

Accelerating Electric Vehicle Adoption in Southeast Asia



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Southeast Asia has been a laggard in terms of adopting electric vehicles. Being home to 700 million people (almost equal to the population of Europe) and with a rapidly increasing motorization rate, the region needs to do more and join the electrification trend.

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Clean mobility plays an important role in achieving a sustainable future

To achieve a sustainable future and to address climate change we need clean mobility. In the last 20 years, global annual emissions have increased by about 40%. To date, governments in mostly high-income countries have implemented measures to address climate change, but they have not brought results that could be considered a success.

As low and middle-income countries continue their path of rapid economic development, they are more likely to increase their CO₂ emissions faster than developed countries. Thailand is a good example, where its overall emissions and emissions solely from road transport have grown, respectively, by 19 and 29 percentage points above the global average. Despite the popularity of motorcycles and

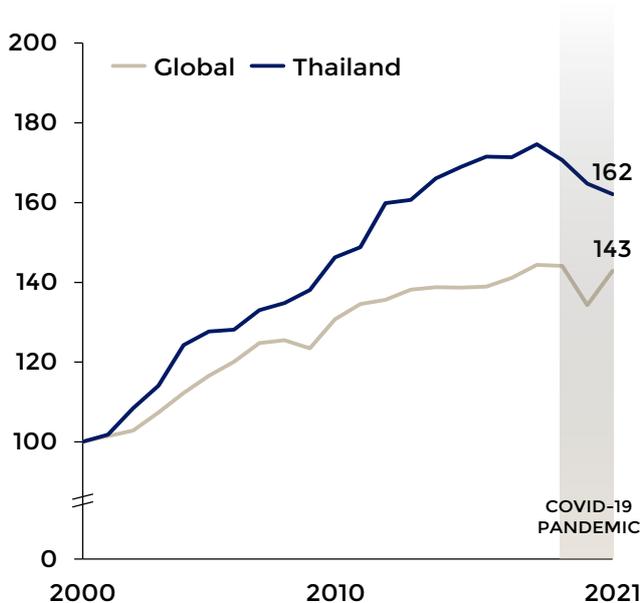
scooters in Southeast Asia, the largest emitters of CO₂ are passenger cars and light commercial vehicles, particularly pick-up trucks.

Globally, road transport accounts for nearly 20% of all energy-related CO₂ emissions. In major Southeast Asian economies, excluding Singapore, it accounts for 20-30%. While plug-in electric vehicles¹ (EVs) are more carbon-intensive than internal combustion engine (ICE) vehicles during the production phase, in the vast majority of cases this difference is more than offset during the use phase. This is due to the lower carbon intensity of electricity generated when compared with ICE vehicles powered by petrol or diesel. Of course, the benefit increases as the share of zero or low-carbon (clean) energy sources in the electricity generation mix grows. Therefore, Southeast Asian countries need to consider how to make their electricity generation less carbon-intensive to increase the positive impact of EVs.

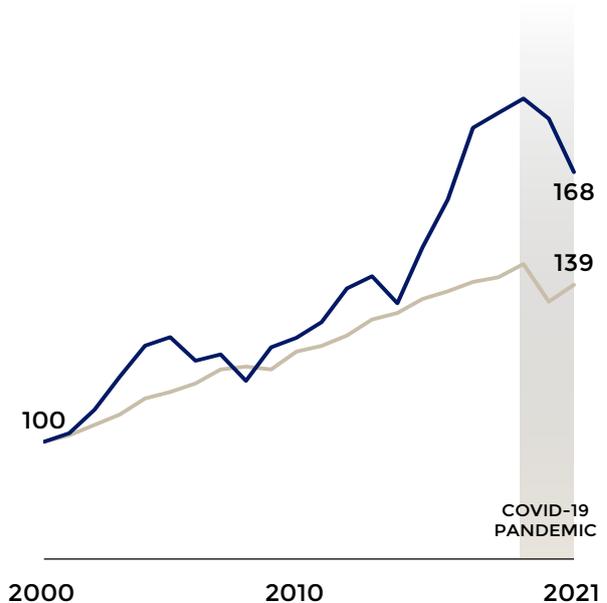
Exhibit 1

Thailand's CO₂ emissions have been rising faster than average

Overall CO₂ emissions, 2000 = 100



Road transport CO₂ emissions, 2000 = 100



Source: Energy Policy and Planning Office (EPPO), International Energy Agency (IEA), ABeam Consulting analysis

