia offers import duty, luxury goods tax exemptions for EV*. Indonesia Business Post. https://indonesiabusinesspost.com/insider/indonesia-offers-import-duty-luxury-goods-tax-exemptions-for-ev/

JD-Link. (2023, August 14). *新能源汽车出口日本需要什么手续？*. https://www.jd-link.com/articles/encyclopedias/1855/

Jin, Q. (2023, December 4). Can transport 7,000 cars at a Time! BYD's ro-Ro Vessel Explorer 1 completed its sea trial. CarNewsChina.com. https://carnewschina.com/2023/12/04/can-transport-7000-cars-at-a-time-byds-ro-ro-vessel-explorer-1-completed-its-sea-trial/

Laws:Air & transportation. (n.d.). Ministry of the Environment, Government of Japan. Retrieved October 25, 2024, from https://www.env.go.jp/en/laws/air/index.html

Li, S. (2024, July 30). *中美贸易战下一阶段来临前须知的六个知识点*. Oxford Economics. https://www.oxfordeconomics.com/zh-hans/resource/six-lessons-from-the-us-china-trade-war-as-the-next-phase-looms/

LI, X. (2024, July 18). *我国电动汽车受到中东市场欢迎*. People.Cn. http://finance.people.com.cn/n1/2024/0718/c1004-40280254.html

LiFePO4 Battery. (n.d.). *Comparison of ternary lithium battery and lithium iron phosphate battery*. Retrieved October 31, 2024, from https://lifepo4-battery.com/News/Lithium-battery-Comparison.html

Lilli, E. (2024, June 10). BYD founder: Europe and the USA fear us. Motor 1.com. https://uk.motor1.com/news/722707/byd-founder-chuanfu-chinese-car-industry-strong/

Lu, M. (2024, March 9). Visualizing Global Electric Vehicle Sales in 2023, by market share. Visual Capitalist. https://www.visualcapitalist.com/visualizing-global-electric-vehicle-sales-in-2023-by-market-share/#google_vignette

Marklines. (n.d.). *汽车销量速报 日本 2024 年 (牌排名, 汽車品牌排名, 汽车销量) - MarkLines 全球汽车产业平台*. MarkLines 全球汽车产业平台. Retrieved October 25, 2024, from https://www.marklines.com/cn/statistics/flash_sales/automotive-sales-in-japan-by-month

minichart. (2024, September 24). *Astra international poised for growth with rate cuts and expanding electric vehicle lineup*. Minichart. https://www.minichart.com.sg/2024/09/24/astra-international-poised-for-growth-with-rate-cuts-and-expanding-electric-vehicle-lineup/

Mossalgue, J. (2024, January 2). China's BYD breaks record sales of 3 million evs in 2023. Electrek. https://electrek.co/2024/01/02/chinas-byd-tops-1-6-million-bev-sales-in-2023/ Nolan, S. (2024, September 4). Wang Chuanfu: The Innovator behind BYD's Global Success. EV Magazine. https://evmagazine.com/articles/wang-chuanfu-the-innovator-behind-byds-global-success

MyDrivers. (2022, October 20). *BYD Unveils In-Car Game Interface: Supports Steering Wheel, Brake, and Accelerator Controls*. Retrieved from https://news.mydrivers.com/1/866/866483.htm

On 5G-V2X use cases and enabling technologies: A comprehensive survey. (n.d.). IEEE Xplore. Retrieved October 31, 2024, from https://ieeexplore.ieee.org/document/9497103

P, V. (2022, December 21). Efficient monitoring and feedback mechanism. Medium. https://valentin-p.medium.com/efficient-monitoring-and-feedback-mechanism-27da4268ffe2

Pereira, D. (2024, August 17). BYD business model - how BYD makes money?. Business Model Analyst. https://businessmodelanalyst.com/byd-business-model/?srsltid=AfmBOopoqt3o9veMMjHdDdkEynE12S1xp-bovkEWVpTIpSyssAHtCgX_

Pistilli, M. (2024, September 10). *Where does Tesla get its lithium? (updated 2024)*. INN. https://investingnews.com/where-does-tesla-get-lithium/

