

Competitive Strategy in Technology-Based Industries

VOLVO: **AN INCUMBENT'S RACE TO DOMINATE ELECTRIFIED AND AUTONOMOUS MOBILITY**

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Executive Summary

- The presence of **geopolitical trade concerns** and **slow scalability of charging infrastructure** are the **most unpredictable** scenarios that Volvo will have to navigate
- Volvo's **greatest opportunities** lie in **revolutionizing the energy infrastructure**, but **fierce competition** and **volatile supply chain** threaten to derail its ambitious growth plans
- **Competitors** are aggressively pursuing **global expansion strategies**, leveraging their **cost advantages and technological capabilities** to compete
- Playing on its existing model of **building strategic partnerships** and **enhancing customer experience** will help Volvo make the best of opportunities and deal with impending threats
- Continuing to further their current existing strategic mindset of **adapting to change** through **increased partnerships and cost reduction** will reap benefits over time
- Focus on **hybrid models**, **alternative manufacturing bases**, and **battery recycling** should be Volvo's strategic roadmap for the **immediate future**
- Volvo can get **ahead of competition** by investing in **alternative battery materials**, leveraging its **leadership in mass-transit**, and implementing **vehicle-to-grid technology**
- Volvo is strategically navigating **geopolitical risks**, leading **automotive safety** through innovation and scaling EV production through **sustainable practices** to develop and sustain long-term market leadership.

The presence of geopolitical trade concerns and slow scalability of charging infrastructure are the most unpredictable scenarios that Volvo will have to navigate

Societal

- Volvo's leadership and reputation in automotive safety heightens public expectations with autonomous driving technology, increasing pressure to deliver cutting-edge autonomous driving capabilities.
- Volvo has difficulty adapting to the new shift of ownership as their target demographic is moving away from traditional car ownership to ride-share or subscription models.
- Consumers are increasingly choosing hybrid EV's over fully electric vehicles due to concerns about upfront costs, limited range, and insufficient charging infrastructure.

Technological

- **The slow pace of expansion of fast-charging infrastructure does not match the pace of EV rollouts, complicating Volvo's transition to fully electric vehicles.**
- **Battery efficiency remains an uncertainty due to global supply chain disruptions and scarcity of raw materials such as lithium and cobalt, slowing down advancements in battery technology.**
- Integration of Nvidia's AI-powered autonomous systems may face regulatory restrictions and would pose hurdles for innovation while navigating strict safety regulations.

Economical

- Increasing prices for critical raw materials like Lithium and Cobalt are driving up costs for EV production, challenging Volvo's ability to offer competitive pricing.
- Volvo cars face higher import tariffs due to being manufactured in China. Combined with reduced government incentives for EVs, company profitability will be affected.
- Installation of fast-charging stations is very capital-intensive, costing up to \$30,000 per station, slowing down the adoption of EVs particularly in areas with slower infra development but high consumer demand.

