

Tesla: Accelerating to Market

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James was senior marketing manager at Tesla, Inc. and was asked to present to the board of directors a reassessment of their marketing strategy. Tesla's marketing communications strategy largely relied upon influencers driven by their social media savvy CEO, Elon Musk. However, the position of the brand as a leader in electric vehicles was being challenged both internally and externally. Internally, the move to launch a mass-market electric vehicle, with a range sufficient to serve as a primary vehicle, was not going smoothly. Externally, nearly every major car manufacturer had introduced an electric model or had announced that it was in the very near future.

James' responsibilities had largely focused on the strategy formulation and execution of opening showrooms and service centers. Additionally, James had enjoyed his tenure at Tesla and felt as though he was a part of Elon Musk's vision of transforming the transportation and energy industries to a renewable and sustainable future. James felt that he was part of a movement.

Following several high-level marketing departures, James was summoned to offer a new perspective on the way forward and an opportunity to shine. While Elon Musk's personal brand had driven what many media outlets referred to as a 'cult-like following,' the rollout of the Model 3 and the announcement of the upcoming semi truck seemed to necessitate a pivot in their marketing strategy.

The Tesla Brand Shapes the Consumer

Brands are frequently used as a bridge from the fulfilled promises of the past and present to the future. However, Tesla's approach to their brand differs by using their associations to Silicon Valley, high tech design, and innovation to shape consumer perceptions. Tesla products recruit people to support a movement larger than just the product. The products are not simply high-performance electric transportation, but embody values and a lifestyle that technology is capable of solving the most intractable problems of humankind. According to Musk, "brand is just a perception, and perception will match reality over time."¹ Musk's optimism inspires consumers to focus on the seemingly immediate future. A promise of an electrified, high performance, transportation and laden with high-tech gadgetry, available now. Furthermore, the next product, whatever that may be, is announced well in advance of market delivery and drives consumers to begin envisioning owning it. The steady stream of "new" product announcements supports a view that innovation is synonymous with Elon Musk and delivered through his the various firms he is involved with (Tesla, SpaceX, The Boring Company, Solar City, Neuralink, and others). However, innovation and the latest tech gadgetry didn't come cheap, and Tesla's current product line, the Model S and Model X, was aimed at affluent consumers.

Elon Musk

Elon Musk held degrees in both economics and physics from the University of Pennsylvania.² Musk then enrolled at Stanford to study for a PhD in energy physics, but dropped out on the second day to launch ZIP2 Corporation, a company that provided online city guides. ZIP2 Corporation was sold to Compaq, in 1999, for well over \$300 million. Thereafter, he launched X.com, which would go on to become PayPal. Ebay would acquire PayPal, in 2002, for 1.5 billion.³

Following the acquisition of PayPal, Musk turned his focus to the ventures that would catapult him to worldwide fame. Musk launched both SpaceX, in 2002, and joined Tesla, in 2003. Solar City was

founded by Musk's cousins, but was acquired by Tesla in 2006. As Musk's notoriety grew, so did his efforts to make his investments become successful.

Elon Musk's 2013 TEDx talk illuminates his vision for Tesla and the need to transition to renewable energy.⁴ The talk is inspirational in that it highlights the electric powertrain vehicles of Tesla, the solar and battery storage industry, and the many other goals that Elon has set out to achieve, but has little to do with the success of the car manufacturer itself. He's creating schools, rockets, and underground transportation tunnels, in addition to merging his firm with Solar City, one of the largest solar energy firms in the world.

Musk's steady stream of product announcements and embracing large scale pioneering projects has resulted in a base of admirers and an outsized share of voice from the press. Casual observers might be compelled to think that Musk and Tesla commands a large market share and sizable profits based upon the amount of news coverage. Illustrative of Musk's cult-like status is a t-shirt sold by RedBubble.com that professes, "In Musk We Trust" with Elon's picture superimposed over the planet Mars (See Figure 2). The t-shirt company offers 52 versions of similar, hero praising, Elon Musk clothing. Several other sites exist that sell 'Elon Musk' products, with many employing various forms of religious idolatry and employing phrases as though he could, "save us."

All of the praise surrounding Elon has enabled Tesla, as well as other companies affiliated with Musk, to benefit from a 'halo effect.' When Tesla announces something new, this also boosts Elon's personal brand. Similarly, when SpaceX has a successful launch, Elon, and Tesla by association, benefit from the positive press coverage.

