



TESLA MOTORS: THE EV CHALLENGE

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Dirección de Empresa, in
collaboration with
Cecilia Pulido to serve as
the basis of discussion
and not to illustrate
adequate or inadequate
management in a given
situation.

"We won't stop until every vehicle on the street is electric."
Elon Musk, CEO of Tesla Motors

"Tesla is showing all the signs of a company in trouble: bleeding cash, securitized assets, and mounting inventory. It's the trifecta of doom for any automaker, and anyone paying attention probably saw this coming a mile away."
Bob Lutz, former Executive VP of Ford Motor Company¹

On September 29, 2015 a beaming Elon Musk, CEO of Tesla Motors, presented to the public (in classic Silicon Valley style) his company's new model X, an SUV crossover with a 90 kWhⁱ battery and a range of roughly 470 kilometers.

The launch of the model X was the third in the young company's history, and over the course of its 12 years in operation the firm had evolved from an object of ridicule among industry experts into a respected business with a cult following. The company's first vehicle, the Tesla Roadster (a 100% electric sports car), was a breath of fresh air. Tesla's next product, the model S, broke with many industry paradigms and has become one of the highest rated cars in a number of renowned auto publications.

ⁱ kWh, or kilowatt-hour, measures the quantity of energy a battery can store.

In spite of those achievements (and an IPO that made Tesla the first US car manufacturer to go public since Ford Motors in 1956) there remained serious doubts as to whether this small producer from California could replicate or surpass work done by larger American, German, or Japanese auto companies. With its unique business model and value proposition, Tesla was meant to change the world by producing electric vehicles that could rival the performance of their internal combustion counterparts. However, this project would clearly mean higher costs, and these were laid bare in the consistent losses the company reported to investors (see financial statements in Exhibits 1 and 2).

The Origin of Tesla Motors

Tesla Motors was founded on July 1, 2003 by Martin Eberhard and Marc Tarppening in Menlo Park, California, in the heart of the US's Silicon Valley. Eberhard and Tarppening were a team of engineers that had enjoyed great success in founding and later selling NuvoMedia, a company that designed one of the first eBooks on the market. The company was sold to Gemstar International Group,ⁱⁱ after which both engineers became part of the Silicon Valley elite.

Not only did their time at NuvoMedia leave Eberhard and Tarppening with considerable cash flow, but their experience as one of the first producers of eBooks brought them intimately close with lithium ion (Li-Ion) battery technology. Immediately after selling NuvoMedia, they sought a project to which they could apply their valuable knowledge of batteries. Eberhard's passion for sports cars led to the foundation of Tesla Motors, named in honor of Nikola Tesla, inventor of the alternating current motor.

Eberhard and Tarppening knew that getting into the automobile industry would be difficult, but they were determined to pursue their interest in developing a totally electric vehicle. Like good Silicon Valley entrepreneurs, instead of starting from scratch they sought out partners with whom to start their venture. And so began their interest in the technology AC Propulsionⁱⁱⁱ had used to make their tzero model.

At the same time, a young entrepreneur named Elon Musk was looking for a new project after his success in developing PayPal. Musk had met another young engineer named J.B. Straubel, who was working on a concept vehicle powered by lithium ion batteries, and discussed with him the work that AC Propulsion was doing. Deeply impressed with the tzero, Elon Musk approached the company over the course of several months and offered, to no avail, to finance a project that would make the tzero a commercial car.

In July of 2003, Tom Gage (an executive at AC Propulsion) introduced the team of Eberhard and Tarppening to the team of Musk and Straubel with the intention of having them join forces. Finally, in May of 2004, after an agreement to put AC Propulsion drive train technology under license, Musk decided to become the principal investor in Tesla Motors with an investment of \$6.5 million USD.

Elon Musk: Serial Entrepreneur

Born in Pretoria, South Africa on June 28, 1971, Elon Musk was no ordinary young man. Son of a Swiss engineer and pilot and a German model and nutritionist, from a young age Musk showed great curiosity about the world around him, and as a child would often take apart and reassemble the various

ⁱⁱ Gemstar was the owner of technologies associated with electronic programming guides for TV. Gemstar acquired NuvoMedia in March of 2000 for \$187 million USD.

ⁱⁱⁱ AC Propulsion was a company founded in 1992 by Alan Cocconi and Wally Rippel, whose purpose was to develop technology systems for electric vehicles. In 1997, they introduced the tzero; a high-performance, hand-made electric vehicle powered by lead acid batteries capable of accelerating from 0 to 60 mph in 3.6 seconds.

devices in his father's workshop. His inclination towards technology led him, at the age of 16, to program a video game and publish the source code in a specialized magazine.

In June of 1988, Musk decided to immigrate to Canada, where he studied for two years at Queens University in Kingston, Ontario. In 1992, he got a scholarship to study at the University of Pennsylvania, where he earned a degree in Economics, and another in Physics two years later.²

In 1994, he moved to California and enrolled at Stanford University to earn a Ph.D. in Applied Physics and Material Sciences. After his first class, Musk decided to abandon his studies and pursue his first start-up. Zip2 was designed to maintain websites of communication companies³ and provide directions to local businesses. Elon showed great talent for attracting investors, which allowed him to quickly grow the fledgling company. Compaq Computers bought Zip2 in 1999 for \$307 million USD.⁴

After the sale of Zip2, Musk focused on developing a project that he had been thinking about for a number of months. In March of 1999, he officially founded X.com, a financial services firm that managed payments via email. In March of 2000, X.com joined forces with its main competitor, Confinity (a company that managed payments via web and email through a service called PayPal) that after February of 2001 would be the new firm's name. Musk was the principal investor in PayPal, and in February of 2002 that company's IPO generated \$1.2 billion USD.⁵

After various attempts, eBay bought PayPal in October of 2002 for \$1.5 billion USD, of which Elon Musk would receive \$180 million. A few months before the sale, in June of 2002, Musk founded a third company: Space Exploration Technologies (better known as SpaceX) as a way of satisfying the great fascination with space travel he had maintained since his childhood.

The initial idea was to purchase available Russian spacecrafts, but negotiations floundered. After reading a number of books and doing research about the space industry, Musk was convinced that he could build his own re-usable spacecraft that would make space travel less costly. Guided by this vision, SpaceX built its first two transport rockets, the Falcon 1 and Falcon 2, and a spaceship called Dragon.

In 2008, SpaceX became the first private company to put a liquid propulsion rocket into orbit. That same year, NASA awarded the company a \$1.6 billion USD contract for the Falcon 9 to make 12 missions to the International Space Station. In 2012, SpaceX made history again when it sent the Dragon to the International Space Station.⁶

On December 21, 2015, SpaceX successfully launched the Falcon 9 and was able to recover the propulsion unit 11 minutes after launch; this was the greatest advance in space technology in more than 30 years.⁷

The Tesla Roadster

On July 19, 2006 in Santa Monica, California, Tesla presented its first 100% electric car to the public: the Roadster, a two-seat sports car able to accelerate from 0 to 100 km/h in four seconds, equipped with a 53 kWh battery with a 400 km/charge range. The Roadster's motor boasted 248 bhp and 200 lb-ft of torque.

The Roadster's story began in 2004, not long after the company's founding. The original team –formed by Elon Musk as president of the Board of Directors, Martin Eberhard as CEO, Marc Tarpening as CFO, JB Straubel as Technology Director, and Ian Wright as Vice-President of Vehicle Development–