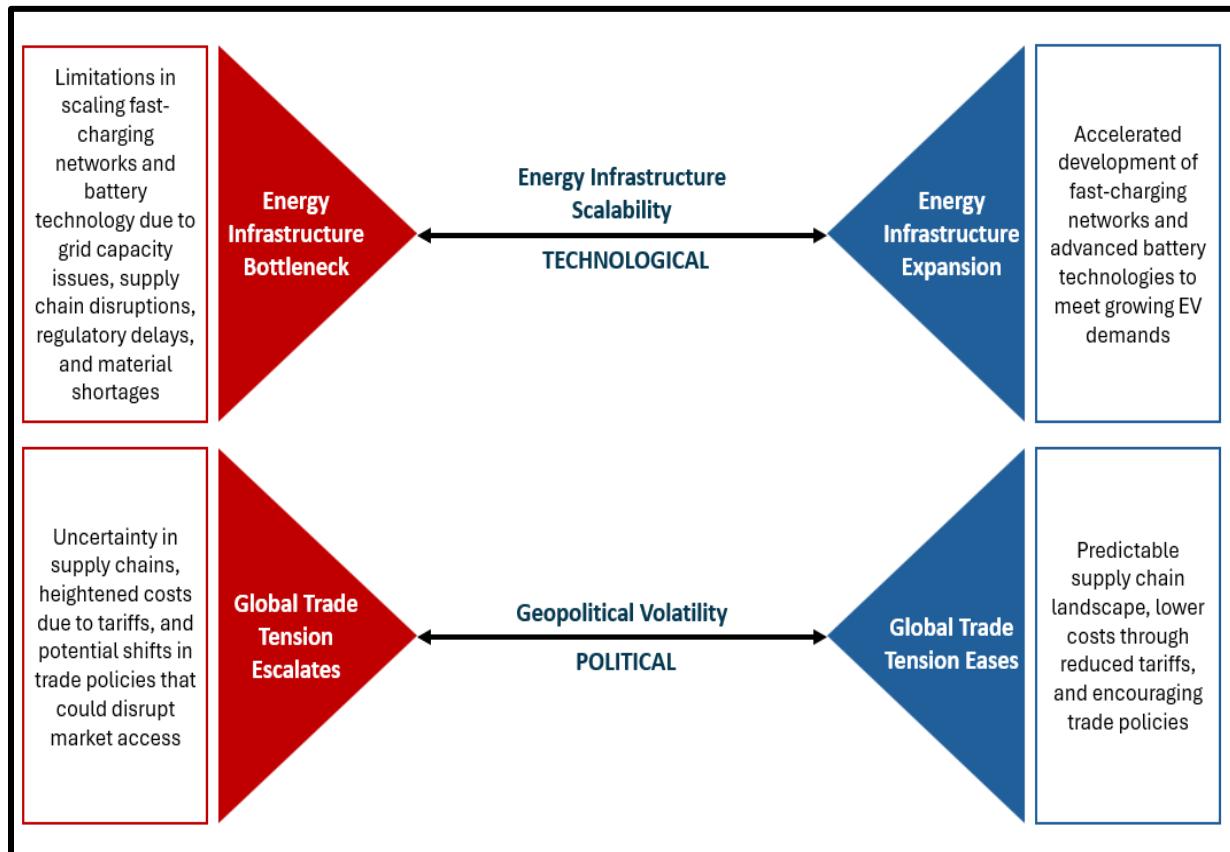
Environmental

- An intensified focus on sustainability, commitment to an all-electric future by 2030 and an aim to become carbon neutral by 2040, reflects a broader industry shift towards sustainable and renewable energy consumption.
- Shortages of critical raw materials like lithium and cobalt, leading to higher battery costs and impacted EV affordability, present a significant challenge to electrification goals.

Political

- **The ongoing trade conflict between the U.S. and China, with a 27.5% tariff on Chinese-made cars, poses significant risks to Volvo's cost structure supply chain.**

- The upcoming U.S. Presidential election and potential changes in political leadership in key markets add uncertainty to trade policies and EV incentives.
- Geely's ownership of Volvo creates potential conflicts of interest, as Volvo must navigate being present in China while maintaining the U.S. as its second-biggest market, potentially exposing the company to scrutiny and political challenges in both regions.



Volvo's greatest opportunities lie in revolutionizing the energy infrastructure, but fierce competition and volatile supply chain threaten to derail its ambitious growth plans