Tesla, Inc. and the NUMMI Plant

Martin Eberhard and Marc Tarpenning founded Tesla, Inc. in 2003 in Palo Alto, California.⁵ Located in the heart of Silicon Valley, the firm benefits from association with high-tech and innovative firms of Northern California. Tesla's primary factory is located in Fremont, California, purchased during the depths of the Great Recession for just \$42 million, when the facility was valued at \$1.3 billion.⁶ The Fremont Assembly plant, breaking ground in 1961 and producing autos in 1962, was owned and operated by General Motors (GM) to manufacture small cars and pickup trucks. However, the factory was known for turning out defective vehicles, so GM shut the plant in 1982. GM was eager to practice lean manufacturing techniques and Toyota, who needed to circumvent import quotas, reopened the Fremont plant as a joint venture under the New United Motor Manufacturing, Inc. (NUMMI) in 1985.⁷ Under the joint venture, the NUMMI plant production peaked at approximately 430,000 units in 2006.⁸ The joint venture was disbanded in 2010, when Toyota was able to shift production to facilities with lower labor costs while GM faced bankruptcy. GM sold the facility that cost more than \$1 billion to construct for a mere \$42 million to Tesla, while Toyota took a \$50 million dollar stake in common stock.⁹

The new Tesla production facility is the site of assembly for the Model S sedan and the Model X sport utility vehicle. While the NUMMI plant was projected to have a capacity for 500,000 units of annual production, Musk reported in 2017, that the facility was, "bursting at the seams."¹⁰ As Tesla looks to expand their product line to include the upcoming Model 3, Mike Ramsey, an analyst with Gartner Inc. noted:¹¹

While Tesla has taken a Silicon Valley approach to everything from product development timelines to sales, the decision to invest in more real estate brings it closer to its Detroit rivals.

“If they’re going to be a real automaker like the rest of them, they’re going to have to spend billions of dollars on new plants,” Ramsey said. “They’re becoming less of a tech company and more of a manufacturer.”

To build a factory from the ground up, Tesla will have to invest more than \$1 billion, in addition to developing a new vehicle in the next two years. But as long as there is demand for Tesla vehicles, Ramsey said, Musk will be able to raise that cash from capital markets.

“There seems to be no appetite for cutting off their capital,” Ramsey said. “As long as it’s related to growth, they’re not going to have any problem selling it.”

Musk’s vision for Tesla in 2015 was to build a car company capable of producing one million units annually by 2020.¹² However, the vision represented a doubling of his earlier production projections for 2020 and accelerating his previous production goal of 500,000 to 2018.¹³ Tesla’s production would have to increase at more than 50% per year to achieve these numbers (see Table 5). While Tesla fans were excited by Elon’s promises to bring scaled production and lower priced offerings, analysts and investors were beginning to become wary of such ambitious forecasts. Most notably, while Tesla was projecting aggressive growth, short-term production was falling short. In 2016, Tesla forecast production numbers of 80,000, but fell short, delivering just over 76,230.¹⁴

Reconciling the Model 3 with Production Hell

Elon Musk had unveiled the Model 3 sedan in July 2016, and began taking \$1,000 reservations in 2017. The Model 3 was a lower priced sedan with margins that would require a significant ramp up in production in order to be profitable.

High performance electric sedans priced for the affluent was a niche market, but the Model 3 was aimed at the mass market. An affordable electric vehicle, the Nissan Leaf, had been on the market for several years, but held a battery range of only 100 miles, so it was viewed as a second vehicle by many or simply impractical for areas without wide access to charging stations. The Model 3 was Tesla’s move into the mainstream with a price starting at \$35,000 and a battery range of 220 miles.¹⁵ If the price and range was attractive, then mass-market consumers might set aside notions of “range anxiety” and embrace electrified transportation as their main vehicle. Following Tesla’s announcement of the Model 3, over 455,000 pre-production reservations were collected.¹⁶ Being the first automaker to market by announcing a mainstream electric vehicle allowed the firm to capture significant earned media coverage, in addition to early revenues. Following several delays, the first Model 3 vehicles were delivered to Tesla employees in August 2017. However, the first deliveries to regular customers didn’t begin until December 2017.¹⁷

Musk’s social media engagement and steady pace of new product announcements, whether for Tesla or any of Musk’s other companies, enabled Tesla to largely forgo traditional marketing. In fact, Tesla did not engage any paid media to promote the brand or the products. Meanwhile, Musk promised another model, not yet available for reservation or named, but widely referred to as the Model Y for production

in 2019.¹⁸ Furthermore, the firm unveiled the Tesla Semi and Roadster 2, both to be available in 2020, and currently accepting reservations.

However, recent production and quality issues presented a challenge and vulnerability to the brand. While consumers may be willing to overlook production and quality issues for newer firms and products that seem to deliver the future today, Tesla was beginning to face some very real present day issues.

