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Opinion

The geopolitics of Tesla's China breakthrough

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As US Secretary of State Antony Blinken departed from Beijing, attention quickly shifted to another high-profile arrival: Elon Musk. The Tesla CEO's visit, marked by meetings with top Chinese officials, including Premier Li Qiang, was more than a mere executive tour; it symbolised a significant diplomatic engagement amid the evolving tech rivalry between the United States and China.

During Musk's visit, the Chinese government announced that Tesla had obtained crucial automotive data security certification – the only foreign EV brand to do so. This lifts restrictions on Tesla vehicles entering or parking in 'sensitive areas' across the country. This breakthrough not only marks a pivotal moment for Tesla but also highlights China's commitment to maintaining market accessibility for foreign companies, at a time when Chinese EV firms' access to other markets is increasingly in question.

Overcapacity?

This gesture of openness from China starkly contrasted with US Treasury Secretary Janet Yellen's recently expressed concerns about China's production overcapacity in key green technology sectors: electric vehicles, solar panels, and lithium batteries. During her recent trip to China, Yellen argued that government-subsidised overcapacity in these sectors distorts global markets and threatens American industry competitiveness and jobs.

From 2021 to 2023, the global market share held by the top 20 EV manufacturers remained largely unchanged, with a minor decrease from 74.9 percent to 74.1 percent, indicating that new entrants struggled to carve out significant niches. Nearly half of these top 20 EV makers are from China or owned by Chinese companies.

Despite intense competition, new entrants continue to enter China's EV market. Recently, Xiaomi, best known for its smartphones and smart home appliances, invested 10 billion yuan (about $1.57 billion) and engaged 3,400 engineers over three years to develop its EV business. In March 2024, Xiaomi launched its first EV model, the SU7, which is poised to rival Tesla's Model 3. Xiaomi has not yet outlined specific plans for the global expansion of its EVs. It received nearly 90,000 orders within 24 hours of its debut, indicating that its current production capacity may not meet the burgeoning demand.

Meanwhile, Chinese technology giants like Huawei, Tencent, and Baidu have joined the EV race with smart solutions, though they are not directly manufacturing vehicles.

In 2024, EV sales in China are projected to represent 45 percent of all new car sales, a notable increase from 35 percent in 2023. This shift could signify a tipping point for the acceleration of EV adoption in the world's largest automobile market.

Cost advantages

The US is worried that China's 'artificially cheap' EVs could flood the global market and threaten the viability of car manufacturers in other countries. The European Union's anti-subsidy investigation into Chinese EV exports also reflects growing concerns over unfair competition. The investigation alleges that subsidies provided by the Chinese government to its EV manufacturers and their supply chains contribute to China's low pricing.

However, the significant cost advantages of China-made EVs do not stem directly from government subsidies.

China's rise in the EV sector is the result of deliberate and pragmatic policies that align government intervention with market dynamics. In 2010, new energy vehicles were designated as one of China's seven strategic emerging industries, yet the dominant technology remained uncertain. It wasn't until 2014 that the industry reached a consensus on hybrid and battery EVs as the domain for new energy vehicles. Subsequently, the government launched a decade-long national subsidy program for EVs.

EVs are not a Chinese invention, yet China's industrial prowess has transformed these technological breakthroughs into cost-efficient products. In 2014, Musk made Tesla's patents, including 51 design patents and 935 invention patents, openly accessible. While all EV makers have had access to these patents, they appear to have catalysed significant advancements primarily in China.

The government's early involvement, particularly through policies and subsidies aimed at stimulating R&D, technological standardisation, and environmentally sustainable solutions, has greatly accelerated the production and adoption of EVs in China.

China's immense market size and extensive production capacity serve as foundational pillars for its competitive edge. Leveraging these assets, Tesla has emerged as one of the foremost global manufacturers of EVs. Concurrently, Tesla's presence has exerted a significant influence on China's EV sector. Beyond sharing its patents, the company has actively contributed to the development of local EV supply chains, facilitated by the spillover effects from its Gigafactory in Shanghai.