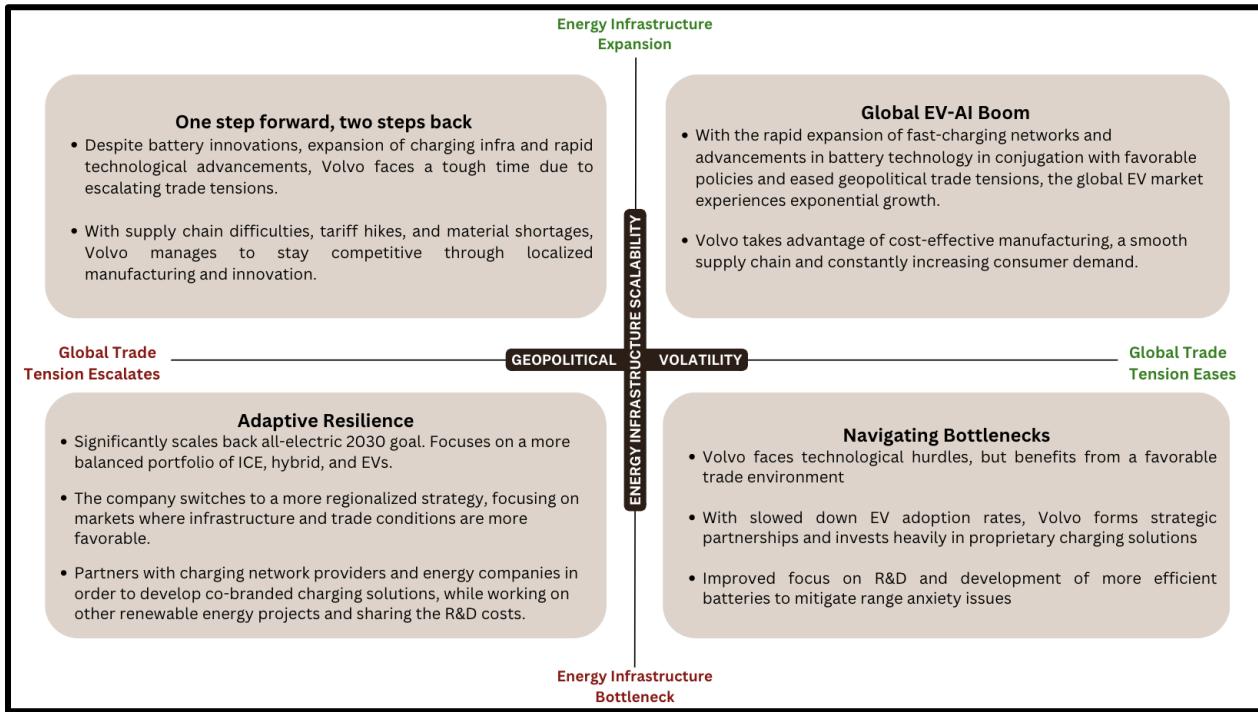


Fig 2 : Scenario Planning

Competitors are aggressively pursuing global expansion strategies, leveraging their cost advantages and technological capabilities to compete

