

INSANE MODE

How Elon Musk's Tesla Sparked an Electric Revolution to End the Age of Oil

HAMISH McKENZIE

HAMISH McKENZIE is a technical writer. He previously worked as a journalist and lead writer for Tesla communications, as a reporter for tech blog PandoDaily and as editorial advisor for Kik Interactive, Inc.. He has written numerous articles which have been published in *The Guardian*, *Toronto Star*, *Time Out City Guides* and *TV Guide*. He is also the co-founder of Substack, a newsletter publishing platform. Hamish McKenzie is a graduate of the University of Otago and the University of Western Ontario.

The author's website is at: www.hamishmckenzie.com.

ISBN 978-1-77544-960-7

1.

Early days

"One of Elon's greatest skills is the ability to pass off his vision as a mandate from heaven. He is very much the person who, when someone says it's impossible, shrugs and says, 'I think I can do it.'"

– Max Levchin, co-founder of PayPal, 2007

Elon Musk was born in South Africa and lived there for the first seventeen years of his life. His father was a South African born electrical and mechanical engineer while Elon's mother was born in Canada before her family moved to South Africa. Elon's parents divorced when he was eight-years-old and three years later Elon decided to live with his father rather than with his mother like the rest of his siblings.

Teaching himself how to code computers, at age twelve Elon Musk sold a video game to a computer magazine for \$500. Thanks to his mother's Canadian citizenship, Elon applied for a Canadian passport at age sixteen and he and his brother Kimball moved to Canada the next year and stayed with various relatives. In 1989, Elon Musk enrolled at Queen's University in Ontario before transferring to the Wharton business school at the University of Pennsylvania. While at Wharton, Musk became fascinated with clean technology and wrote a 44-page research paper titled: "The Importance of Being Solar".

Elon Musk left Wharton in 1995 and intended to go to Stanford to study ultracapacitors but got to Palo Alto, California and decided to start his own Internet company instead. He founded Zip2 to build an online mapping product and after several funding rounds Musk earned \$22 million when Zip2 was sold to Compaq in February 2009. Musk used \$12 million of that money to co-found X.com which later merged with Confinity to form PayPal. Elon Musk was appointed CEO of PayPal but while he was on his honeymoon, his cofounders staged a coup and removed Elon from the CEO position. He did however retain an 11.7 percent stake in PayPal which generated a payout of about \$180 million when eBay purchased PayPal for \$1.5 billion in 2002. Musk took that money and used it to capitalize SpaceX to manufacture space rockets and to invest in a start-up company called Tesla Motors which aspired to make and sell electric cars.

"Even when he wasn't CEO of Tesla, Musk was a hands-on founder. He was instrumental in attracting other investors, influenced product design, and watched with dismay as the company struggled with cost overruns and quality issues in its early years. In August 2007, as chairman of Tesla's board of directors, it was Musk who delivered the news to founding CEO Martin Eberhard that he was being demoted. By December, Eberhard had left the company completely. Musk would ultimately take over the leadership duties himself, but not before looking for someone else to do it. By the end of 2007, Musk had interviewed at least twenty candidates for the role. He wanted a CEO to build Tesla into the next great automaker, but it was hard to find someone who understood start-ups and knew how to build hundreds of thousands of cars."

– Hamish McKenzie

After trying out a couple of interim CEOs, in October 2008 Elon Musk was appointed as Tesla's CEO, Chairman of the Board and Product Architect. That allowed Tesla to benefit from Musk's growing public persona as a next-generation futurist and clean energy guru. That would prove to be beneficial as Tesla struggled to start to gain traction in the automotive industry which is well known for its massive and impenetrable entry barriers. To start a car company, you have to fund the eye-watering costs of building manufacturing plants, finding quality suppliers who will work with you and establish distribution networks. To achieve all that is an incredibly difficult task.

"It is no secret that Musk is an unconventional leader. He has been described by current and former employees as simultaneously daring, delightful, and difficult. 'Elon always wants to know, 'Why are we not going faster?' one of his employees told writer Tim Urban. 'He always wants bigger, better, faster.' Even JB Straubel, Musk's cofounder and Tesla's chief technology officer, has called the boss 'an interesting mix of extremely challenging and incredibly difficult.' But perhaps Musk's most important trait as a CEO has been his ability to overcome tough times. 'If you're going through hell,' he has said, citing one of his favorite quotations, 'keep going.'"

– Hamish McKenzie

Thomas Edison had proposed electric cars just as the automotive era was getting started back in the early 1900s. Edison had built an early prototype electric car and even teamed up with Henry Ford in 1914 to manufacture electric batteries for cars but Edison was unable to achieve the range he wanted using the nickel-iron batteries of that era. When the electric starter motor for internal combustion engines was patented by Charles Kettering, Ford recognized the lack of an electrical infrastructure would be a significant problem. When cheap oil became available from the Texas oil fields, Henry Ford and all the other vehicle manufacturers turned their full attention to mass producing cars with internal combustion engines.

There was a brief flurry of attention on electric cars in the 1990s when California established a rule that automakers had to offer zero-emission vehicles. General Motors produced an all electric car called the Impact and started leasing the cars under the brand name EV1. Ultimately, 1,117 EV1s were made and leased to customers. They were popular but in 1999 GM stopped manufacturing the EV1 and three years later the lease program was discontinued due to "lack of demand" and "high production costs" according to General Motors. California would later relax its legislative requirement that vehicle manufacturers must offer electric cars under pressure from the Bush administration and oil companies.

Against this backdrop, Tesla in general and Musk in particular was under no illusions about the challenges Tesla faced in starting a new car company to make a different kind of vehicle. Elon Musk is often compared to Steve Jobs in that he is what can be termed a "wartime CEO". In times of peace and prosperity, CEOs can be pleasant and follow all the usual norms to gain good press for the company. By contrast, a wartime CEO is paranoid about making sure the company survives no matter what. Elon Musk has taken Tesla through several near-death experiences and doesn't have any inclination to be polite while doing so. And that has made all the difference to Tesla.

"Wartime CEO cares about a speck of dust on a gnat's ass if it interferes with the prime directive."

– Ben Horowitz, Silicon Valley investor and partner in Andreessen Horowitz