The attractiveness of a Tesla auto was rooted in design and performance, and to these aspects the firm excelled. However, quality of the product was seriously lagging behind its competitors. While the Tesla Model S enjoyed significant fanfare upon its launch in 2013, with *Consumer Reports* ranking the car as the highest scoring vehicle they had ever reviewed, the endorsement was subsequently removed when persistent quality issues arose.¹⁹ Consumers may initially regard a well-designed, high-tech car as synonymous with quality, but the reality is that the build construction and reliability ranks below rival firms. Tesla's 50,000-mile warranty covers many of the issues that arise, but it raises the question of what impacts out-of-pocket repairs will have on the brand when the warranty expires. Quality and reliability issues are persistently plaguing the Model X sport utility vehicle, receiving the distinction of 'least reliable' vehicle for 2017.²⁰ Furthermore, the quality issues facing Tesla are not just limited to 'after the sale' problems, but are the source of considerable headaches that complicate their efforts to scale production. Nine workers, both current and former, noted in November 2017, that, "Quality checks have routinely revealed defects in more than 90 percent of Model S and Model X vehicles inspected after assembly."²¹ Additionally, flawed component parts have further hindered production and drain profitability as, "one current Tesla engineer estimated that 40 percent of the parts made or received at its Fremont factory require rework."²² Lean manufacturing specialist Matt Girvan, founder of MAG Consulting, noted:

Even during what is considered 'launch' mode, if a company is selling its cars to customers, it should not be experiencing large amounts of rework. This speaks to an internal quality issue that is on a magnitude that is not normal for most car manufacturers.²³

As it stood, just 9,766 Model 3 sedans had been assembled by the end of March 2018.²⁴ The first deliveries of the Model 3 began in August 2017, and Tesla projected production numbers of 5,000 units per week by December. However, supply bottlenecks, quality defects, and difficulties in automation held the current pace of production to approximately 800 units per week. Munro & Associates, a firm that disassembles new vehicles for analysis, notes that, "Mechanically, I don't have much good to say," and, "if it would have come out even decent, they'd have mopped the floor with everybody," however the assessment was that the build quality of a Tesla was subpar.²⁵

Market Strategy: The Road Ahead

James left the office to clear his head and develop an objective perspective to guide his plan. Tesla had benefitted from being perceived as a 'first mover' and innovator, but James also noted that Tesla had yet to make any money. Silicon Valley startups frequently lost money while the business scaled operations, but a firm that was now in its fifteenth year of operations was hardly a startup. Additionally, James noted that financial markets had seemed to sour on Tesla, and the stock price was down approximately 20% since peaking in the summer of 2017. Furthermore, James sensed that the cash position of Tesla was starting to cause concern. As a result, James realized his plan needed focus and may require some painful tradeoffs.

How important was being first? James kept circling back to this question and while he had studied the descriptive factors that lead to achieving a first mover advantage, he noted that what he really needed was a predictive tool to help him.

First-Mover Advantage

In 1988, strategic management researchers, Lieberman and Montgomery, wrote that a first-mover advantage arises from leveraging three sources:²⁶

1. Technological leadership
2. Securing necessary resources
3. Increase switching costs

The leadership in technology delivers an advantage if rivals need to traverse a learning curve before they can offer up their own alternative offering. The time and resources that laggards expend to copy the technology gives the leader time to capture market share and scale to deter rivals.

While technological leadership is rooted in the development of what others lack, securing resources is rooted in exploiting supply chain needs. If certain inputs are limited, then an advantage can be had by securing supply partnerships that make it difficult for competitors to imitate, even if they have the technology to do so.

Lastly, switching costs make it more difficult for consumers to abandon the first mover for a competitor offering. Software that only works with certain hardware increases the switching cost for a consumer that wishes to switch by increasing the total cost.

The first-mover advantage account offered by Lieberman and Montgomery was used to describe how some firms found success, but it didn't account for competitors that quickly entered the market second. If competitors were nimble, then the first-mover advantage might never materialize sufficiently to payback the investment in launching a new product.

In 2005, Suarez and Lanzolla offered up a different approach to the first-mover advantage by noting the intersection of market growth and technology evolution held predictive power as to whether a short-term or long-term competitive advantage could be had by entering the market first (see Figure 1).²⁷



Figure 1: Source - The Combined Effect of Market and Technological Change (Suarez & Lanzolla, 2005)

This market and technology intersection describes the four options for market and tech evolution, and gives one example of an industry for each of the quadrants, described below.

Calm Waters: A gradual pace of technology change and slow market growth allows little room for the new entrant followers to differentiate. Innovation is frequently not different enough to allow a foothold for the new entrant, the second movers, thus the incumbent has the advantage. First movers have a steady enough position that they can adapt to changes, thereby insulating the firm from competitive threat. Calm waters are the ideal conditions for start-up firms, due to the fact that they ought to be able to scale up production to satisfy demand. For example, ‘calm waters’ is descriptive of 3M’s Scotch Tape, the pace of tech change was slow enough that rivals couldn’t outmaneuver or find a differentiated niche.

Market Leads, Tech Slow: When the market develops rapidly, firms with significant resources have the advantage to meet blossoming demand. Small firms are apt to lose their early advantage. For example, Singer sewing machines were second to market, but used their manufacturing scale to overwhelm the market first mover.

Tech Leads, Market Slow: Here, nobody is apt to gain a short-term advantage. Firms enter and exit. Wall Street will become skeptical as well, and is likely to pressure the firm to eliminate underperforming projects. Only very well capitalized firms, with robust R&D, should enter this market first, but they must be committed to weathering the storm of lackluster market performance for a long-term durable advantage to payoff. The rapid pace of technology development in digital cameras was offset by slow market growth.