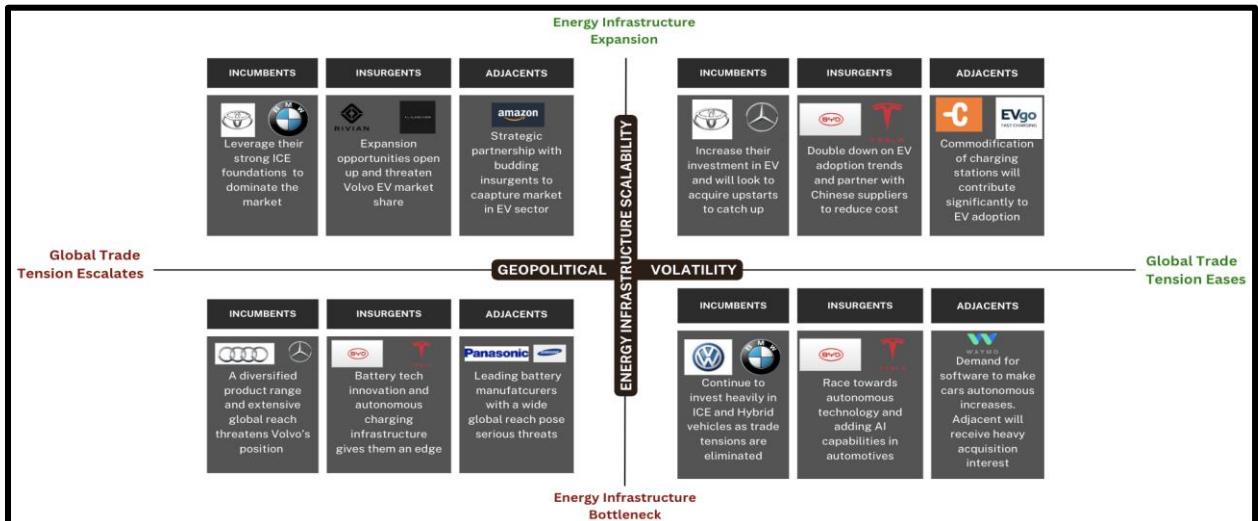


Fig 3 : Incumbent, Insurgent vs Adjacent

Biggest Opportunities

Volvo's strategic partnerships are its biggest strength. Continuing its existing joint venture with Northvolt for battery manufacturing helps mitigate supply chain disruptions and ensure a steady supply of raw materials but keeping a secondary supplier handy would help mitigate unforeseen risks and localized economic challenges. Its collaboration with NVIDIA for AI-driven autonomous technology also benefits the company significantly when technological advancements accelerate. Volvo's commitment to being a fully electric manufacturer by 2030 offers an opportunity for them to solidify their reputation in the sustainable mobility space. By moving their manufacturing plants to lower cost areas like China like Mexico or India, Volvo can still maintain its competitive position amidst US-China trade wars and profitability.

Greatest Threats

Escalation of geopolitical tensions pose significant threats for Volvo due to increased tariffs, especially due to Volvo's EX30 being manufactured in China. This, in combination with raw material shortages for Lithium and Cobalt, poses a high threat for battery production. It could lead to severe supply chain difficulties, impacting Volvo's ability to meet its electrification and carbon neutrality goals. Meanwhile, strong competition from challengers like Tesla and BYD in EV and autonomous markets will be a serious concern for the company, particularly as they continue to innovate while Volvo's progress lags in the technological sector.

Continuing to further their current existing strategic mindset of adapting to change through increased partnerships and cost reduction will reap benefits over time

We believe Volvo is in the Adaptive phase and should continue to stay in this phase to combat the insurgents. They have partnerships in place to focus on battery technology and plans to scale up to electric vehicles completely by 2030 keeping their "sustainability" goal in mind. Increasing their partnerships in additional areas doubles down on their business model and this can lead to constant transient advantage across all spectrums. Here are some recommendations to improve their adaptive strategy:

- **Ever changing technology opens multiple doors for strategic partnerships:** With ever evolving technology and Volvo's limited timeline to achieve its ambitious goal to switch to Electric Vehicles fully by 2030, it's imperative to partner with or acquire smaller autonomous driving companies such as Zoox, Aurora or Pony.ai. These will help Volvo stay on top of emerging technologies and make the best out of this situation.
- **Partnering with lower cost suppliers to keep manufacturing costs low and increase profit margin:** Volvo's business model being focused on partnerships is an advantage worth further pursuing as it can use its parent company Geely to find more lower cost and high quality suppliers in countries like China and India to reduce the cost of production of their EV's which can have a positive impact on its overall margin. Volvo's established brand in the automotive space can be leveraged to negotiate lower prices and longer-term contracts

- **Improving brand visibility and exposure to enhance Volvo's status as a household EV company** – Volvo's established brand image around safety and quality creates a competitive advantage and partnering with car rental companies will allow users to test drive the car at a more serious level. This will instill a sophisticated brand image and create a positive customer experience.
- **Improving affordability of vehicles through easier financing options by partnering with banks/fintech companies:** Despite being in the automotive business for long, there is room for Volvo to attract new customers, particularly young adults by introducing more affordable options in EVs. As the financial policies change over time, it becomes crucial to cater to the needs of the customer and by introducing easier financing options and rewards by partnerships with banks and fintech companies, Volvo can build on its existing model of enhancing customer experience.