Regulatory environment and incentives for using electric vehicles and developing a charging infrastructure. (n.d.). BMWI. Retrieved October 25, 2024, from https://www.bmwk.de/Redaktion/EN/Artikel/Industry/regulatory-environment-and-incentives-for-using-electric-vehicles.html

Santos, L. de los. (2024, September 24). *ABVE states: The arrival of Chinese brands could kickstart EV battery production in Brazil - Mobility Portal*. Dev.Mobility. https://mobilityportal.eu/abve-chinese-brands-ev-battery-production-brazil/

Southeast Asia Datasets. (n.d.). Retrieved October 25, 2024, from https://www.imf.org/external/datamapper/profile/SEQ

Strangio, S. (2024, February 22). Indonesia announces new tax incentives to encourage EV sales. *The Diplomat*. https://thediplomat.com/2024/02/indonesia-announces-new-tax-incentives-to-encourage-ev-sales/

Sun, X., & Wang, B. (2024, July 18). *复盘日系出海东南亚，对比亚迪出海的思考与启发*. TF SECURITIES. https://pdf.dfcfw.com/pdf/H3_AP202407181638051719_1.pdf

Thai car buyers' preferences shifting. (2024, June 28). *Bangkok Post*. https://www.bangkokpost.com/business/motoring/2819359/thai-car-buyers-preferences-shifting

Thailand's incentives for electric vehicles (EV). (2022, May 27). *KPMG*. https://kpmg.com/th/en/home/insights/2022/05/th-tax-news-flash-issue-130.html

The European green deal. (n.d.). European Commission. Retrieved October 25, 2024, from https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

The Paris Agreement. (n.d.). United Nations Climate Change. Retrieved October 25, 2024, from https://unfccc.int/zh/guojiazizhugongxian-ndc-zixun/balixieding

Wang, X. (2021, April 11). *智利2035年禁售燃油车*. 中国石油新闻中心. http://news.cnpc.com.cn/system/2021/11/04/030049050.shtml

Wei, Y. (n.d.). *美国拟全面禁用中国智能网联汽车软硬件*. Retrieved October 25, 2024, from https://stcn.com/article/detail/1327557.html

World Bank Group. (2024, February 7). *The abcs of climate action in East Asia and Pacific*. World Bank Group. https://www.worldbank.org/en/region/eap/brief/the-abcs-of-climate-action-in-east-asia-and-pacific

Xiao, N. ba. (2023, December 14). *东南亚电动车市场未来十年蓬勃发展，新加坡有望成为领头羊！*. https://www.sohu.com/a/743638349_121824876

Yang, Y. (2022, November). *全球产业链向东南亚转移情况分析报告*. YICAI. https://img.cbnri.org/files/2023/03/638156997829050000.pdf

Zhang, P. (2024, January 10). Automakers' Nev market share in China in 2023: BYD 35%, Tesla 7.8%, nio 2.1%. CnEVPost. https://cnevpost.com/2024/01/10/automakers-nev-market-share-in-china-in-2023/

万南. (2018, March 6). *史上最美！比亚迪全新一代唐正式亮相：Dragon Face 设计*. 快科技. Retrieved October 31, 2024, from https://news.mydrivers.com/1/566/566484.htm

太平洋汽车网. (n.d.). 比亚迪 S6 多功能方向盘. Retrieved October 31, 2024, from https://www.pcauto.com.cn

新能源汽车出海东南亚新机遇——投资篇. (n.d.). 金杜律师事务所. Retrieved October 25, 2024, from https://www.kwm.com/cn/zh/insights/latest-thinking/new-opportunities-for-new-energy-automotive-enterprises-to-go-to-southeast-asia-investment-policies.html

新闻及活动-比亚迪品牌官方网站. (n.d.). Retrieved October 25, 2024, from https://www.bydglobal.com/sites/Satellite?c=BydArticle&cid=1617162478658&d=Touch&pagename=BYD_CN%2FBydArticle%2FCommon%2FArticleDetails