¹ Plug-in electric vehicles comprise fully electric vehicles (also called battery electric vehicles or BEVs) and plug-in hybrid electric vehicles (PHEVs)

Electric Vehicle adoption in Southeast Asia is at an inflection point

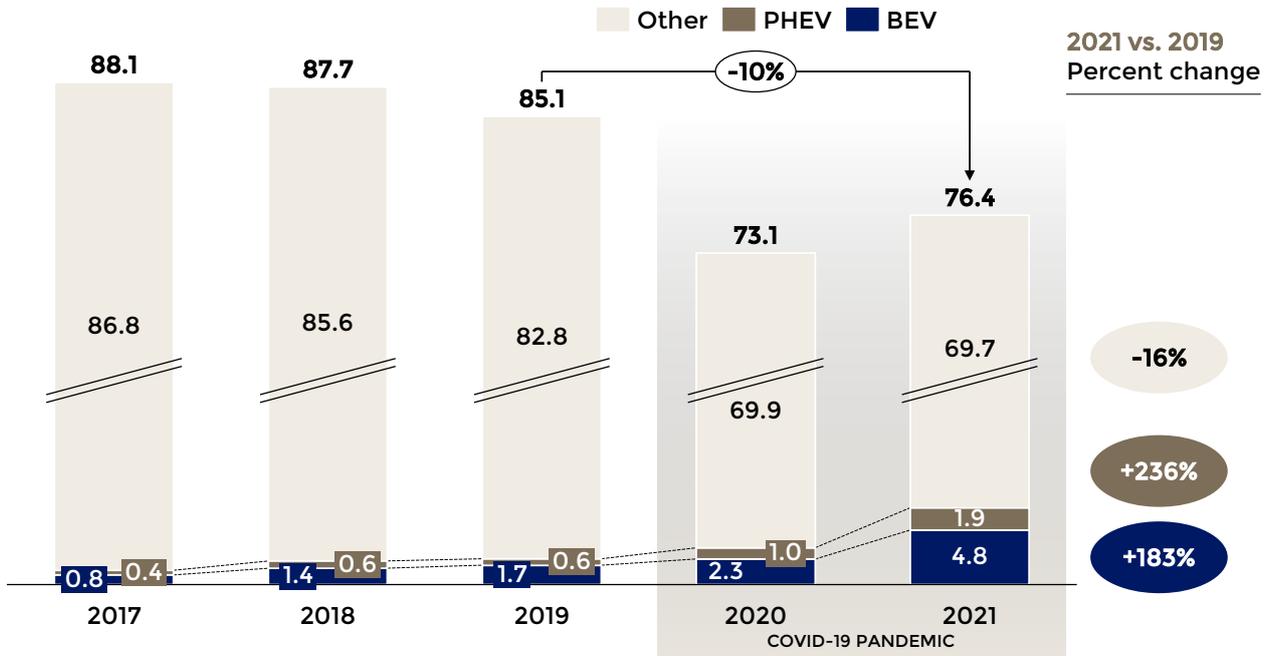
Globally, the sales of plug-in electric vehicles have been picking up. Even though the overall sales of passenger cars and light commercial vehicles (together known as 'light vehicles') decreased

during the pandemic due to a weak economy, chip shortages and lockdowns, the sales of EVs continued to increase. None of these problems negatively affected EV sales, at least not in any significant manner. All in all, in 2021 nearly 7 million EVs were sold, amounting to a 9% market share. In 2019 – before the pandemic started taking its toll – 2 million EVs were sold reaching a 3% market share.