Rough Waters: Very difficult to obtain any advantage, short or long-term in nature. Product obsolescence occurs rapidly and usually new entrants steal the momentum. The personal computing market of the 1980s illustrates the intense competition that resulted from a rapidly growing market and rapid technology evolution.

Tesla held an advantage in their batteries and electronic components, but much of the rest of their vehicles were of inferior build quality.²⁸ While Tesla was first to announce the Model 3, GM beat them to delivering a similar vehicle to the market. GM's Chevrolet Bolt was priced comparably and delivered 10% greater battery range than the Model 3.²⁹ Additionally, a GM auto could be serviced nearly anywhere in the country, while Tesla lacked the market penetration to sell or service many markets. Tesla had no presence in six states, and was very limited in others. For example, Tesla offered just two service centers for the entire state of Florida, and most independent shops couldn't service their vehicles. Additionally, James noted that while media coverage focused on the promises Musk made in announcing products, Tesla was only delivering Model 3's configured to cost as much as \$78,000.³⁰ Model 3's priced at \$35,000 were not currently being built and all mention of this price point was removed from the company web site in July 2018.³¹ When pressed, Tesla had extended the promised production date of the \$35,000 sedan to, perhaps, early 2019. However, AutoNation CEO, Mike Jackson, accused Tesla of running a "bait and switch" pricing scheme.³² Therefore, James wondered if Tesla would be able to compete directly with such a large competitor as GM, not to mention others that were soon to enter the market.

If James was to offer up a marketing strategy committed to Tesla's current product line, then he would need focus on strengthening the favorable associations of innovation, technology, and design, while anticipating that production and product reliability concerns may remain an ongoing problem, especially since service was so geographically limited for his brand.

James was forced to consider a new product rollout, mentioned earlier. If the product strategy pivoted to the Tesla Semi, then the firm may need to retool their current marketing strategy to meet the needs of the B2B marketplace. The Tesla Semi represented an entirely new market driven by different criteria than the passenger automobile market. Semi-truck fleets were commercial haulers that cared less about the amenities than the economics. While Tesla had not yet identified where the Semi would be manufactured, Musk was promising a savings payback in just two years.³³ The capital necessary to tool up for the Semi and support its launch would strain the firm's resources, but would offer healthy product margins. Additionally, if part of Tesla's mission was to reduce fossil fuel driven vehicles and emissions, then electric trucks offered a path to far greater impact than automobiles. Long haul semi-truck drivers log as many as 125,000 miles per year.³⁴ By contrast, the Federal Highway Administration reports that the average number of miles driven by automobiles was 13,476 miles.³⁵

For James to offer the most compelling marketing strategy, he would need to support his recommendations with evidence. James collected electric vehicles sales data (see Table 1 and Table 2) and overall market figures for the United States automobile market (see Table 3), in addition to semi-trucks (see Table 4).

Figure 2: 'In Musk We Trust.' Source - www.redbubble.com



Elon Musk Face - In Musk We Trust

Stickers

♡ ↗

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 Delivery

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Table 1: 2017 Total Sales of Electric Vehicles in the US and Worldwide