Indeed, China's cost advantages in EVs are showcased by its secondary innovation capabilities, which include rapid market responses and agile, flexible production facilitated by geographically proximate supply chains. Now, to continue benefiting from China's market, global car makers from Germany, Japan, and South Korea are adopting Chinese-made technologies to transition toward 'intelligentification' in their vehicles.

China's EV supply chains are concentrated in two key regions, each with distinct industry advantages. The Yangtze River Delta, encompassing Shanghai, Jiangsu, Zhejiang, and Anhui, is known for its robust traditional automotive supply chain. Conversely, the Pearl River Delta, centered around Shenzhen and Guangzhou, boasts a strong electronics supply chain and manufacturing prowess, supplying a vast array of electronic components and batteries for EVs. The geographic proximity of suppliers within these regions reduces transaction costs in these supply chains.

Xiaomi's significant investment in the EV sector not only aligns with but actively supports the Beijing government's strategic vision to position the city as a key hub for EV supply chains.

Intelligent features

Before concluding his 24-hour visit to Beijing, Musk signed an agreement with Baidu, the search engine giant now focusing on AI and self-driving technologies. Musk has also agreed to introduce Tesla's Full Self-Driving (FSD) software to Chinese users and negotiate the transfer of data collected in China to enhance its autonomous driving algorithms.

Tesla maintains global leadership in intelligent driving and energy consumption due to its superior computational power and advanced AI technology. Unlike Huawei's Advanced Driver-Assistance Systems (ADS), which utilises lidar, radar, and cameras to detect road conditions for autonomous driving, Tesla's FSD system combines cameras, radar, and ultrasonic sensors with AI and computing systems. This solution uses

deep learning algorithms to process sensor data, recognise objects, and make real-time navigation decisions. Tesla's partnership with Baidu enhances its mapping and navigation capabilities, fulfilling government requirements for advanced driver assistance features.

Granting Tesla a license to offer its FSD software to Chinese drivers would benefit consumers, but it could also place competitive pressure on local firms like Baidu, Xiaomi, and Huawei. Tesla might once again serve as a catalyst, potentially speeding up the advancement of AI technology in China's EV industry.

Geopolitical challenges

Leading the charge in the 'intelligentification' of EVs, Chinese EV makers face three significant geopolitical challenges.

At the forefront of innovation in the EV sector are intelligent features like autonomous driving, smart cockpit functions, and pervasive connectivity, all of which necessitate advanced AI chips. These chips are predominantly supplied by companies such as the US firm NVIDIA. However, this dependence exposes Chinese EV manufacturers to vulnerabilities, particularly in light of US export bans on advanced chips and restrictions on access to US cloud computing power for training AI models.

Chinese EV manufacturers are actively pursuing global expansion, driven by the pursuit of profits. For instance, BYD has notably increased its presence in five leading export markets – Germany, Brazil, Israel, Australia, and Thailand – where its EV export prices are markedly higher than in China, ranging from 81 percent to 174 percent higher.

However, providing adequate support for products sold overseas presents challenges. Without local maintenance and component replacement services, ensuring customer satisfaction becomes difficult. Establishing maintenance centers, factories, and supply chains in target markets is essential, yet this endeavor is hindered by scrutiny of or even restrictions on Chinese investment in some countries.

Concerns about national security risks linked to Chinese 'connected' car technology, particularly its vehicle-to-everything (V2X) communication, have emerged. Exporting these EVs faces hurdles amidst rising geopolitical tensions, where issues like data sovereignty and security standardisation remain unresolved.

In that context, China's willingness to expand market access to Tesla, including its tentative approval of the US firm's FSD, signals a notable stride toward enhanced international cooperation. Tesla's diplomatic drive in China reflects a complex interplay of innovation, market forces, and international politics. Just as it previously spurred China's EV supply chains, the introduction of its FSD system may stimulate autonomous driving technology development in China.

Achieving reliability in autonomous driving necessitates global collaboration and data sharing. Looking ahead, establishing global standards in data security and AI governance will be imperative.

Perhaps it's time to recognise that the challenge facing developed countries in the EV market isn't 'overcapacity' in China, but rather their own industries' delayed response to the EV transition. This delay has led to inefficiencies in development and a lack of competitiveness.

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