Exhibit 2

While the Covid-19 pandemic reduced overall demand for light vehicles, the sales of electric vehicles increased

Global Annual Light Vehicle Sales, Million units



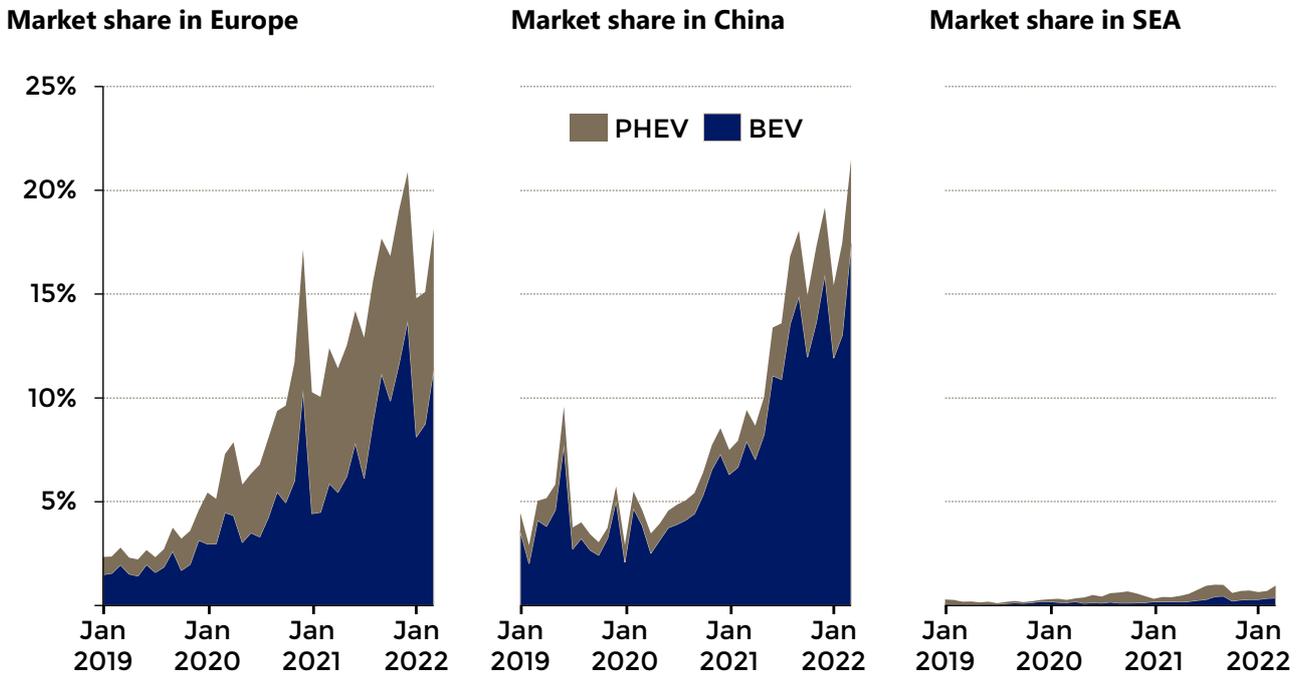
Source: EV Volumes

However, EV adoption is not uniform across the world. In Europe, home to about 750 million people, EV market share exceeded 20% by the end of 2021. Similarly, in China, with 1.4 billion people, EV sales

have seen a rapid increase since 2020, growing to 21% market share in March 2022. The vast majority of EVs sold in China were battery electric vehicles (BEVs).

Exhibit 3

EV adoption in Southeast Asia is much lower than in Europe or China



Source: EV Volumes

During this time, EV sales in Southeast Asia continue to be very small accounting for about 1% of total market share. On a positive note, the number of EV models introduced to the market in the region has increased, including vehicles at prices closer to those of popular ICE vehicles. Nevertheless, the range of available EVs is still limited. Also, until recently, government support in Southeast Asia has been limited to providing tax incentives to manufacturers or slight decreases to taxes for EV buyers, without providing direct subsidies.