2017-US	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
Tesla Model S*	900	1,750	3,450	1,125	1,620	2,350	1,425	2,150	4,860	1,120	1,335	4,975	27,060
Chevrolet Bolt EV	1,162	952	978	1,292	1,566	1,642	1,971	2,107	2,632	2,781	2,987	3,227	23,297
Tesla Model X*	750	800	2,750	715	1,730	2,200	1,650	1,575	3,120	850	1,875	3,300	21,315
Toyota Prius Prime	1,366	1,362	1,618	1,819	1,908	1,619	1,645	1,820	1,899	1,626	1,834	2,420	20,936
Chevrolet Volt	1,611	1,820	2,132	1,807	1,817	1,745	1,518	1,445	1,453	1,362	1,702	1,937	20,349
Nissan LEAF	772	1,037	1,478	1,063	1,392	1,506	1,283	1,154	1,055	213	175	102	11,230
Ford Fusion Energi	606	837	1,002	905	1,000	707	703	762	763	741	731	875	9,632
Ford C-Max Energi	473	639	662	720	950	936	844	705	683	569	523	436	8,140
BMW i3	382	318	703	516	506	567	601	504	538	686	283	672	6,276
Fiat 500e**	752	590	785	541	473	359	395	290	285	310	215	385	5,380
BMW X5 xDrive40e	262	275	397	291	433	488	463	317	333	329	929	832	5,349
Chrysler Pacifica Hybrid**	12	0	0	335	705	355	125	425	475	875	570	720	4,597
BMW 330e	129	144	365	260	475	496	387	409	329	307	477	363	4,141
BMW 530e				13	147	239	343	345	511	596	872	706	3,772
VW e-Golf	332	293	342	307	381	232	308	317	187	203	289	343	3,534
Audi A3 Sportback e-tron	387	400	414	301	294	324	218	129	85	17	38	270	2,877
Hyundai Sonata PHV**	190	175	295	280	220	255	205	185	190	210	135	195	2,535
Volvo XC90 T8 PHEV	96	83	103	145	146	202	174	265	236	174	204	368	2,196
Kia Soul EV	117	152	171	167	129	100	145	300	255	210	207	204	2,157
Ford Focus Electric	56	228	407	125	132	110	148	131	131	115	121	113	1,817
Tesla Model 3*							30	75	117	145	345	1,060	1,772
Porsche Cayenne S-E	177	121	126	185	174	195	160	178	124	73	38	23	1,574
Kia Optima PHV	10	61	70	86	85	78	130	182	228	235	213	134	1,512
Honda Clarity BEV							34	15	52	34	459	527	1,121
Honda Clarity PHEV											5	898	903
Mercedes C350e	210	51	17	3	7	0	112	212	126	49	16	14	817
Mercedes B250e	53	56	50	66	46	46	81	58	87	59	31	111	744
BMW 740e	18	35	42	123	33	52	80	39	43	55	120	67	707
Mercedes S550e	55	51	60	81	83	81	124	32	35	16	22	26	666
smart ED	15	22	13	3	1	3	0	94	123	73	68	129	544
Volvo XC60 PHEV							13	65	97	100	82	174	531
BMW i8	50	58	49	23	18	22	55	29	27	33	44	80	488
Mini Countryman S E PHV						10	75	86	80	56	96	72	475
Mercedes GLE 550e	52	59	47	36	33	41	27	23	14	8	41	82	463
Hyundai IONIQ Electric			5	19	75	58	43	66	36	28	23	79	432
Cadillac CT6 PHV				8	16	20	22	23	27	27	29	35	207
Volvo S90 T8 PHEV									5	28	32	52	117
Mitsubishi Outlander PHEV												99	99
Chevrolet Spark EV	4	4	3	1	0	1	1	0	0	0	7	2	23
Porsche Panamera S-E	2	1	3	2	1	0	0	1	1	2	5	0	18
Cadillac ELR	3	0	2	2	0	7	2	1	0	0	0	0	17
Mitsubishi i-MiEV	0	1	3	2	0	0	0	0	0	0	0	0	6
InsideEVs	11,004	12,375	18,542	13,367	16,596	17,046	15,540	16,514	21,242	14,315	17,178	26,107	199,826
2016 Results	6,221	7,763	13,857	10,531	11,467	14,863	13,067	14,592	17,224	11,007	13,237	24,785	158,614
Worldwide*	41,372	53,561	94,650	71,762	91,417	102,130	92,835	104,225	124,197	125,447	148,903	176,618	1,227,117

Table 2: 2016 Total sales of Electric Vehicles in the US and Worldwide

2016-US	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
Tesla Model S*	850	1,550	3,990	800	1,200	3,700	1,954	2,852	4,350	700	1,100	5,850	28,896
Chevrolet Volt	996	1,126	1,865	1,983	1,901	1,937	2,406	2,081	2,031	2,191	2,531	3,691	24,739
Tesla Model X*	270	270	1,860	795	1,600	2,145	750	1,833	3,200	725	900	3,875	18,223
Ford Fusion Energi	581	932	1,238	1,331	1,453	1,700	1,341	1,422	1,652	1,372	1,817	1,099	15,938
Nissan LEAF	755	930	1,246	787	979	1,096	1,063	1,066	1,316	1,412	1,457	1,899	14,006
Ford C-Max Energi	350	490	610	607	538	630	755	707	689	571	721	1,289	7,957
BMW i3	182	248	332	814	696	608	1,479	1,013	391	442	629	791	7,625
BMW X5 xDrive40e	181	345	313	655	500	583	649	876	482	406	436	569	5,995
Fiat 500e**	305	210	455	395	425	280	225	360	690	745	590	650	5,330
Audi A3 Sportback e-tron	327	243	332	326	361	353	349	346	312	348	394	589	4,280
VW e-Golf	328	198	86	326	269	248	344	454	529	407	305	443	3,937
Hyundai Sonata PHV**	175	200	275	250	235	225	375	235	260	255	285	325	3,095
Chevrolet Spark EV	139	216	252	419	394	359	333	292	315	260	39	17	3,035
Toyota Prius Prime											781	1,641	2,422
Porsche Cayenne S-E	146	172	244	237	191	176	148	197	131	138	179	152	2,111
Volvo XC90	226	176	178	150	110	166	178	176	148	142	161	204	2,015
Kia Soul EV	81	60	79	139	120	134	179	153	217	190	179	197	1,728
BMW i8	32	54	89	130	146	169	166	145	158	199	173	133	1,594
Ford Focus Electric	66	81	110	81	54	54	58	75	82	73	66	101	901
BMW 330e	0	0	19	25	67	26	81	51	54	92	215	240	870
smart ED	48	54	70	66	75	53	62	55	44	43	47	40	657
Mercedes B250e	58	37	66	56	49	44	50	57	51	58	52	54	632
Chevrolet Bolt EV												579	579
Mercedes S550H PHV	19	36	12	29	27	27	32	30	41	174	52	71	550
Cadillac ELR	67	91	104	95	45	94	15	6	6	3	5	3	534
Porsche Panamera S-E	27	33	23	25	26	22	21	59	28	38	88	3	393
Mercedes GLE 550e						19	30	24	26	19	30	83	231
Mercedes C350e												171	171
Mitsubishi i-MiEV	2	5	1	6	2	4	20	25	17	4	5	3	94
Toyota Prius PHV	10	6	7	4	4	11	4	2	4	0	0	0	52
BMW 740e												23	23
Other *	0	0	1	0	0	0	0	0	0	0	0	0	1
InsideEvs	6,221	7,763	13,857	10,531	11,467	14,863	13,067	14,592	17,224	11,007	13,237	24,785	158,614
2015 Results	6,057	6,951	10,341	9,094	11,540	10,364	8,951	8,972	10,134	9,926	10,070	13,699	116,099
Worldwide*	36,702	37,019	59,510	51,772	56,177	69,170	65,122	65,707	79,421	70,069	82,252	104,576	777,497