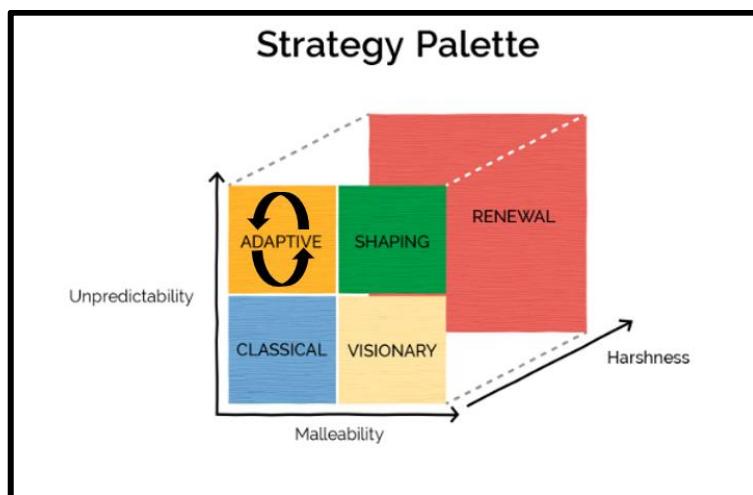


Fig 4 : Volvo stays in the Adaptive Zone

Reference : Image from Martin Reeves' Your Strategy Needs a Strategy

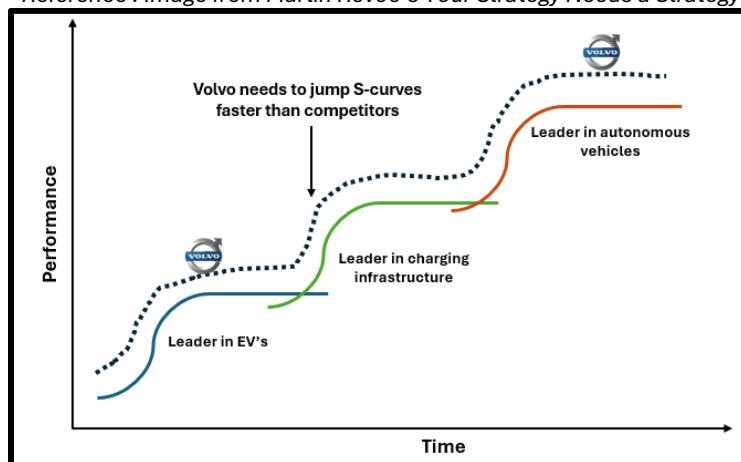


Fig 5 : The S- curves

Strategic Response

Focus on hybrid models, alternative manufacturing bases, and battery recycling should be Volvo's strategic roadmap for the immediate future

Horizon 1 – Immediate Response

Focus on existing Hybrid models to capture market trends

- **Exploration:** Reduced consumer purchasing power and high rates of interest have pushed consumers to shift to Hybrid models. The hybrid vehicle market is projected to increase from \$252.06 billion in 2020 to \$1166 billion in 2026.
- **Rationale:** Hybrid models can capture market value in areas that have a slow charging infrastructure or charging network limitations.

Alternative raw material sources and manufacturing bases

- **Exploration:** Shifting bases to have a hold on the supply of resources in Africa (rich Cobalt supply in Congo which holds approximately 48.1% of global cobalt reserves) could minimize risk of supply chain disruptions due to geopolitical tensions and sudden economic shifts. Exploring alternate locations like Mexico and India could keep manufacturing costs low
- **Rationale:** Immediate geopolitical risks such as U.S.-China trade tensions and tariff hikes pose significant challenges to Volvo's supply chain and profitability. With heavy reliance on Chinese manufacturing, alternative supply chain solutions need to be considered.

Invest in Battery Recycling

- **Exploration:** With the projected increase of 500% in global demand for lithium-ion batteries, external dependence on battery recycling companies such as Redwood Materials and Li-cycle, will help Volvo leverage existing recycling infrastructure, which will eventually reduce delays and production costs while practicing sustainable solutions.
- **Rationale:** Establishing partnerships with battery recycling companies or developing in-house recycling capabilities will reduce the dependency on raw material mining and allow for sustainable use of existing resources.

Volvo can get ahead of competition by investing in alternative battery materials, leveraging its leadership in mass-transit, and implementing vehicle-to-grid technology

Horizon 2 – Beat the Competition

Improve R&D and develop alternatives to traditional materials

- **Exploration:** Invest in research and development of solid-state batteries and Lithium-iron phosphate (LFP) batteries, reducing dependence on raw materials like lithium and cobalt.
- **Rationale:** Alternative materials can help mitigate the impact of raw material shortages and provide more sustainable long-term solutions for battery production. Focus on nanotechnology or other advanced materials research that could create more efficient batteries with less

reliance on scarce materials. Research initiatives could explore the use of graphene or other materials that may eventually replace or complement lithium and cobalt.

Balance the grid

- **Exploration:** Focus on the V2G (Vehicle To Grid) pilot program to create an energy ecosystem around Volvo cars and their batteries, reducing both costs, and CO2 emissions.
- **Rationale:** V2G (Vehicle To Grid) technology allows electric cars to act as mobile storage units, helping to balance the grid and providing extra power when demand is high. This can help to reduce grid investments and the overall impact on the environment.