In February this year, the government in Thailand made a bold move and approved a package of further import tariff and excise tax cuts, along with the introduction of direct subsidies of THB 150,000 (about US\$4,300) on BEVs with batteries exceeding 30 kWh. The subsidies are available for BEVs of vehicle OEMs who sign an agreement with the government obligating them to produce BEVs in Thailand in the future. This should help ensure that

in the future, Thailand will rely less on imports and more on domestic production. As of now, MG, Great Wall Motor and Toyota have signed agreements, leading to a substantial increase in new customer orders as reported during the Bangkok International Motor Show that took place in April 2022.

The Singaporean and Thai governments have set the most ambitious EV targets in the region so far. Singapore wants to phase out ICE vehicles by 2040, while Thailand aims for 100% zero-emission vehicle market adoption and a 50% zero-emission vehicle production share by 2035. For a country that averaged about one million vehicles in annual sales and two million vehicles in annual production before the Covid-19 pandemic, this is a big task to achieve. The recently introduced incentives will help, but alone will not be enough. Industry players must do their part – first, by really understanding what and how various factors impact EV adoption, and then by taking appropriate actions.

Dissecting the key growth factors

Increasing EV adoption requires addressing both supply and demand factors. Supply factors are related to activities before vehicles reach the retail channel, while demand factors are related to the customer perception about the experience of using an EV.

As shown in Exhibit 4, EV affordability and EV availability are two key supply factors to make customers seriously consider purchasing an EV. EV affordability has been improving in recent years. For example, average battery pack prices have fallen by over 50% in the last 5 years. Vehicle OEMs and suppliers continue to make heavy investments to improve EV powertrain technology and production processes, and governments continue to provide incentives to reduce EV prices. These developments created a bullish sentiment that EV affordability will be getting better and better.

However, the increased demand for EVs has increased raw material prices, which have surged further due to the war in Ukraine. For example, the spot price of lithium carbonate in China – a key raw material used extensively in batteries – stayed below US\$8,000 per tonne throughout 2020. Since the beginning of 2021, the price has shot up to almost US\$80,000 per tonne at the beginning of

March 2022 - an increase of 10 times in little more than 12 months. The prices of other raw materials used in EVs such as nickel and aluminum have gone up significantly as well. In China, this has forced EV makers to hike vehicle prices recently. In March 2022 alone, several key players including Tesla, BYD, Great Wall Motor and SAIC increased the prices for some of their models by 1-9%.