Table 3: U.S. Automobile Sales (Source: Statista.com - <https://www.statista.com/statistics/199974/us-car-sales-since-1951/>)

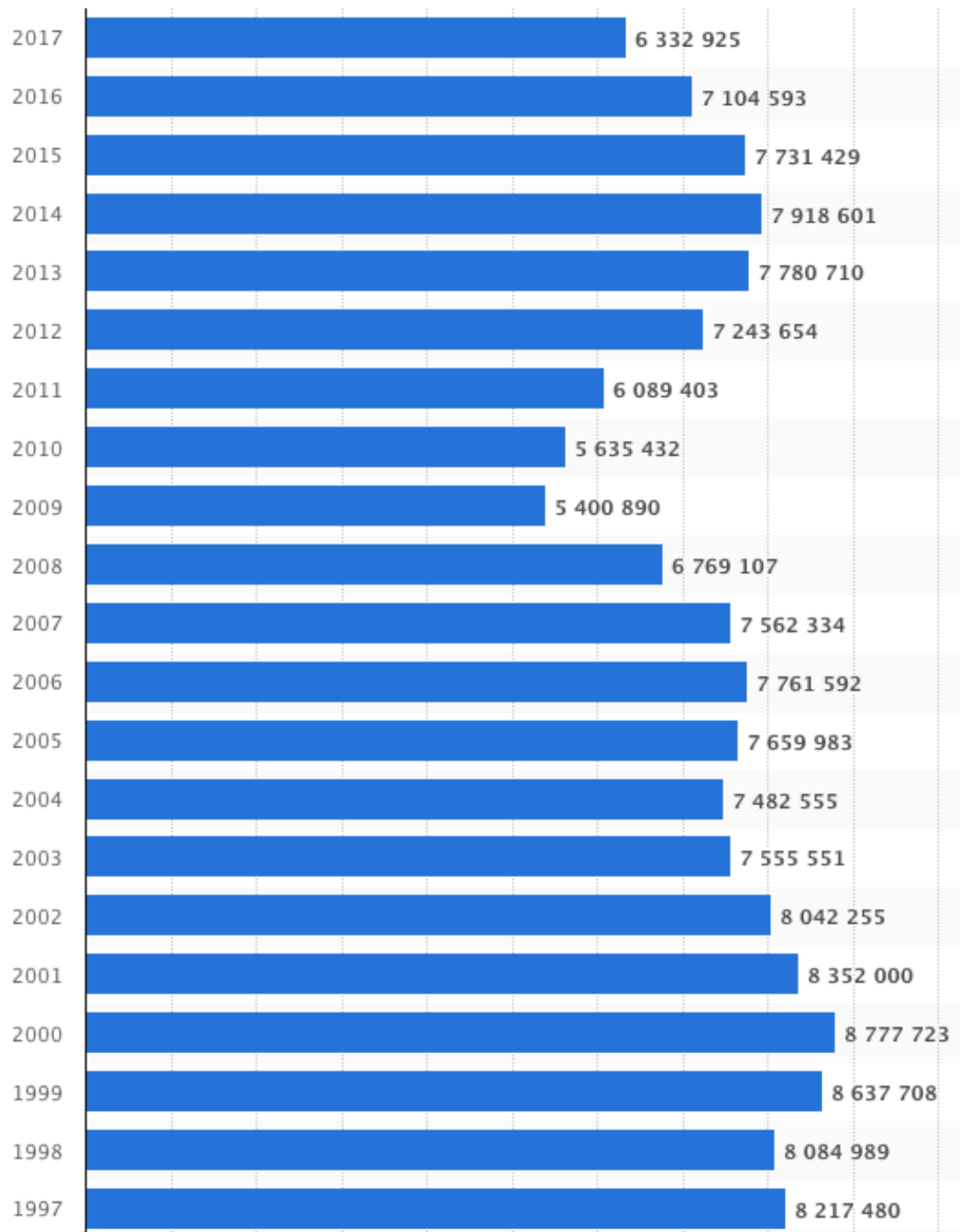


Table 4: Heavy Duty Truck Sales. Source: U.S. Dept. of Energy³⁶

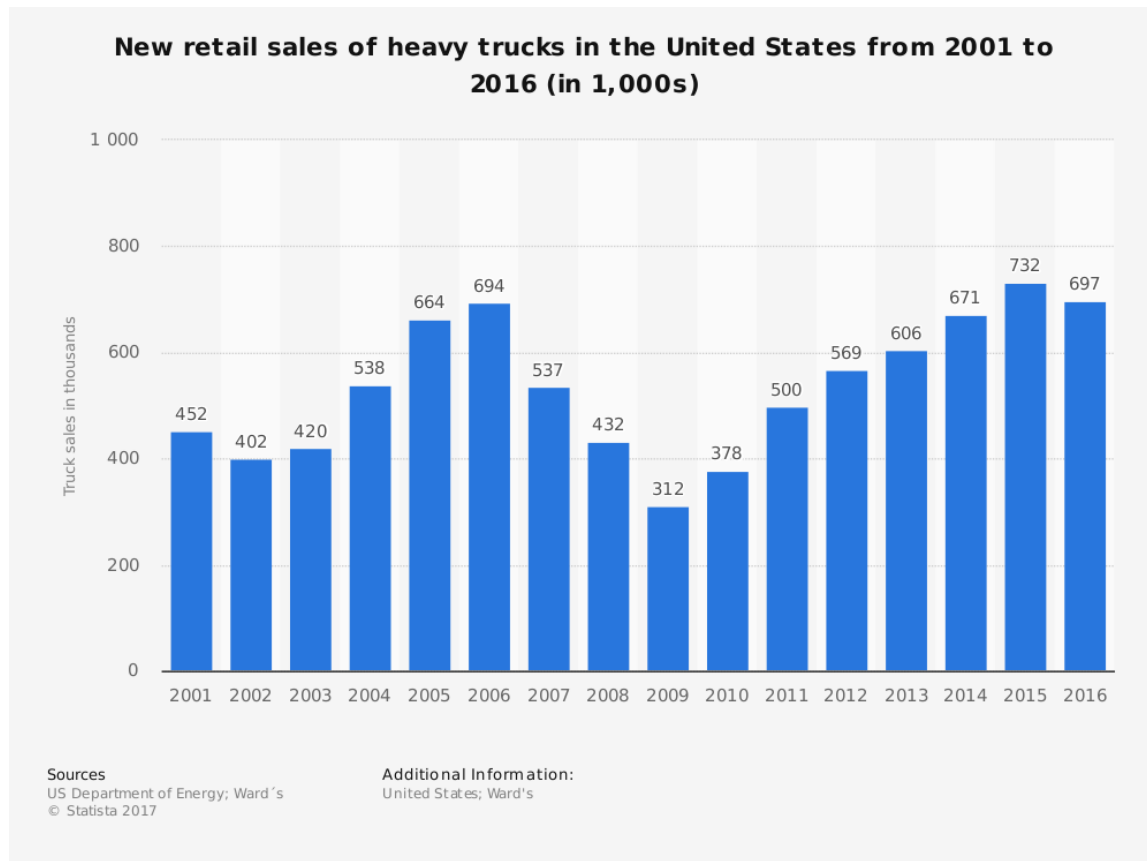


Table 5: Tesla Production. Source: Tesla³⁷

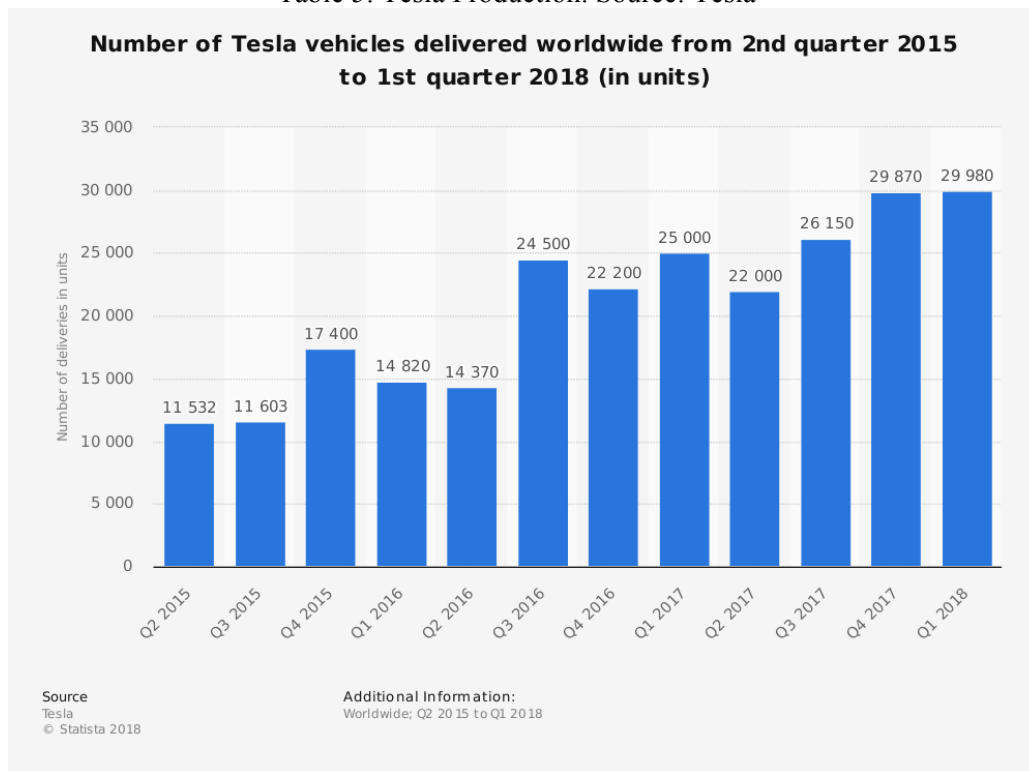


Image 1: Tesla Lineup. Source: Autoevolution.com (<https://www.autoevolution.com/news/tesla-model-y-to-complete-elon-musks-s3xy-lineup-in-2019-124947.html>)

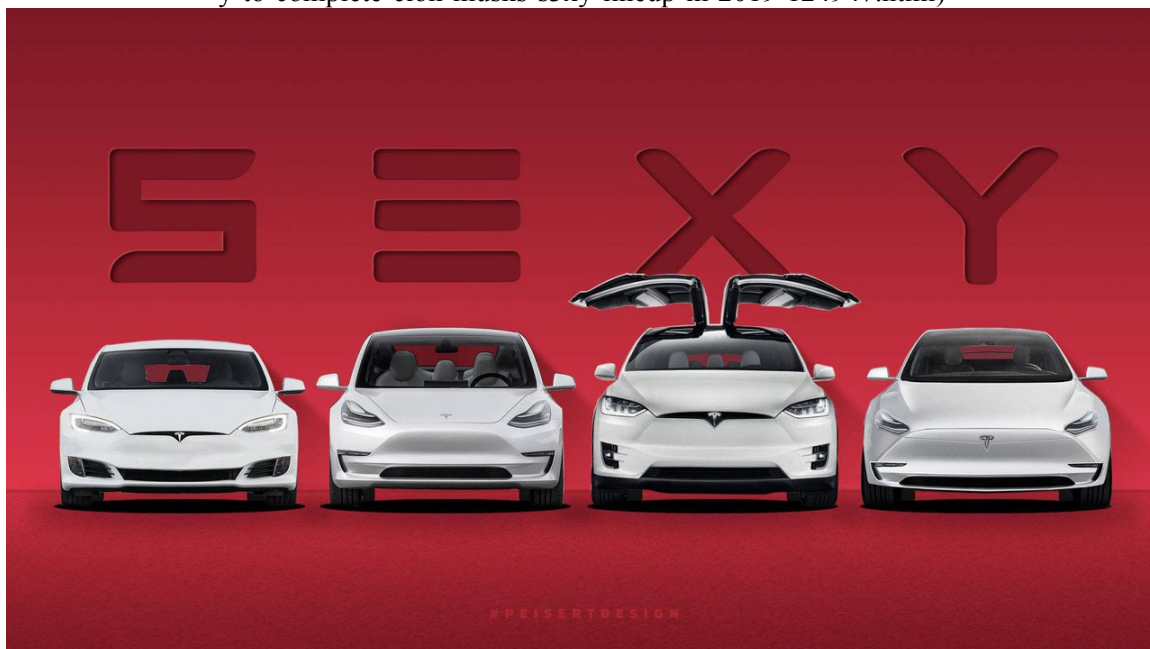


Image 2: Tesla Semi. Source: The Street.com (<https://www.thestreet.com/story/14395781/1/five-takeaways-tesla-truck-roadster-event.html>)

New Tesla Semi Features

LOWEST COST OF OWNERSHIP
Electric energy costs are half those of diesel. With fewer systems to maintain, the Tesla Semi provides \$200,000+ in fuel savings and a two-year payback period.

ACCELERATION 0-60 MPH
WITH 80K LBS
20 sec

SPEED UP A 5% GRADE
65 mph

MILE RANGE
300 or 500 miles

POWERTRAIN
**4 Independent Motors
on Rear Axles**

ENERGY CONSUMPTION
Less than 2 kWh / mile

FUEL SAVINGS
\$200,000+

“Four independent motors provide maximum power and acceleration and require the lowest energy cost per mile.”



Source: Tesla

TheStreet.

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