Use existing incumbent advantages

- **Exploration:** Leverage the mass transit options that Volvo already is a leader in, such as trucks, buses and long-haul transport.
- **Rationale:** Volvo can also capitalize on its brand's heritage of producing high-quality, luxurious, and comfortable vehicles along with a focus on shifting its leadership in mass transit options to EV technology.

Volvo is strategically navigating geopolitical risks, leading automotive safety through innovation and scaling EV production through sustainable practices to develop and sustain long-term market leadership.

Horizon 3 – Uncover Opportunities

Policy Engagement

- **Exploration:** Engage with policymakers and lobby (in the US and EU) for favorable trade conditions and market access amid uncertain political conditions.
- **Rationale:** With upcoming U.S. elections and shifting political landscapes, lots of uncertainties lie ahead for favorable trade. Engaging with policymakers could lead to more government incentives for EV transport, long-term market access, and stable tariffs for peaceful trade.

Beat the competition through innovation

- **Exploration:** Develop autonomous solutions focused on passenger safety that can give Volvo a first mover advantage.
- **Rationale:** Safety is a key factor in consumer decision-making. By being the first to offer reliable and safe autonomous features, Volvo could establish the brand as a leader in innovation, safety and trust. It could also translate to long-term customer loyalty. Early adoption could also help the company shape industry standards and set higher barriers of entry for emerging competitors.

Global Reach and Infrastructure

- **Exploration:** Volvo's existing global manufacturing facilities and distribution network give it the capacity to scale EV production more rapidly than newer entrants.

- **Rationale:** This is particularly useful for quickly adapting to regional market demands and regulatory requirements. Volvo's existing dealer network provides a significant advantage in customer outreach, service, and after-sales support.

Appendix

	Drivers	Opportunities	Threats	Strategic Response
Horizon1: Improve performance of core business	With the increase in customer preference for EVs and HEVs, the ongoing demand for internal combustion engines and hybrid vehicles remains significant. Infrastructure limitations and consumer preferences	To maintain profitability and remain technologically dominant, Volvo could optimize the efficiency of ICE and EV production. This includes leveraging existing manufacturing capabilities and supply chains to improve fuel efficiency and standards.	Shortage in raw materials like lithium and cobalt could potentially lead to higher manufacturing costs and supply chain disruptions, ultimately affecting vehicle pricing and margins.	Focus on streamlining production processes for ICE and hybrid vehicles. Maintain a robust product lineup that meets the current consumer demands while also funding future EV developments.
Horizon2: Beat the competition to best marketing position	Advancements in autonomous technologies are reshaping the automotive landscape. Insurgents like Tesla and BYD are setting high standards in innovation and market penetration. Incumbents like Volvo need to enhance their competitive positioning.	Volvo can capitalize on its strong reputation for safety by integrating its already advanced safety features into EVs, giving them an edge in the market. Partnerships with companies like NVIDIA could not only lead to advancements in autonomous features but also potentially enhance their brand perception.	If Volvo is unable to keep up with the rapid technological advancements and required continuous innovation, it faces a risk of losing its market share to both - already established automakers transitioning to EVs and new entrants like Tesla.	Accelerate the rollout of EV models with a focus on integrating advanced safety features that align with Volvo's brand values. Strengthen marketing efforts to highlight sustainability commitments and technological innovations.
Horizon3: Uncover opportunities and place bets on selected options	The shift towards sustainable mobility solutions and autonomous driving presents long-term growth opportunities.	Investments in R&D for autonomous driving technologies and electric mobility solutions. To diversify revenue streams and capture emerging market	Volvo's ties with Geely, along with geopolitical tensions, such as U.S.-China trade disputes, could lead to tariffs that disrupt global supply	Deepen partnerships with technology leaders like NVIDIA to advance autonomous driving capabilities. Invest in infrastructure development, such as

	Advancements in AI and battery technology will be crucial in shaping mobility trends.	segments Volvo can potentially explore new business models such as mobility-as-a-service (MaaS).	chains and market access.	charging networks, to support EV adoption. Explore strategic alliances or acquisitions to expand into new mobility services.
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