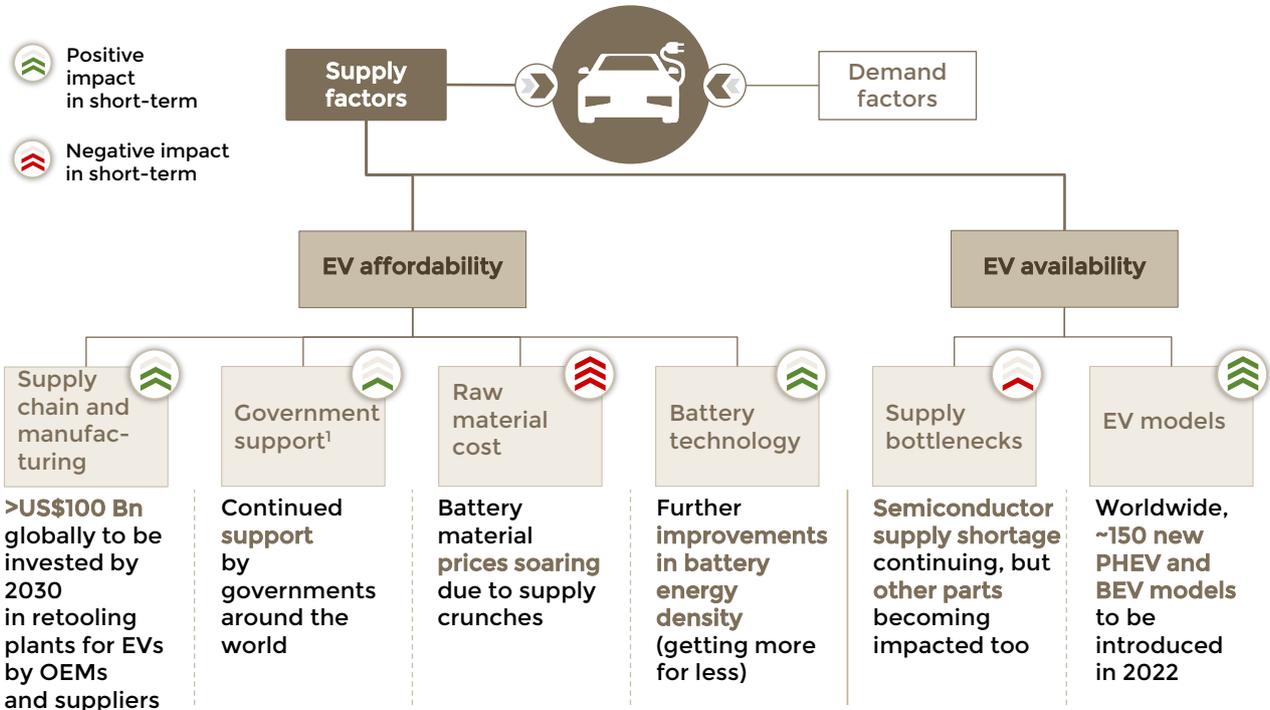
In addition, the automotive supply chain is vulnerable in other areas, posing challenges in supplying enough EVs to meet current demand. The semiconductor supply shortage continues and the war in Ukraine is causing supply disruptions of other parts, especially in Europe, forcing vehicle manufacturers to cut production and delay vehicle deliveries to customers. Covid-19-related lockdowns are causing disruptions to part and vehicle production in China. Finally, cyberattacks also pose a risk; in February, Toyota had to shut down its plants in Japan due to a cyberattack on one of its suppliers.

On a positive note, all major auto players around the world are in the process of developing and introducing new EV models which will give customers a wider choice and make it easier for them to find an EV they like. In 2022 alone, about 150 new EV models will be introduced across the globe.



Exhibit 4

Factors impacting global EV adoption: focus on supply



¹ Including incentives related to manufacturing, direct or indirect incentives to customers and stricter regulations for ICE vehicles

Source: EV Volumes, Reuters, ABeam Consulting

With regards to the demand factors (Exhibit 5), the first key factor is creating good customer awareness and understanding of the differences between EVs and ICE vehicles. There has been a significant increase in terms of the public interest in EVs around the world. The interest in EVs measured by Google Trends (web searches via Google search engine) has consistently reached new highs. There are even YouTube channels dedicated to EVs that attract a large audience, such as Fully Charged Show with nearly 0.9 million subscribers. The press around the world has also been very active in reporting relevant industry and market developments.

In addition, manufacturers are transforming their sales and retail approach, from one prioritizing short-term sales results into a new one where educational aspects and customer-centricity are the key priorities. With better knowledge about the

benefits of EVs, it is easier to convince prospects to test drive EVs and, consequently, turn prospects into customers.

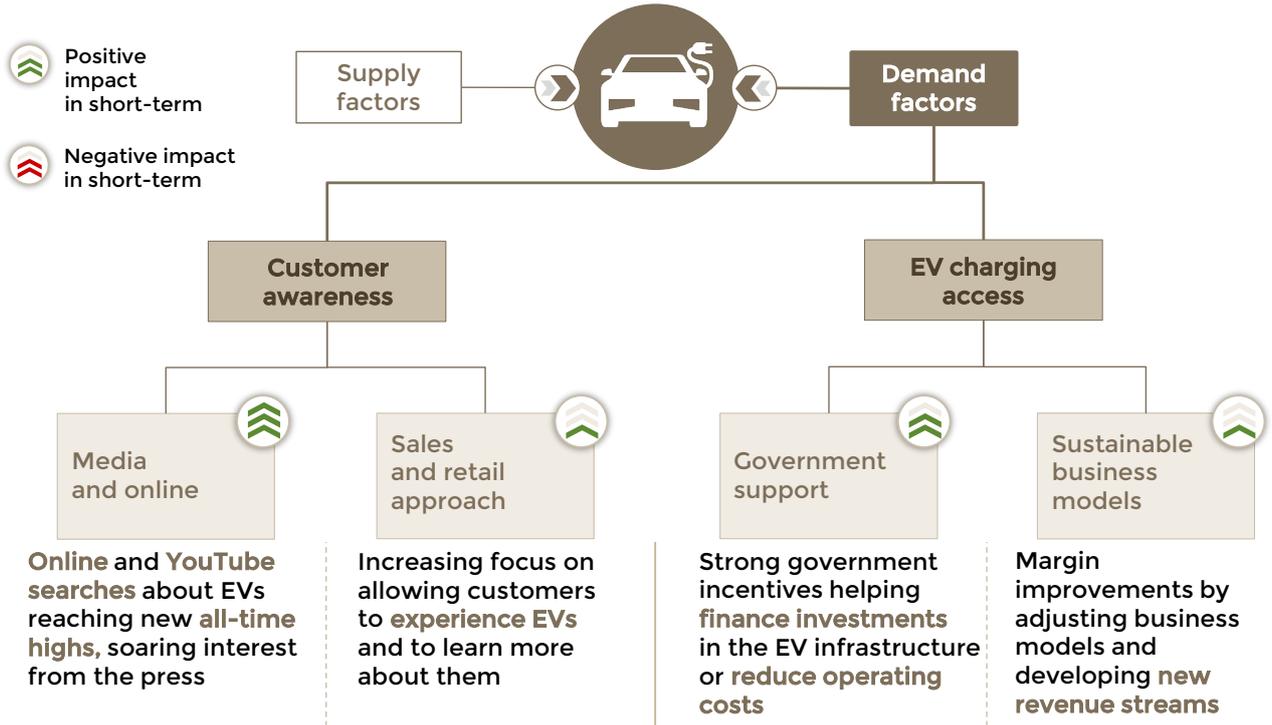
Last but not least, adequate access to EV charging is crucial. Based on ABeam Consulting's survey from December last year, 72% of people surveyed in Thailand believed that there are not enough public charging stations in the country. While most users usually rely on home charging, the development of a public charging infrastructure is nevertheless a must for many customers before they fully accept EVs. Governments have been taking action to accelerate the expansion of public EV charging station networks. For example, last year, the USA signed the infrastructure bill that designates US\$7.5 billion to build a national network of charging stations.

With government incentives and the number of EVs on the road growing, profit margins of charging station operators improve (although, nowadays they are usually still negative) leading to more

willingness to devote additional capital for investment.

Exhibit 5

Factors impacting global EV adoption: focus on demand



Source: Google Trends, ABeam Consulting



Industry players must take action now

Southeast Asia has historically relied heavily on the know-how of foreign companies for the development of the automotive industry. While there have been some major investments by local companies to develop national vehicle OEMs, or become significant battery suppliers, there is a low likelihood that Southeast Asia will be the source of a breakthrough technology that will make EVs significantly cheaper or better in the near future. Also, with the exception of Indonesia, which is the largest nickel producer in the world, our region does not have an advantage of realizing cost gains from having access to natural resources.

Despite these limitations, there are many actions that industry stakeholders in Southeast Asia can and should consider in the short term so that the region can more quickly transition to clean mobility.

Supply chain and manufacturing

Southeast Asia is home to over 3,000 automotive suppliers and about 100 vehicle assembly plants (including commercial vehicles) belonging to over 30 different players. The supply chain in Southeast Asia is complex and the electrification trend poses additional challenges to it. Therefore, companies should consider taking the following actions:

- For vehicle OEMs and suppliers it is important to be in sync with each other. To allow that, they must **build intelligent supply chains** utilizing IoT, Big Data, AI or Blockchain to increase visibility, optimize operations and help prevent potential bottlenecks.
- Legacy OEMs who still rely heavily on the production of ICE vehicles can **adopt flexible manufacturing systems** that leverage their existing assets to make the transition to EVs less risky and less costly. In other regions, some vehicle OEMs including Volkswagen, Nissan and Mazda have already re-organized their existing manufacturing facilities so that

they can accommodate various powertrains on the same production line.

- For suppliers, in particular those that currently rely on ICE powertrain parts, the transition to electrification is a very serious threat to their existence because it will reduce demand for their existing products. They need to act fast and **prepare the right strategy** to pivot to other products and services, and develop new partnerships.
- Clean mobility is not only about reducing CO₂ through the use of EVs instead of ICE vehicles, but also about eliminating CO₂ before EVs hit the road, as producing EVs, on average, generates more CO₂ than producing ICE vehicles. Suppliers and vehicle OEMs should take into consideration how they can make manufacturing and logistics more environmentally friendly. The first step is to holistically **determine how much and where CO₂ emissions** are produced and then **utilize the appropriate carbon-reducing measures**, such as optimizing logistics, increasing the share of electricity generated from renewable sources, reducing material waste, or designing products that can be reused or recycled.

Vehicle sales and retail

New technologies offer new possibilities about how vehicles can be sold, and customer expectations change accordingly. EV players such as Tesla or NIO have shown that doing things differently – for example by maximizing the potential of the online channel or offering a more immersive customer interaction in ‘experience’ stores located in high foot-traffic locations – can be source of competitive advantage. Based on the lessons learned in other regions, companies in Southeast Asia should consider the following:

- Despite the growing customer awareness of EVs, many potential EV buyers will require help in learning more about EVs before they are convinced to choose an EV over an ICE vehicle. Therefore, sales staff need to **play the role of**

an educator that will help customers understand the benefits and address any concerns specific to the customer's use case.

- National Sales Companies (NSCs) of OEMs and dealers need to **deliver a seamless omnichannel experience**. This means developing and optimizing digital touchpoints to allow the customer to rely on the online channel, if that is what the customer wants. For most customers who will utilize a combination of offline and online channels, NSCs and dealers need to effectively collect relevant information and link it together. In this regard, vehicle OEMs should consider changing the dealer's role in the sales process. There is evidence that a direct sales approach where NSCs sell vehicles directly to customers without depending on independent dealers, or with independent dealers playing the role of an agent and supporting NSCs with physical touchpoints, can increase customer satisfaction or result in lower retail costs long-term.
- OEMs can reduce costs if they **optimize the retail footprint**. The increased importance of the online channel means that customers need fewer offline touchpoints than before. By leveraging foot traffic data, players can evaluate locations that offer the best combination of lead generation and conversions versus costs.

EV charging

The acceleration of EV adoption must come hand-in-hand with the growth of the EV charging infrastructure. To ensure that the infrastructure does not become a bottleneck, industry

stakeholders should evaluate the following actions:

- Evidence from other regions shows that those players who **develop close partnerships** with end-users (e.g. fleet owners), OEMs and other EV charging players achieve higher utilization rates. Establishing other revenue streams, such as from advertising or from commissions from products sold to EV users (e.g. when an EV user buys food or coffee while charging) can translate into better profit margins – a critical factor to make their businesses more sustainable as the vast majority of EV charging station operators are currently unprofitable.
- There remains a need for **governments to provide strong support** in Southeast Asia. For example, the topic of the installation of private EV chargers at condominiums has received little attention so far. At the moment, property management offices are often reluctant to support the installation of charging points due to perceived safety concerns, installation costs, limited electrical capacity and other concerns. And even if charging points are available, the cost of using them can be significantly higher than electricity tariffs.

Conclusion

The automotive industry is undergoing dramatic changes due to technological innovations and social responsibility pressures. EVs are at the center of this transformation. This transformation will not magically happen on its own in Southeast Asia. Industry stakeholders need to act and make changes to build a better, sustainable future.

About the Authors

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